



दून विश्वविद्यालय

DOON UNIVERSITY

मोथरोवाला रोड, केदारपुर, पो०ओ० डिफेन्स कालोनी,
देहरादून-248001 (उत्तराखण्ड) भारत

Mothrowala Road Kedarpur, P.O. Defence Colony,
Dehradun-248001 (Uttarakhand) INDIA.



Doon University

**Programme Outcomes (POs)
&
Course Outcomes(COs)**


REGISTRAR
DOON UNIVERSITY
DEHRADUN (INDIA)

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Management

BCom (Honours)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-
248001

PROGRAMME OUTCOMES

PO1: A bachelor's degree in commerce results in thorough understanding of investment, insurance, banking, human resource management, business and corporate law, accounting, management, tax, and various other fields of commerce. As a result, this curriculum assists students in laying a solid foundation for further studies in commerce and in meeting the demands of the business, insurance, and banking sectors, which are looking for young people qualified for employment.

PO2: Students who complete this degree will be prepared for the workplace, especially for jobs of the future. The student will experience working in the real world firsthand.

PO3: Students completing this programme will be able to display practical skills required to work as consultants, audit assistant & other financial supporting services & will be able to become a successful professional in these fields.

PO4: Completion of this programme will also enable the students to demonstrate leadership qualities required to lead the diverse teams & small groups to achieve the common goals of the organization.

PROGRAMME SPECIFIC OUTCOMES

At the end of this course, students should attain:

PSO1: Capability of executing comprehensive knowledge and understanding of one or more discipline that form part of commerce

PSO2: Ability to communicate long standing unsolved problems in commerce.

PSO3: Ability to show the importance of commerce as precursor to various market developments since the beginning of the civilization

PSO4: Ability to engage in reflective and independent thinking by understanding the concepts in every area of Commerce and Business

PSO5: Ability to examine the results and apply them to various problems appearing in different branches of Commerce and Business.

PSO5: Capability to deduce a business problem and apply the class room learning into practice to offer a solution for the same

PSO6: Capabilities to analyze and synthesize data and derive inferences for valid conclusion; iii. Able to comprehend solution to sustain problems originating in the diverse management areas such as Finance, Marketing, Human Resource, and Taxation

PSO7: Ability to search for, locate, extract, organise, evaluate, and use or present information that is relevant to a particular topic

PSO8: Ability to identify the developments in various branches of Commerce and Business. f.

Information and Communication Technology (ICT) digital literacy Capability to use various technical ICT tools (like spreadsheet) for exploring, analysis, and using the information for business purposes.

COURSE OUTCOMES:

First Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	COC101	Principles of Management	<ul style="list-style-type: none"> ● To provide the student with an understanding of basic management concepts, principles and practices. ● After completing the course, the student will have the ability to apply basic Business Management principles to solve business and industry related problems.
Core	COC102	Basic Accounting	<p>Upon completion of this course student will be able to</p> <ul style="list-style-type: none"> ● Understand the accounting principles, concepts and convention and to identify various subsidiary books in accountancy ● Analyse the essentials of bill of exchange and its accounting treatment. ● Understand the methods of calculating profits ● Understand the various methods of calculating depreciation.
Core	COC103	Micro Economics	<ul style="list-style-type: none"> ● To acquaint students with the fundamental concepts of microeconomics. ● To focus on the study of producer behavior and gain insights into how firms make decisions about production, cost management, and pricing strategies. ● To provide a comprehensive understanding of how firms behave under different market structures.
Generic Elective (GE)	COG101	Business Environment	<ul style="list-style-type: none"> ● To familiarize students with various type of business environment and to study the impact of all these environments with reference to India and the world.
Generic Elective (GE)	COG102	Leadership	<ul style="list-style-type: none"> ● To know and understand critical underlying theories and concepts that guide the formation, and development of effective leadership.

SEC	COS101	Business Communication	<ul style="list-style-type: none"> • To acquire skills in reading, writing, comprehension and communication, and to use electronic media for business communication. • To place particular emphasis on assessing the impact of these environments. • To focus on both India and the global context and examine how business environments affect enterprises in the Indian market while also considering their impact on a broader global scale.
SEC	COS102	Basics of Computer	<ul style="list-style-type: none"> • Understand the basic fundamentals of computer. • Analyse the need and objectives of Computer Networking. • Gain knowledge about the concept and basic terminologies of Operating Systems. • Understand the types of computer's interface. • Understand the useful internet terminologies and their applications

Second Semester

Course Type	Course Code	Course Title	Course Outcomes
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Core	COC151	Business Policy and Strategic Management	<ul style="list-style-type: none"> ● To know, understand, and apply the strategic management process to analyze and improve organizational performance ● To understand the impact of social, economic and political forces on the design, planning and implementation of organization's policy. ● To critically examine the management of the entire enterprise from the top management viewpoints
Core	COC152	Financial Reporting and Analysis	<ul style="list-style-type: none"> ● To describe the conceptual framework of financial reporting to have an understanding of components of financial statements. ● To identify major disclosures related to financial statements. ● To analyze and interpret financial statements of companies. ● To gain understanding of emerging areas in financial reporting.
Core	COC153	Macro Economics	<ul style="list-style-type: none"> ● To provide students with a foundational understanding of the basic concepts of macroeconomics. ● To acquaint students with modern tools of macro-economic analysis. This involves introducing students to advanced quantitative and analytical techniques used to assess economic trends, policy impacts, and macroeconomic stability. ● To equip students with the ability to not only understand the economic forces at play on a national and global scale but also to apply modern analytical tools to assess and predict economic outcomes.

Generic Elective (GE)	COG151	Money and Banking	<ul style="list-style-type: none"> ● To understand the relationship between the banker and the customer, how to apply crossing and endorsement in cheques ● To understand about commercial banks and their functions ● To evaluate the elements of modernized banking. ● To understand the functions of RBI and methods of credit control.
Generic Elective (GE)	COG152	Entrepreneurship and Small Business Management	<ul style="list-style-type: none"> ● The objective of this course is to understand the terminologies associated with the field of Entrepreneurship along with their relevance.
SEC	COS151	Personality Development	<ul style="list-style-type: none"> ● Demonstrate an understanding of the foundations and importance of E-commerce ● Demonstrate an understanding of retailing in E-commerce ● Analyze the impact of E-commerce on business models and strategy ● Recognize and discuss global E-commerce issues
SEC	COS152	Computer and E- Business	<ul style="list-style-type: none"> ● To demonstrate an understanding of the foundations and importance of E-commerce ● To demonstrate an understanding of retailing in E-commerce ● To analyze the impact of E-commerce on business models and strategy ● To recognize and discuss global E-commerce issues

Third Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	COC201	Business Statistics	<ul style="list-style-type: none"> ● To familiarize students with the basic statistical tools used to summarize and analyze quantitative information for decision making.

Core	COC202	Cost Accounting	<ul style="list-style-type: none"> To acquaint the students with basic concepts used in cost accounting and various methods involved in cost ascertainment systems and use costing data for planning, control & decision-making..
Core	COC203	Business Regulatory Framework	<ul style="list-style-type: none"> The objective is to explain various important laws pertaining to functioning of Business in India. These are laws according to which the Indian Businesses are governed.
Generic Elective (GE)	COG201	Business Accounting	<ul style="list-style-type: none"> The objective of this course is to teach Corporate Accounts and how to prepare corporate accounts.
Generic Elective (GE)	COG202	Finance for Everyone	<p>After completion of the course, learners will be able to:</p> <ul style="list-style-type: none"> explain the importance of financial literacy and the institutions providing financial services. prepare a financial plan, budget and manage personal finances. open, avail and manage services offered by banks. open, avail and manage services offered by post offices. plan for life insurance and property insurance. choose instruments for investment in shares
Generic Elective (GE)	COE101	Management Accounting	<ul style="list-style-type: none"> To provide students with the working knowledge of Management Accounting and its application.
DSE	COE102	Sales Management & Advertising	<ul style="list-style-type: none"> The objective of the course is to teach the basics of sales management and the concept of advertising.
SEC	COS201	Analytic Ability and Digital Awareness	<ul style="list-style-type: none"> Familiarize with analogy, number system, set theory and its applications, number system and puzzles. To understand the basics of Syllogism, figure problems, critical and analytical reasoning. Familiarize with word processing application and worksheet . To understand the basics of web surfing and cyber security

SEC	COS202	Computerized Accounting System	<p>The students shall be able to:</p> <ul style="list-style-type: none"> • understand manual and computerised accounting system environments. • create a structure of a computerised accounting system for a business firm. • record day to day business transactions in Computerised Accounting System • make necessary adjustments for Goods and Service Tax (GST) while recording business transactions • generate various accounting reports for analysis and decision making
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Fourth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	COC251	Financial Management	<ul style="list-style-type: none"> • To familiarize the students with the principles and practices of financial management
Core	COC252	Company Law	<ul style="list-style-type: none"> • To impart basic knowledge of the provisions of the Companies Act 2013 and the Depositories Act, 1996. Case studies involving issues in corporate laws are required to be discussed.
Core	COG253	Principles of Marketing	<ul style="list-style-type: none"> • The objective of this course is to provide basic knowledge of concepts, principles, tools and techniques and types of marketing.
Generic Elective (GE)	COG251	Accounting for Managerial Decision	<p>After completion of the course, learners will be able to:</p> <ul style="list-style-type: none"> • examine the fundamentals of accounting and its branches. • apply financial statements and their uses in managerial decision making. • evaluate the budgetary control system as a tool of managerial planning and control. • evaluate the concept of cost-volume-profit analysis for use in short-term decision making. • relate the concept of relevant cost and make decisions related to different business situations

			using marginal costing and differential costing techniques.
Generic Elective (GE)	COG252	Course Title: E Commerce and Digital Marketing	<ul style="list-style-type: none"> To enable the student to become familiar with the mechanism for conducting business transactions through electronic means
DSE	COE103	Financial Markets and Services	<ul style="list-style-type: none"> This course will provide the students an opportunity to learn and understand about the financial markets, services and its working
DSE	COE104	Banking Law and Practice	<ul style="list-style-type: none"> To provide students with the working knowledge of Banking Law and Practices
SEC	COS251	E-Filing of Returns	<ul style="list-style-type: none"> To examine the basic concepts of income tax applicable to an individual assessee; To analyse and explain the provisions when business or professional income is computed on estimated basis; To evaluate and understand the electronically furnishing of the return of income; To comprehend the provisions of TDS; and To evaluate and understand the electronically furnished TDS return
SEC	COS252	Personal Financial Planning	<ul style="list-style-type: none"> To understand the meaning and appreciate the relevance of financial planning. To understand the concept of investment planning and its methods. To examine the scope and ways of personal tax planning. To analyse insurance planning and its relevance. 5.To develop insight into retirement planning and its relevance.

Fifth Semester

Course Type	Course Code	Course Title	Course Outcomes
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Core	COC301	Business Mathematics	<ul style="list-style-type: none"> To familiarize the students with the basic mathematical tools with emphasis on applications to business and economic situations.
Core	COC302	Indirect Tax- GST	<ul style="list-style-type: none"> To provide students with the working knowledge of principles and provisions of GST to understand the relevance of GST and its contribution for economic development.
Core	COC303	Fundamentals of HRM	<ul style="list-style-type: none"> To acquaint students with the techniques and principles of managing human resource of an organization
DSE	COE105	Financial Analysis	To understand the Financial Analysis Practices with relevant practical examples.
DSE	COE106	Financial Investment	To familiarize the students with different investment alternatives, introduce them to the framework of their analysis and valuation and highlight the role of investor protection.
DSE	COE107	Income Tax Law and Practice	It enables the students to know the basics and various heads of Income Tax Act.

Sixth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	COC351	Public Finance	<ul style="list-style-type: none"> This Paper highlights the importance of Public Finance in an Indian Economy. It covers Public Expenditure, Public Revenue and Public Taxation and Public Debt.
Core	COC352	International Marketing	<ul style="list-style-type: none"> To understand basics of International Marketing concepts and theories. To analyze the importance of international markets for a business
Core	COC353	Auditing and Corporate Governance	<ul style="list-style-type: none"> To provide knowledge of auditing principles, procedures and techniques in accordance with current legal requirements and professional standards.

DSE	COE108	Advance Corporate Accounting	To provide students with the working knowledge of management Accounting and its application.
DSE	COE109	Business Tax Procedures and Management	To provide basic knowledge of business tax procedures and management under different provisions of the Income tax
DSE	COE110	International Finance	<p>After completion of the course, learners will be able to:</p> <ul style="list-style-type: none"> • Describe the International Monetary System and the nature and scope of international finance. • Understand Foreign Exchange Markets. • Analyse the factors affecting the exchange rates. • Understand the International Financial Markets and Instruments. • Evaluate various kinds of risks due to fluctuation in the exchange rate and management of these risks. • Analyse issues in International Capital Budgeting

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Management

MBA (Master of Business Administration)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-
248001

PROGRAMME OUTCOMES

The Master of Business Administration (MBA) program is designed to attain the following objectives-

PO1: To develop successful management professionals who can demonstrate effective decision-making skills with entrepreneurial acumen and promising career in various related domains.

PO2: To develop professionals with right set of social and technical skills required in analyzing the problems and interpreting the desired results.

PO3: To develop empathetic and emotionally intelligent leaders who can manage diversity and retain high value systems in the organizations.

PO4: To infuse creativity and out of the box thinking among the graduates and enable them to make right use of the latest technology in creating high performing organizations.

PO5: To develop sensitivity towards environment and prepare them think about sustainable business practices.

PO6: To develop professionals of high integrity and values with ethical conduct of business and concern for the marginalized section of the society.

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO 01: To nurture industry ready professionals with business and management acumen, who shall hold high degree of human values and social consciousness in their professional and personal lives.

PSO 02: To enable managerial decision making through the application of knowledge of management discipline

PSO 04: To improve the awareness about functioning of local and global business environment and society which helps in recognizing the functioning of businesses, identifying potential business opportunities, and exploring the entrepreneurial opportunities.

PSO 05: To develop the skills on analyzing the business data, application of relevant aspects, and problem solving in other functional areas such as marketing analytics, business strategy, finance and human resources.

PSO 06: To understand leadership roles at various levels of the organization and lead teams across organizational boundaries and demonstrate leadership qualities, maximize the usage of diverse skills of team members in the related context.

COURSE OUTCOMES:

Semester 1			
Course type	Course code	Course title	Course Outcomes
core	MBA701	Management Theory and Practice	<ul style="list-style-type: none"> ● To understand and demonstrate the roles-skills of a manager and functions of management ● To develop insight on the thoughts and principles of eminent management thinkers ● To analyse organization structure and situations for implementation of managerial principles and practices
core	MBA702	Accounting for Managerial Decisions	<ul style="list-style-type: none"> ● To fulfill its basic objective, this course is designed to enable students to learn, explain, and integrate the fundamental concepts, principles, and techniques of accounting. ● To prepare students to logically interpret and apply financial and accounting information in practical business situations. ● To teach students how to evaluate and compare various financial statements to appraise the financial soundness of firms.
core	MBA703	Managerial Economics	<ul style="list-style-type: none"> ● To achieve its objective, this course is designed to acquaint students with insights from Economic Theory as applied in various aspects of managerial decision making. ● To equip students with the necessary knowledge and analytical tools. ● To navigate and excel in today's competitive global business environment.
CORE	MBA704	Business, Society and Law	<ul style="list-style-type: none"> ● To develop broad knowledge of business environment and its components ● To outline the impact of economic policies on the prospects of a business

CORE	MBA705	Managerial Communication	<ul style="list-style-type: none"> ● To gain an overall perspective on the nature of human relationships and its impact on communication ● To understand the communication-process model to appreciate organizational communication ● To analyze the effectiveness of human communication in terms of intrapersonal and interpersonal variables of interpersonal communication ● To learn three Models of Interpersonal Communication and apply them to increase their communicative effectiveness by understanding the underlying relationship on which interpersonal communication is based <ul style="list-style-type: none"> ● To learn to attain and develop interpersonal influence and influence others to develop and utilize their talents
CORE	MBA706	Business Statistics and Research Methodology	<ul style="list-style-type: none"> ● To understand various quantitative and statistical methods ● To compute and analyze data using these methods ● To demonstrate use of quantitative and statistical techniques for data analysis

SEMESTER-2

CORE	MBA809	Financial Management	<ul style="list-style-type: none"> • To appraise and analyze the role and functions of a finance manager • To assess the utility of concepts and principles of Financial Management from the point of view of wealth maximization objective of a firm • To apply the course concepts in analyzing capital structure and project investment decisions. • To demonstrate the application of basic principles of Financial Management in varying situations of risk and return trade-offs, cash management, credit and inventory management. <p>To evaluate the outcomes of a firm's decision to use various financial assets in short and long term.</p>
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CORE	MBA810	Marketing Management	<ul style="list-style-type: none"> ● To understand the fundamentals of Marketing. ● To apply basic frameworks of Marketing Management for managerial decision making. ● To appreciate the challenges involved in marketing decisions concerning 4 P's – product, price, place and promotion.
CORE	MBA811	Human Resource Management	<ul style="list-style-type: none"> ● To understand the importance of human resources as competitive advantage for an organization. ● To link organization strategy with human resource practices and outcomes in an organization. ● To learn the techniques of HR functions and its implementation aspects to motivate employees for performance and retention. <p>learn the implementation of HR practices and outcomes thorough discussion of real examples with case studies.</p>
CORE	MBA812	Operations Management	To introduce the students with the intricacies of Operations Management. The course discusses the importance of planning, organizing and
			controlling aspects in Operations Management
CORE	MBA813	Global Business Management	<ul style="list-style-type: none"> ● To recommend strategies to support management decisions in a global context. ● To develop, execute and analyze a comprehensive business plan in alignment with the organization's local and global initiatives or goals. ● To conduct global and domestic business with diverse populations using culturally appropriate methods in compliance with relevant national and international laws, policies, regulations, and ethical practices. ● To assist in the importing and exporting functions of a business.

CORE	MBA814	Organizational Behaviour	<ul style="list-style-type: none"> ● To describe the field of organization behavior and its relevance at workplace ● To predict human behavior at workplace ● To analyze the individual and group behavior dynamics in organization ● To learn to apply behavioural theories
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SEMESTER 3

CORE	MBA917	Strategic management	<ul style="list-style-type: none"> ● To develop understanding of how firms gain and sustain competitive advantage ● To analyze strategic business situations, formulate and implement strategy ● To learn how to assess business risk and develop ability to make sound business decisions
CORE	MBA918	Managing Innovation and Entrepreneurship	<ul style="list-style-type: none"> • To develop understanding of key concepts of entrepreneurship and its application in business opportunities • To learn creative process and design thinking for innovation • To plan business models and strategies for entrepreneurial venture • To develop insight and learn application of customer value proposition, market research, financing, and IPR for entrepreneurship
CORE	MBA919	Corporate tax planning	
CORE	MBA812	Operations Management	<ul style="list-style-type: none"> ● To accomplish its objective, this subject seeks to introduce students to the intricacies of Operations Management. ● To provide a thorough understanding, the course explores the significance of planning, organizing, and controlling aspects within the realm of Operations Management. ● To equip students with the skills required to excel in the effective management and optimization of business operations.

CORE	MBA813	Global Business Management	
CORE	MFM920	Financial markets and services	<ul style="list-style-type: none"> ● To analyze & Apply knowledge of Financial System and markets ● To analyze and Apply various Financial and various Merchant Banking Services and their Growth ● To analyze Credit Rating systems and evaluate Factoring services ● To analyse Leasing types and Evaluate leasing vs. buying
Finance elective	MFM921	Working Capital Management	<ul style="list-style-type: none"> ●
CORE	MMK922	CONSUMER behaviour	<ul style="list-style-type: none"> ● To develop an understanding of factors that influence consumer buying behavior. ● To understand the influence of socio-cultural factors on consumer behavior. <ul style="list-style-type: none"> ● To learn how to base marketing decisions on consumer insights.
CORE	MMK923	Marketing Research	<ul style="list-style-type: none"> ●
CORE	MMK924	Advertising & Brand Management	<ul style="list-style-type: none"> ● To understand the fundamentals of Advertising and Brand Management. ● To comprehend the role of advertising agencies. ● To appreciate the key challenges in creating and managing brands
CORE	MHR925	Learning and Development	<ul style="list-style-type: none"> ● To understand and discuss the concepts of learning and development and translate learning strategy into action. ● To identify the key strategies in training and their needs assessment for organizational learning and development. ● To analyze how to implement the theories of learning and transfer of training. ● To discuss various training evaluation methods for the effectiveness and trends in Learning and development ● To evaluate the process of overall future learning and development

CORE	MHR926	Strategic Human Resource Management	<ul style="list-style-type: none"> • To perceive the human resource management from a strategic perspective and will get information about linking the HRM functions to corporate strategies in order to understand HR as a strategic resource. • To identify the relationship between strategic human resource management and organizational performance. • To realize the application of theories and concepts relevant to strategic human resource management in contemporary organizations.
CORE	MHR927	Leadership Skills and Practices	<ul style="list-style-type: none"> • To develop critical thinking skills. • To develop an understanding of change processes and be able to think critically about obstacles to change. • To understand and be able to use a process for decision making.
CORE	MOS928	Supply Chain Technology and Systems	<ul style="list-style-type: none"> • To develop the students' critical awareness of the contemporary debates relevant to supply chain management using manufacturing and service examples • To relate and apply supply chain management concepts and techniques to analysis of real case activity, simulations and game activity between the organizations operating in the supply chain network <ul style="list-style-type: none"> • To formulate practical solutions and procedures for the strategy development, planning and control of manufacturing and service-related supply chain management at all levels of operations (SME/Large/MNE).
CORE	MOS929	Fundamentals of Supply Chain Management and Logistics Management	<ul style="list-style-type: none"> • To understand the fundamentals of elements and functions of supply chain, role of drivers and demand forecasting. • To apply various techniques of inventory management and their practical situations. • To analyze how supply chain decisions related to facility location can be applied to various industries and designing

CORE	MOS930	Service Operations Management	<ul style="list-style-type: none"> ● To be able to apply the concept of operations management in manufacturing and service sector and will be able to plan and implement production and service-related decisions. ● To be able to plan production schedules and plan resources (material and machine) required for production ● To be able to design maintenance schedules in manufacturing units, identify and propose material handling equipment and implement industrial safety rules
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SEMESTER IV

CORE	MBA1033	BUSINESS ANALYTICS	<ul style="list-style-type: none"> ● To understand various quantitative and statistical methods ● To compute and analyze data using these methods ● To demonstrate use of quantitative and statistical techniques for data analysis.
CORE	MBA1031	INTERNATIONAL FINANCIAL MANAGEMENT	<ul style="list-style-type: none"> ● To understand the international financial environment ● To apply & evaluate exchange rate regimes & arbitrage process ● To evaluate alternatives to decide risk exposures ● To apply funding & borrowing options to take financial decisions in MNCs. ● To evaluate capital budgeting decisions.
CORE	MBA1032	SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT	<ul style="list-style-type: none"> ● To develop a strategic perspective by understanding the principles of financial investment decisions across various avenues of investment. ● To provide students with the required acumen to evaluate the investment environment for different avenues of investment and to formulate strategies for investing in equities, bonds, and other securities. ● To gain the ability to revise and reconstruct portfolios that consist of various securities.

CORE	MBA1033	FINANCIAL DERIVATIONS	<ul style="list-style-type: none"> ● To understand terminologies and concepts of financial Derivatives ● To apply techniques of applying forwards and futures trading mechanism using hedging strategies. ● To analyze options contracts using various pricing tools ● To evaluate different options trading strategies
CORE	MBA1036	Services Marketing	<ul style="list-style-type: none"> ● To differentiate the Segmentation, Targeting, Positioning process in services. ● To illuminate the students about the service quality dimensions and SERVQUAL Model. ● To apprehend the overview and different strategies for marketing of services.
CORE	MMK1037	International & Rural Marketing	<ul style="list-style-type: none"> ● To understand the forces that shape the international markets. ● To comprehend the theoretical frameworks
			<p>and the challenges of international marketing.</p> <ul style="list-style-type: none"> ● To appreciate the nature and peculiarities of rural markets. <p>devise suitable rural marketing plan and practices.</p>
CORE	MMK1038	Sales, distribution, & Retail Management	<ul style="list-style-type: none"> ● To understand the importance of retailing. ● To identify various formats of retailing. ● To comprehend the store design, location, and operation related issues in retail industry
CORE	MHR1041	Performance Management	<ul style="list-style-type: none"> ●
CORE	MHR-1042	Cross- Cultural Management	<ul style="list-style-type: none"> ● To understand the concepts of diversity, components of culture. ● To know the importance of diversity in organizations. ● To be able to implement various concepts of cross-cultural management in motivating and leading diverse teams.
CORE	MHR1043	Industrial and Labour Legislation	<ul style="list-style-type: none"> ● To comprehend Indian statutory provisions for social security and their application ● To evolve and promote safe and healthy working conditions in work laces ● To develop an understanding of the legal provisions for administration of compensation to employees

CORE	MOS1046	Applied Operations Research and Supply Chain Analytics	<ul style="list-style-type: none"> • ·To understand the process and information required for preparing the different types of supply chain metrics • · To understand the insights on supply chain • · To enhance the Resource planning models • · To understand the supply chain strategic of quality planning and control • To analyze the supply chain tools and system optimization.
CORE	MOS1048	Strategic Operations and Supply Chain Management	<ul style="list-style-type: none"> • To build tools and frameworks to improve core business processes • To deliver superior managerial performance with significant business impact • To improve organisational performance in international as well as domestic markets • To formulate practical ideas, models and tools of leadership and strategy, which will help examine supply chain management systems
CORE	MBA1052	Capstone Project	<ul style="list-style-type: none"> • To study in depth a topic of particular interest to the student, within the field of business. • To plan, design, execute and report a significant piece of individual research. • To apply the processes involved in research, such as obtaining information from people, securing their co-operation, analyzing and evaluating data, framing recommendations, and other methods of field study and data collection. • To communicate, via a report, complex ideas and information in a coherent and structured manner.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Management

BBA (IMBA Five Year)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-
248001

PROGRAM OUTCOMES:

PO1 Acquire in-depth knowledge of various management fundamentals, theories, and principles, related to functional areas of management, and develop specific skills related to specialization. areas including accounting, marketing, finance, operations, and management.

PO2 Identify, formulate, and critically investigate complex business problems relevant to the prevailing business scenario by applying research-oriented knowledge, data analysis and interpretation by using modern tools and techniques.

PO3 Adapt to rapidly changing environment by nurturing the spirit of creativity and entrepreneurship while giving a sense of direction to future business.

PO4 Develop skills required for professional management practice while being socially responsible and value-driven citizens committed to sustainable development.

PO5 Evaluate and integrate ethical considerations coupled with value-based leadership to create productive leaders in the business world and managerial skills and knowledge to successfully handle managerial projects with cost effectiveness.

PO6 Acquire knowledge in the domains of HR, Marketing and Finance from global perspective and develop innovative/entrepreneurial skills for becoming a successful manager/entrepreneur.

PO7 Able to recognize the need for independent and life-long learning in the broadest context of technological change and develop leadership abilities and the capacity to lead teams and organizations effectively.

PO8 Cultivate problem-solving skills to analyze complex business issues and make informed decisions and develop an understanding of ethical principles and demonstrate ethical decision-making in business contexts.

COURSE OUTCOMES:

FUNDAMENTALS OF MANAGEMENT (IMBA- 101)

CO1 To demonstrate a clear understanding of the fundamental principles and theories of management, including planning, organizing, leading, and controlling, as well as their practical applications in various organizational settings.

CO2 To analyze different types of organizational structures and their advantages and disadvantages, enabling them to evaluate and recommend suitable structures for different business scenarios.

CO3 To enhance leadership and communication skills, enabling them to effectively lead teams, resolve conflicts, and communicate with employees, colleagues, and superiors within an organization.

CO4 To apply various decision-making and problem-solving techniques to address real-world managerial challenges.

CO5 To identify and analyze contemporary management issues and challenges, such as diversity and inclusion, ethical decision-making, global business environments, and the impact of technology on management practices.

COMPUTER APPLICATIONS IN BUSINESS (IMBA-102)

CO1 To gain proficiency in using a variety of software applications commonly used in business environments. This may include word processing, spreadsheet software, presentation software, and database management.

CO2 To learn how to collect, analyze, and interpret data using computer tools. They will be able to create graphs, charts, and reports to effectively communicate their findings.

CO3 To understand how information systems are used in business operations, including inventory management, customer relationship management, and enterprise resource planning (ERP) systems. They will also be able to use and navigate such systems effectively.

CO4 To develop the ability to create professional documents, presentations, and reports for business communication. They will also understand the importance of clear and concise communication in a corporate setting.

CO5 To learn the use of computer applications to aid in problem-solving and decision-making processes. This includes scenario analysis, modeling, and using data to make informed business decisions.

FINANCIAL ACCOUNTING (IMBA 103)

CO1 To demonstrate a solid grasp of fundamental accounting principles and concepts, including the accounting equation, accrual accounting, and the double-entry accounting system. They should understand the underlying principles that guide financial accounting practices.

CO2 To be able of preparing, analyzing, and interpreting the core financial statements: the income statement, balance sheet, and statement of cash flows including the ability to create accurate financial statements and explain the significance of the information presented in these statements.

CO3 To understand various financial transactions accurately, classifying them into appropriate accounts, and making journal entries to reflect these transactions.

CO4 To be able apply and adhere to Generally Accepted Accounting Principles (GAAP) in their accounting work. To be able to address issues related to revenue recognition, expense recognition, and accounting for assets and liabilities in accordance with GAAP standards.

CO5 To use financial analysis tools and ratios to assess a company's financial performance and make informed decisions.

BUSINESS COMMUNICATION (IMBA 104)

CO1 To be able to compose clear, concise, and professional written communication, including emails, memos, reports, and other business documents. Students should be able to convey their ideas, information, and recommendations effectively in writing.

CO2 To improve oral communication skills, including the ability to give clear and persuasive business presentations, participate in meetings, and engage in discussions with colleagues, clients, and superiors and adapt their style for different audiences.

CO3 To understand the principles of business etiquette and professionalism including appropriate dress, behavior, and language for various business settings.

CO4 To develop an awareness of the importance of effective interpersonal communication, including active listening, empathy, and conflict resolution. Students should also learn to navigate intercultural communication challenges and demonstrate respect for diversity in the workplace.

CO5 To acquire proficiency in using various communication technologies and tools commonly used in the business world, such as email, video conferencing, social media, and other digital platforms. Understand the appropriate use of technology in different business contexts.

BUSINESS ENVIRONMENT (IMBA 105)

CO1 To develop a comprehensive understanding of economic factors that affect businesses, including economic cycles, supply and demand, inflation, and fiscal and monetary policies. Students should be able to analyze how economic changes impact businesses and make informed decisions based on economic conditions.

CO2 To explore the legal and regulatory framework in which businesses operate, including areas such as contract law, employment law, intellectual property, and environmental regulations. Understand the implications of legal and regulatory compliance on business operations.

CO3 To analyze the socio-cultural aspects of the business environment, including cultural diversity, social values, and consumer behavior. Students should be able to identify cultural trends and their impact on marketing, human resources, and business strategies.

CO4 To Gain insights into the political and governmental factors affecting businesses, including government policies, trade regulations, taxation, and international relations. Learn how political decisions can impact business operations and strategy.

CO5 To explore the influence of technological advancements on businesses, such as digital transformation, e-commerce, and emerging technologies. Develop an awareness of the need for innovation and adaptation to remain competitive in the digital age.

SEMESTER 2

ORGAINIZATIONAL BEHAVIOR (IMBA 201)

CO1 To gain an understanding of the factors that influence individual behavior in organizations. This includes topics like personality, motivation, perception, attitudes, and values.

CO2 To comprehend the dynamics of group behavior within organizations. This outcome includes understanding the stages of group development, the role of communication, conflict resolution, and leadership within teams.

CO3 To grasp the concept of organizational culture and structure. They should be able to analyze how these elements impact employee behavior, decision-making, and performance within an organization.

CO4 To focus on developing students' leadership and management skills. By the end of the course, students should be able to identify different leadership styles, understand the qualities of effective leaders, and apply leadership principles to real-world situations.

CO5 To gain knowledge and skills to address conflicts in the workplace and manage organizational change. This includes learning conflict resolution techniques, understanding the reasons for resistance to change, and developing strategies to facilitate smooth transitions within organizations.

MARKETING MANAGEMENT (IMBA 202)

CO1 To be able to conduct thorough market analysis and research. This includes understanding the process of gathering and interpreting market data, identifying target markets, and assessing market opportunities and threats.

CO2 To be capable of developing effective marketing strategies. This outcome involves learning how to define marketing objectives, select appropriate target markets, create marketing mix strategies and develop marketing plans that align with organizational goals.

CO3 To gain an understanding of product and brand management principles. This outcome includes product life cycle management, branding strategies, product development, and positioning. Students should be able to create and manage product and brand portfolios effectively.

CO4 To analyze consumer behavior and understand how to build and maintain strong customer relationships. This outcome involves learning about customer segmentation, targeting, and positioning, as well as how to develop marketing strategies that resonate with the target audience and encourage customer loyalty.

CO5 To learn how to use key performance indicators (KPIs) to evaluate the effectiveness of marketing campaigns and strategies. Students should be able to make data-driven decisions to improve marketing initiatives.

FINANCIAL MANGAGEMENT (IMBA 203)

CO1 To analyze financial statements, including balance sheets, income statements, and cash flow statements. They should understand key financial ratios and use them to assess the financial health and performance of an organization.

CO2 To understand the time value of money, calculating net present value (NPV), internal rate of return (IRR), and payback period, and selecting the best investment projects.

CO3 To identify and assess financial risks, develop risk management strategies, and create financial plans to achieve an organization's goals. This outcome includes topics such as hedging, diversification, and risk mitigation.

CO4 To understand the cost of capital and how it affects an organization's financial decisions. They should be able to determine the optimal capital structure and financing mix, considering factors such as debt, equity, and the cost of capital.

CO5 To develop and implement financial strategies that align with an organization's objectives. This includes making decisions related to dividend policy, working capital management, and financial forecasting.

HUMAN RESOURCE MANAGETENT (IMBA 204)

CO1 To understand the recruitment process, develop effective job descriptions, and employ various recruitment methods, including interviewing and selection techniques. They should be prepared to attract and select the right candidates to meet the organization's needs.

CO2 To be capable of identifying training and development needs within an organization and creating employee development programs. They should understand how to design training modules, evaluate their effectiveness, and ensure that employees have the necessary skills to perform their roles effectively.

CO3 To be able to design and implement performance appraisal systems, set performance goals and standards, and provide feedback to employees. This outcome includes the ability to assess employee performance and link it to rewards, promotions, or developmental plans.

CO4 To understand the principles of compensation and benefits, including designing competitive compensation packages, understanding legal and ethical considerations, and managing various forms of employee benefits such as health insurance, retirement plans, and incentives.

CO5 To manage employee relations effectively, handle conflicts and grievances, and navigate labor laws and regulations. They should also be knowledgeable about ethical and legal considerations in HR management, ensuring that their organization complies with employment laws and regulations.

PRODUCTION AND OPERATIONS MANAGEMENT (IMBA 205)

CO1 To gain a solid understanding of fundamental concepts in operations management, such as process design, quality management, capacity planning, and supply chain management.

CO2 To be able to apply analytical tools and problem-solving techniques to optimize production and operations processes, make data-driven decisions, and address real-world operational challenges.

CO3 To identify areas for improvement in operations, implement strategies to increase efficiency, and enhance productivity in a variety of industries.

CO4 To manage and improve quality in manufacturing and service operations, including concepts related to Total Quality Management (TQM), Six Sigma, and Lean principles.

CO5 To understand and manage supply chain networks, including procurement, inventory management, distribution, and logistics, and make informed decisions to optimize the flow of goods and services.

SEMESTER 3

MICROECONOMICS (IMBA 301)

CO1 To grasp and explain fundamental economic concepts, such as supply and demand, opportunity cost, utility, and scarcity. They should understand how these concepts are central to economic analysis.

CO2 To be able to analyze how markets operate, including the determinants of market supply and demand, price elasticity, and the impact of government policies (e.g., taxes and subsidies) on market outcomes.

CO3 To be able to apply economic principles to real-world decision-making. This includes understanding consumer and producer behavior, making rational choices, and evaluating trade-offs in various economic scenarios.

CO4 To distinguish between different market structures, such as perfect competition, monopoly, monopolistic competition, and oligopoly. They should understand the implications of these structures for market outcomes and the role of competition.

CO5 To critically evaluate economic policies, such as minimum wage laws, antitrust regulations, trade policies, and monetary policies. They should understand the potential effects of these policies on markets, consumers, and producers.

BUSINESS STATISTICS (IMBA 302)

CO1 To develop a fundamental understanding of statistical concepts, including descriptive statistics (mean, median, mode, variance, standard deviation), probability distributions, sampling methods, and inferential statistics. They should be able to interpret and communicate statistical information effectively.

CO2 To be able to collect, organize, and analyze data using appropriate statistical techniques. They should be proficient in creating graphical representations, such as histograms, scatterplots, and bar charts, and interpreting these visualizations to draw meaningful conclusions.

CO3 To be able to formulate hypotheses, conduct hypothesis tests, and make inferences based on sample data. This includes understanding concepts like p-values, confidence intervals, and the implications of Type I and Type II errors.

CO4 To be able to perform and interpret regression analysis. They should understand how to model relationships between variables and make predictions using regression models. Additionally, they should be able to assess the goodness-of-fit and the significance of regression coefficients.

CO5 To be able to apply statistical techniques to solve real-world business problems. This includes using statistical analysis to make informed decisions, evaluate the effectiveness of marketing campaigns, assess financial performance, and address various business challenges.

ETHICS AND CORPORATE SOCIAL RESPONSIBILITY (IMBA 303)

CO1 To gain a strong understanding of various ethical theories (e.g., utilitarianism, deontology, virtue ethics) and key ethical concepts (e.g., moral principles, moral reasoning, moral dilemmas). They should be able to apply these theories and concepts to analyze ethical issues in the business context.

CO2 To be able to identify and analyze ethical issues and dilemmas that can arise in the business world. This includes recognizing situations where there is a conflict between profit motives and ethical considerations.

CO3 To be able to assess the effectiveness and impact of corporate social responsibility practices, including sustainability initiatives, philanthropy, ethical supply chain management, and stakeholder engagement. They should understand how these practices contribute to an organization's reputation and long-term success.

CO4 To be proficient in using ethical decision-making models (e.g., the ethical decision-making framework, stakeholder analysis) to address ethical dilemmas in the workplace. They should be able to propose and justify ethical solutions to complex problems.

CO5 To advocate and promote ethical and responsible business practices within organizations. They should understand the importance of ethical leadership, ethical culture, and the role of ethics in maintaining public trust and goodwill.

BUSINESS LAWS (IMBA 304)

CO1 To gain a comprehensive understanding of the legal framework that governs business activities. This includes knowledge of contract law, business structures, intellectual property law, employment law, and other relevant legal areas.

CO2 To analyze and draft business contracts effectively. They should understand the key components of a contract, how contracts are formed, and how to interpret and enforce contractual agreements.

CO3 To be able to identify legal risks in business operations and develop strategies to mitigate them. This includes understanding potential liabilities, regulatory compliance, and dispute resolution mechanisms.

CO4 Students should be proficient in intellectual property law, including patents, trademarks, copyrights, and trade secrets. They should understand how to protect intellectual property rights and avoid infringement.

CO5 To be able to make ethically sound and legally compliant decisions in a business context. They should be aware of ethical considerations in business, including conflicts of interest, corporate governance, and the legal and ethical responsibilities of business leaders.

FUNDAMENTALS OF E-COMMERCE (IMBA 305)

CO1 To be able to explain the fundamental concepts of e-commerce, including the various e-commerce business models (e.g., B2B, B2C, C2C, and more), and understand how they operate.

CO2 To be proficient in online marketing strategies, including search engine optimization (SEO), pay-per-click advertising, content marketing, and email marketing. They should also understand the sales process in e-commerce, including product listing, shopping cart management, and payment processing.

CO3 To gain the skills to design and develop e-commerce websites. This includes an understanding of selecting appropriate e-commerce platforms and technologies.

CO4 To be aware of the security challenges in e-commerce, such as data protection, payment security, and fraud prevention. They should also understand the legal and regulatory aspects of e-commerce, including privacy laws, consumer protection, and international e-commerce regulations.

CO5 To be able to use data and analytics tools to assess the performance of e-commerce websites. This includes measuring key performance indicators (KPIs), analyzing user behavior, and making data-driven decisions to improve the effectiveness of e-commerce operations.

SEMESTER 4

MACRO ECONOMICS (IMBA 401)

CO1 To demonstrate a comprehensive understanding of fundamental macroeconomic concepts, such as GDP (Gross Domestic Product), inflation, unemployment, fiscal policy, monetary policy, and international trade.

CO2 To be able to apply macroeconomic models and tools to analyze real-world economic situations and provide insights into the factors affecting economic outcomes.

CO3 To be familiar with major macroeconomic theories, such as Keynesian economics, monetarism, and neoclassical economics, and understand how these theories explain different aspects of macroeconomy.

CO4 To be proficient in interpreting and using economic data, including national income accounts, price indices, and employment statistics.

CO5 To be able to make short-term and long-term economic forecasts, taking into account various economic variables and their interrelationships.

COST ACCOUNTING (IMBA 402)

CO1 To be able to categorize costs into various classifications, such as direct costs, indirect costs, fixed costs, variable costs, and semi-variable costs. They should comprehend the distinctions between these cost types and their implications for decision-making.

CO2 To understand cost allocation methods, such as job costing and process costing, and recognizing how to allocate overhead costs to products or services based on relevant drivers or allocation bases.

CO3 To be able to analyze and predict how costs behave in response to changes in production or activity levels. This involves distinguishing between fixed and variable costs and understanding cost-volume-profit (CVP) analysis to assess break-even points and profit relationships.

CO4 To be proficient in preparing budgets and using them for performance evaluation. They should understand the concept of standard costs and be able to analyze variances (e.g., price and efficiency variances) to assess the effectiveness of cost control measures.

CO5 To develop the skills to use cost information for decision-making. This includes evaluating make-or-buy decisions, pricing strategies, product discontinuation choices, and other business decisions based on relevant cost data. Students should also be able to apply techniques like cost-benefit analysis and incremental analysis to guide these decisions.

FUNDAMENTALS OF RESEARCH METHODOLOGY (IMBA 403)

CO1 To be able to understand and select appropriate research designs, such as experimental, correlational, qualitative, or mixed methods designs, based on the research objectives and questions. They should also learn to formulate research hypotheses and research questions that guide their investigations.

CO2 To gain proficiency in selecting and applying data collection methods, including surveys, experiments, interviews, observations, and content analysis. They should also understand the importance of developing reliable and valid measurement instruments to gather data and assess variables accurately.

CO3 To be able to analyze research data using appropriate statistical or qualitative analysis techniques, depending on the nature of the data and research questions. They should also learn to interpret the results and draw meaningful conclusions from their findings.

CO4 To be aware of ethical considerations in research, including informed consent, confidentiality, avoiding plagiarism, and responsible conduct of research. They should be able to address ethical dilemmas that may arise during the research process.

CO5 To develop effective written and oral communication skills for presenting research findings. This includes preparing research reports or papers, creating clear and concise visual representations of data, and delivering research presentations to various audiences, such as academic, professional, or public.

CORPORATE GOVERNANCE (IMBA 404)

CO1 To develop a comprehensive understanding of the various corporate governance frameworks, principles, and models that exist globally. This includes studying key concepts and regulatory frameworks.

CO2 To be able to analyze the roles, responsibilities, and structures of boards of directors, as well as various governance mechanisms used by organizations and They understand the composition of boards, board committees, and their duties and functions.

CO3 To gain insight into the relationship between companies and their shareholders, including different types of shareholders and understand how companies manage relationships with various stakeholders, such as employees, customers, and the broader community.

CO4 To be able to assess the ethical considerations and social responsibility of corporations. They should understand the importance of ethical conduct, transparency, and corporate social responsibility in corporate governance, and they should be familiar with the principles and guidelines governing these aspects.

CO5 To be able to evaluate and apply best practices in corporate governance, both in theory and through practical case studies. Analyzing real-world examples of corporate governance successes and failures can provide valuable insights into how governance principles are implemented in practice.

ENTREPRENEURSHIP (IMBA 405)

CO1 To be able to recognize entrepreneurial opportunities by identifying unmet needs, market gaps, and emerging trends. They should learn how to evaluate the feasibility of business ideas, considering factors like market demand, competition, and resources required.

CO2 To be capable of developing comprehensive business plans that outline their business concept, target market, value proposition, revenue models, marketing strategies, and financial projections. They should also understand the importance of strategic planning for long-term success.

CO3 To assess and manage the risks associated with entrepreneurship. This includes understanding financial statements, budgeting, financial forecasting, and accessing funding sources and making informed financial decisions to sustain and grow their ventures.

CO4 To design and implement effective marketing and sales strategies. This includes market research, product positioning, branding, pricing, and sales techniques. how to create and maintain a customer base.

CO5 To develop an entrepreneurial mindset characterized by creativity, adaptability, resilience, and a willingness to learn from failure. They should be encouraged to embrace innovation and understand the importance of continuous improvement in a dynamic business environment.

SEMESTER 5

INCOME TAX (IMBA 501)

CO1 Demonstrate a solid understanding of basic tax concepts, including taxable income, deductions, tax credits, and tax liabilities.

CO2 To gain familiarity with the relevant tax laws and regulations, such as the Internal Revenue Code, IRS publications, and recent tax reforms.

CO3 Develop practical skills in preparing and filing various tax forms, including individual income tax returns, corporate tax returns , and partnership returns.

CO4 Ability to assess and implement tax planning strategies to minimize tax liabilities for individuals and businesses while remaining in compliance with tax laws.

CO5 Learn how to conduct tax research effectively using primary and secondary sources to find relevant tax information and rulings.

FUNDAMENTALS OF SMALL BUSINESS MANAGEMENT (IMBA 502)

CO1 Develop the ability to create comprehensive business plans that include mission statements, financial projections, marketing strategies, and operational plans.

CO2 To evaluate the feasibility of a business concept, including market analysis, industry trends, and competitive analysis.

CO3 To understand the legal and regulatory requirements for small businesses, including permits, licenses, taxes, and employment laws.

CO4 To gain knowledge in financial management, including budgeting, cash flow management, financial analysis, and basic accounting principles.

CO5 Learn how to identify and mitigate risks in a small business and explore the types of business insurance that may be necessary.

MANAGEMENT ACCOUNTING (IMBA 503)

CO1 To demonstrate a solid understanding of the fundamental concepts and principles of management accounting, including cost behavior, cost allocation, budgeting, and variance analysis.

CO2 To apply various costing methods such as job costing, process costing, and activity-based costing to allocate costs accurately in different business environments.

CO3 To create and interpret budgets and forecasts and analyze the variances between actual and budgeted figures to identify areas of concern and opportunities for improvement.

CO4 To use management accounting information to make informed decisions related to pricing, product mix, cost control, and capital investment, taking into account relevant costs and benefits.

CO5 To develop and implement cost control strategies to optimize resource utilization and improve the efficiency and effectiveness of business operations.

INTERNATIONAL BUSINESS (IMBA 504)

CO1 To understand the global business environment, including economic, political, legal, cultural, and technological factors that impact international business operations.

CO2 To analyze and apply various international trade theories, such as comparative advantage, absolute advantage, and the Heckscher-Ohlin model, to explain patterns of international trade.

CO3 To evaluate different international business models, including exporting, licensing, joint ventures, and foreign direct investment (FDI), and determine the most appropriate strategies for specific situations.

CO4 To assess the risks and opportunities associated with entering new international markets and develop market entry strategies, considering factors like market research, entry modes, and competitive analysis.

CO5 To apply international marketing concepts to create effective marketing strategies for products and services in diverse cultural and economic environments.

MONEY AND FINANCIAL SYSTEM (IMBA 505)

CO1 To understand the concept of money and its essential functions as a medium of exchange, unit of account, and store of value.

CO2 To analyze the role of central banks and the objectives and tools of monetary policy to control the money supply, interest rates, and inflation.

CO3 To describe the structure and functions of the banking system, including commercial banks, central banks, and other financial institutions.

CO4 To examine the operations of commercial banks, including deposit creation, lending, and the role of the fractional reserve system.

CO5 To understand various financial markets, such as money markets, capital markets, and foreign exchange markets, and how they facilitate the allocation of funds.

SEMESTER 6

INTRODUCTION TO MANAGEMENT INFORMATION SYSTEM (IMBA 601)

CO1 To develop a comprehensive understanding of what a Management Information System is and its role in organizations. This includes knowledge of the components, functions, and the significance of MIS.

CO2 To be able to analyze the information needs of an organization and design appropriate information systems to meet those needs. This involves identifying various types of information systems and their application in different business contexts.

CO3 To gain proficiency in managing data, including the basics of database systems. This outcome involves understanding data modeling, data storage, data retrieval, and data security within an MIS context.

CO4 To learn how MIS can support decision-making processes within organizations. This includes knowledge of various decision support tools, analytics, and business intelligence systems that help management make informed decisions.

CO5 To be aware of ethical and security issues related to information systems. They should understand the importance of data privacy, security measures, and ethical practices in managing information within an organization.

FUNDAMENTALS OF SUPPLY CHAIN MANAGEMENT (IMBA 602)

CO1 To develop a solid understanding of key supply chain concepts, including supply chain networks, processes, and the flow of goods, information, and finances. This outcome involves grasping the fundamental principles of supply chain management.

CO2 To be able to design and plan supply chain strategies that align with business goals. This includes optimizing the supply chain for efficiency, responsiveness, and cost-effectiveness, as well as selecting appropriate sourcing, production, and distribution strategies.

CO3 To learn how to effectively manage inventory within a supply chain, including inventory control techniques, demand forecasting, and safety stock management. This outcome aims to ensure that students understand the importance of inventory in supply chain operations and how to optimize it.

CO4 To gain the skills needed to manage supplier relationships and vendor performance effectively. This includes selecting and evaluating suppliers, negotiating contracts, and implementing supplier relationship management strategies.

CO5 To understand the concept of risk within supply chains and develop strategies to manage and mitigate various risks, including supply disruptions, natural disasters, and geopolitical factors. Additionally, students should learn how to build resilient supply chains that can adapt to unexpected disruptions.

INTERNAL AUDIT AND CONTROL (IMBA 603)

CO1 To develop a solid understanding of the concept of internal auditing, its purpose, and its role in ensuring the effectiveness and efficiency of an organization's operations. This includes knowledge of the fundamental principles and standards of internal auditing.

CO2 To be able to identify and evaluate internal control frameworks and understand how they contribute to risk management and governance. This outcome involves knowledge of widely recognized frameworks such as COSO (Committee of Sponsoring Organizations of the Treadway Commission).

CO3 To gain the skills to assess and manage risks within an organization. This includes identifying, analyzing, and prioritizing risks, as well as developing strategies for risk mitigation and control.

CO4 To learn various internal audit techniques, including audit planning, evidence gathering, testing, and reporting. They should also be proficient in using audit tools and technology to enhance audit efficiency.

CO5 To understand the importance of compliance with relevant laws, regulations, and industry standards. Additionally, they should learn about corporate governance principles and the role of internal audit in promoting good governance practices.

BUSINESS DEMOGRAPHY AND ENVIRONMENTAL STUDIES (IMBA 604)

CO1 To develop a strong understanding of environmental issues, including climate change, resource depletion, and biodiversity loss. They should also gain insight into the principles of sustainability and the importance of adopting eco-friendly practices in business operations.

CO2 To be able to assess the environmental impact of various business activities, products, and services. This outcome includes learning how to identify potential environmental risks and develop strategies to mitigate negative impacts.

CO3 To be familiar with environmental regulations, laws, and standards at local, national, and international levels. This includes understanding the legal obligations of businesses regarding environmental protection and the consequences of non-compliance.

CO4 To learn about green business strategies and practices, such as sustainable supply chain management, energy efficiency, waste reduction, and the adoption of renewable energy sources. This outcome involves understanding how businesses can reduce their ecological footprint while remaining profitable.

CO5 To appreciate the role of corporate social responsibility in today's business world, focusing on the ethical and environmental responsibilities of organizations. They should also understand how CSR initiatives can contribute to a positive business image and stakeholder engagement.

SEMESTER 7

STRATEGIC MANAGEMENT (IMBA 701)

CO1 To develop the ability to think strategically and analyze complex business situations. This outcome includes understanding the external and internal factors that impact an organization and being able to identify opportunities and threats.

CO2 To be capable of formulating strategies that align with an organization's mission, vision, and goals. This involves setting objectives, identifying competitive advantages, and choosing appropriate strategic options.

CO3 To execute and implement strategies effectively. This includes managing resources, developing action plans, and aligning various organizational functions with the chosen strategy.

CO4 To understand the importance of monitoring and controlling the execution of strategies. This outcome involves creating performance metrics, assessing progress, and adjusting when necessary to ensure strategic goals are met.

CO5 To learn how to create and sustain competitive advantages for an organization. This includes understanding different business models, innovation, and the role of core competencies in achieving long-term success and growth.

LEADERSHIP SKILLS AND PRACTICES (IMBA 702)

CO1 To understand the fundamental theories, models, and principles of leadership. This includes an exploration of different leadership styles and their historical development.

CO2 To develop strong communication skills necessary for effective leadership. This includes the ability to articulate a clear vision, provide constructive feedback, and actively listen to team members.

CO3 To gain proficiency in problem-solving techniques and decision-making processes. Students should be able to assess complex situations, make informed choices, and implement solutions effectively.

CO4 To learn how to build and lead high-performing teams. This includes strategies for fostering collaboration, resolving conflicts, and motivating team members towards shared goals.

CO5 To understand the importance of ethical leadership practices and the role of leaders in promoting social responsibility. Students should be prepared to make ethical decisions and demonstrate integrity in their leadership roles.

INDUSTRIAL RELATIONS (IMBA 703)

CO1 To develop a solid understanding of fundamental concepts in industrial relations, including collective bargaining, labor laws, trade unions, and employment relations.

CO2 To enhance your ability to critically analyze and interpret labor and employment-related issues, such as conflicts, disputes, and negotiations.

CO3 To acquire knowledge of relevant labor laws, regulations, and their application to real-world situations, helping you navigate legal aspects of industrial relations.

CO4 To develop practical skills in conflict resolution, negotiation, and dispute management, which are crucial for maintaining effective workplace relationships.

CO5 To stay updated with current trends and issues in industrial relations, including globalization, diversity, and the impact of technology on the workplace.

STRATEGIC HUMAN RESOURCE MANAGEMENT (IMBA 704)

CO1 To understand the importance of aligning HR strategies with overall business objectives and develop the skills to create and implement HR strategies that support an organization's strategic goals.

CO2 To learn how to use HR metrics and data analytics to assess the effectiveness of HR practices and make data-driven decisions to improve workforce performance and organizational outcomes.

CO3 To develop expertise in talent acquisition, retention, and development, and learn how to identify and nurture key talent to drive organizational success.

CO4 To gain insights into change management processes and how HR can play a pivotal role in managing organizational change, including restructuring, mergers, and cultural transformations.

CO5 To understand the legal and ethical issues related to HR practices and policies, including diversity and inclusion, equal employment opportunity, and labor laws, to ensure compliance and ethical behavior within the organization.

CONSUMER BEHAVIOUR (IMBA 705)

CO1 To gain a deep understanding of the consumer decision-making process, including problem recognition, information search, evaluation of alternatives, purchase, and post-purchase evaluation.

CO2 To develop the ability to analyze and assess the various factors that influence consumer behavior, including psychological, social, cultural, and situational factors.

CO3 To learn how to segment consumer markets based on demographics, psychographics, and behavior, and develop strategies to target specific consumer segments effectively.

CO4 To understand the marketing implications of consumer behavior, such as how to design effective marketing campaigns, product development, pricing, and distribution strategies that resonate with target consumers.

CO5 To recognize the ethical and sustainable aspects of consumer behavior, including the impact of ethical marketing and sustainable product choices, and how businesses can respond to consumer preferences for socially responsible practices.

MARKETING RESEARCH (IMBA 706)

CO1 To gain a solid understanding of various research methods, both qualitative and quantitative, used in marketing research. This includes surveys, focus groups, observational studies, and data analysis techniques.

CO2 To develop skills in collecting and analyzing marketing data, including designing surveys, conducting interviews, and using statistical tools to process and interpret data.

CO3 To learn how to identify and segment target markets through research, considering factors like demographics, psychographics, and buying behaviors.

CO4 To understand how to extract valuable consumer insights from research data to guide marketing strategies and product development.

CO5 To apply research findings to make informed marketing decisions. This outcome focuses on using research to develop effective marketing strategies, assess the effectiveness of campaigns, and adapt to changing market conditions.

FINANCIAL MARKETS AND SERVICES (IMBA 708)

CO1 To develop a strong understanding of financial markets, including the structure, types, and functions of various markets, such as equity, fixed income, foreign exchange, and derivatives markets.

CO2 To learn about different financial instruments, such as stocks, bonds, options, and futures, including their characteristics, valuation, and risk profiles.

CO3 To gain knowledge of various investment strategies and portfolio management techniques, including asset allocation, risk assessment, and diversification.

CO4 To explore the role of financial institutions and services, including banks, brokerage firms, investment advisors, and asset management companies, in facilitating investment and financial management.

CO5 To understand the regulatory framework governing financial markets and services, including the importance of ethics, compliance, and responsible financial management in the industry.

WORKING CAPITAL MANAGEMENT (IMBA 709)

CO1 To develop a deep understanding of what working capital is and its significance in the financial management of an organization.

CO2 To identify and analyze the various components of working capital, including accounts receivable, accounts payable, cash, and inventory.

CO3 To acquire the skills to calculate and interpret key working capital ratios, such as the current ratio, quick ratio, and cash conversion cycle, to assess an organization's liquidity and efficiency.

CO4 To explore different working capital management strategies, including aggressive and conservative approaches, and understand the implications of each on a company's risk and profitability.

CO5 To learn how to manage cash flow effectively to ensure that a company has enough liquidity to meet its short-term obligations and to take advantage of growth opportunities.

SEMESTER 8

PROJECT MANAGEMENT (IMBA 801)

CO1 To develop a foundational understanding of project management concepts, principles, and terminology. Identify the key elements of the project management process, including initiation, planning, execution, monitoring and control, and closure.

CO2 To demonstrate the ability to use project management tools and software, such as Gantt charts, project scheduling software, and risk assessment tools.

CO3 To learn how to effectively allocate and manage project resources, including human resources, budget, and time.

CO4 To demonstrate the ability to track project progress, identify deviations from the project plan, and implement corrective actions. Understand the role of key performance indicators (KPIs) and metrics in project monitoring and control.

CO5 To develop the skills to ensure that projects are completed on time, within budget, and to the specified quality standards. Apply risk management techniques to mitigate potential project risks and uncertainties, and successfully deliver the project's objectives.

ORGANISATIONAL CHANGE AND DEVELOPMENT (IMBA 802)

CO1 To develop a strong understanding of the key theories and models that underpin organizational change and development. Identify the various drivers and catalysts for change in organizations, including internal and external factors.

CO2 To analyze the stages of the change process, from the initial recognition of the need for change to implementation and post-implementation evaluation.

CO3 To gain the ability to identify and assess resistance to change and develop strategies for overcoming it.

CO4 To develop leadership and management skills required to plan and execute successful organizational change initiatives. Develop change strategies, communicate effectively with stakeholders, and build support for change among employees.

CO5 To understand the concepts and tools related to organizational development, including cultural change, team development, and process improvement.

PERFORMANCE MANAGEMENT (IMBA 803)

CO1 To develop a solid understanding of the fundamental concepts and principles of performance management. Comprehend the importance of performance management in achieving organizational goals and improving employee performance.

CO2 To set clear and measurable performance goals and objectives for individuals, teams, and the organization. Gain the ability to define key performance indicators (KPIs) and metrics that align with organizational goals.

CO3 To develop the skills to conduct fair and constructive performance appraisals or evaluations. Understand the importance of providing feedback and coaching to employees to help them achieve their goals.

CO4 To develop strategies for addressing underperformance, including providing additional training, support, or disciplinary actions when necessary.

CO5 To understand how to create a culture of continuous improvement and employee development.

RURAL AND SOCIAL MARKETING (IMBA 804)

CO1 To demonstrate a comprehensive understanding of the unique characteristics and dynamics of rural markets, including factors like income levels, infrastructure, and cultural aspects that influence consumer behavior.

CO2 To develop the skills to design and implement effective social marketing campaigns aimed at addressing social issues, such as healthcare, education, or environmental conservation, in rural areas.

CO3 To be able to segment rural populations based on various criteria and develop strategies for targeting specific market segments with products or services that meet their needs and preferences.

CO4 To be proficient in using appropriate metrics and evaluation techniques to assess the success of rural and social marketing initiatives, including measuring their impact on behavior change, awareness, or other relevant outcomes.

CO5 To understand the ethical considerations involved in rural and social marketing and be able to design and implement strategies that promote sustainable and responsible marketing practices, considering the well-being of rural communities.

SERVICE MARKETING (IMBA 805)

CO1 To demonstrate a deep understanding of the unique characteristics of services, such as intangibility, inseparability, variability, and perishability, and how these characteristics impact service marketing strategies.

CO2 To be able to assess, manage, and improve service quality to enhance customer satisfaction. They will understand the relationship between service quality, customer expectations, and perceived value.

CO3 To develop the knowledge and skills necessary to design effective service marketing strategies, including pricing, promotion, distribution, and positioning, considering the specific challenges and opportunities presented by services.

CO4 To understand the importance of building and maintaining long-term relationships with customers in service industries. They will be able to design and implement customer relationship management (CRM) strategies to enhance customer loyalty and retention.

CO5 To be proficient in using relevant metrics and tools to measure and evaluate the performance of service marketing initiatives, including customer feedback, service quality assessments, and financial indicators.

INTERNATIONAL FINANCIAL MANAGEMENT (IMBA 806)

CO1 To demonstrate a deep understanding of exchange rate systems, factors influencing exchange rate movements, and the implications of currency fluctuations on international financial decisions and risk management.

CO2 To evaluate and make informed decisions about international investment opportunities, considering factors like country risk, cost of capital, and cash flow estimation for multinational projects.

CO3 To grasp of international financial markets, including knowledge of the instruments and techniques used for managing currency risk, such as foreign exchange derivatives and international portfolio management.

CO4 To be capable of designing and implementing financing strategies for international operations, including capital structure decisions, sourcing of funds, and the use of international financial institutions.

CO5 To acquire the skills to identify and manage financial risks associated with international business, including exposure to foreign exchange risk, interest rate risk, and political risk, and they will be able to develop and implement effective risk management and hedging strategies.

SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT (IMBA 807)

CO1 To analyze and value various types of securities, including stocks, bonds, and derivatives, using fundamental, technical, and quantitative analysis techniques.

CO2 To develop the skills to create and manage investment portfolios that maximize returns while minimizing risk, considering factors such as asset allocation and diversification.

CO3 To be proficient in assessing and managing different types of investment risks, including market risk, credit risk, and liquidity risk. They will be able to develop strategies to mitigate these risks within a portfolio.

CO4 To understand and be able to implement various investment strategies, such as value investing, growth investing, and active versus passive portfolio management, and evaluate their effectiveness in achieving investment objectives.

CO5 To be aware of ethical considerations and regulatory requirements in the field of investment management, including codes of ethics, disclosure, and compliance with relevant laws and regulations.

SEMESTER 9

CORPORATE TAX PLANNING (IMBA 901)

CO1 To gain a comprehensive understanding of the tax laws and regulations that apply to corporations, including federal, state, and local tax codes. They should be able to interpret and apply these laws to various business scenarios.

CO2 To identify tax-saving opportunities for corporations by exploring various tax planning strategies, deductions, credits, and incentives. This includes understanding how to structure business transactions to minimize tax liability.

CO3 To be proficient in preparing and filing corporate tax returns accurately and on time. This includes an understanding of the various tax forms and schedules used in corporate tax reporting.

CO4 To be aware of the ethical implications of corporate tax planning and understand the ethical guidelines and responsibilities related to tax compliance and planning. They should be able to make sound ethical decisions in tax planning.

CO5 To identify potential areas of tax risk and develop strategies to mitigate those risks. They should also be prepared to handle tax audits and inquiries from tax authorities effectively.

TRAINING AND DEVELOPMENT (IMBA 902)

CO1 To be able to design training programs and implement performance appraisal systems, set performance goals and standards, and provide feedback to employees. This outcome includes the ability to assess employee performance and link it to rewards, promotions, or developmental plans.

CO2 To understand the principles of compensation and benefits, including designing competitive compensation packages, understanding legal and ethical considerations, and managing various forms of employee benefits.

CO3 To manage employee relations effectively, handle conflicts and grievances, and navigate labor laws and regulations. They should also be knowledgeable about ethical and legal considerations in training and development.

ADVERTISING AND MARKETING MANAGEMENT (IMBA 903)

CO1 To create comprehensive marketing strategies for products or services, including defining target markets, positioning, and selecting appropriate marketing channels. They should understand how to conduct market research to inform their strategies.

CO2 To plan, create, and execute advertising campaigns. This includes understanding various advertising mediums, such as digital, print, television, and social media, and how to allocate budgets effectively.

CO3 To be proficient in analyzing consumer behavior and decision-making processes. They should be able to identify factors that influence consumer choices and use this knowledge to develop effective marketing campaigns.

CO4 To measure the effectiveness of marketing and advertising campaigns through key performance indicators (KPIs) and analytics. They should be able to interpret data and make data-driven decisions to optimize future strategies.

CO5 To be aware of ethical considerations in advertising and marketing, including issues related to consumer privacy, transparency, and responsible marketing practices. They should be able to develop marketing campaigns that align with ethical standards and legal requirements.

SEMESTER 10

FINANCIAL DERIVATIVES (IMBA 1001)

CO1 To develop a thorough understanding of various types of derivative instruments, including futures, options, swaps, and forwards. They should be able to explain the basic characteristics, payoffs, and pricing mechanisms of these derivatives.

CO2 To assess and manage financial risk using derivatives. This includes using derivatives to hedge against price fluctuations, mitigate exposure to market risks, and reduce potential losses in financial portfolios.

CO3 To be able to calculate the fair value of derivatives using models like the Black-Scholes model and understand factors that affect option pricing.

CO4 To be able to design and implement trading and investment strategies using derivatives. They should understand how to construct portfolios that incorporate derivatives to achieve specific risk-return objectives.

CO5 To be aware of the regulatory framework governing derivative markets and understand the ethical considerations involved in trading and using derivatives. They should be able to navigate compliance and regulatory requirements when dealing with derivatives.

INTERNATIONAL MARKETING (IMBA 1002)

CO1 To understand cultural differences and their impact on consumer behavior, marketing strategies, and international business practices. They should be able to identify cultural nuances and adapt marketing approaches accordingly.

CO2 To analyze international market opportunities and develop market entry and expansion strategies. This includes selecting appropriate market entry modes (e.g., exporting, franchising, joint ventures) and understanding the challenges and opportunities associated with each.

CO3 To master the elements of the global marketing mix (product, price, promotion, and distribution) and learn how to tailor these components to meet the needs and preferences of international target markets.

CO4 To be proficient in conducting international market research, including gathering market data, assessing competition, and identifying market trends. They should be able to use this research to make informed marketing decisions.

CO5 To be aware of the legal and ethical considerations in international marketing, including international trade regulations, intellectual property rights, and cultural sensitivities. They should be able to develop marketing strategies that adhere to global ethical standards and legal requirements.

INDUSTRIAL AND LABOUR LEGISLATION (IMBA 1003)

CO1 To develop a comprehensive understanding of labor laws and industrial regulations, including both national and international labor standards. They should be able to explain the key legal provisions that apply to employment relationships.

CO2 To be able to identify legal obligations for employers and employees, including wage and hour laws, workplace safety regulations, and equal employment opportunity requirements. They should understand the consequences of non-compliance.

CO3 To be proficient in drafting employment contracts and collective bargaining agreements. They should understand the negotiation process, contract administration, and dispute resolution mechanisms.

CO4 To have a deep knowledge of employee rights and protections, such as the right to fair wages, safe working conditions, freedom of association, and protection from discrimination and harassment.

CO5 To learn about various dispute resolution mechanisms, including arbitration, mediation, and labor courts. They should understand the role of labor unions and employer associations in industrial relations and be able to analyze and resolve labor disputes effectively.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Management

Executive MBA



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-
248001

PROGRAMME OBJECTIVES:

SOM, Doon University's Master of Business Administration (Executive) is a carefully designed weekend program specially for working professionals of public and private sector with the following objectives:

- To transform the executives into successful managers and global business leaders.
- To develop knowledge in core areas of business.
- To refine the interpersonal skills and leadership qualities.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO1 To develop a solid foundation in the fundamental practices of business needed to succeed in senior leadership roles in finance, international politics, people management, organizational strategy etc.

PSO2 To provide knowledge needed to work cross-functionally within the organization and become more skilled in the basics of business management.

PSO3 To empower students with the tools and techniques needed to successfully meet the challenges of today's global business environment with the help of Critical thinking and creative solving problem

PSO4 To develop skills needed for problem solving, decision-making, and implementation by application of theoretical knowledge in business organizations across the world

PSO5 To expand professional and personal network. Students benefit from the diversity of participants in the class, maximizing learning by challenging assumptions and broadening perspectives

COURSE OUTCOMES:

FIRST SEMESTER

Course Code	Course Title	Course Outcomes
E- 101	Organizational Behavior & Leadership Skills	<ul style="list-style-type: none">• To discuss the development of the field of organizational behaviour and explain the micro and macro approaches.• To analyse and compare different models used to explain individual behaviour related to motivation and rewards.• To identify the various leadership styles and the role of leaders in a decision-making process and helps to explain organizational culture and describe its dimensions and to examine various organizational designs.• To receive and integrate feedback on decision-making practices, conflict resolution skills, and teamwork behaviors with the support of a team-based coach.
E- 102	Economic Environment of Business	<ul style="list-style-type: none">• To explain the concept of the various constituents of environment and their impact on businesses.• To apply the trade theories , investment theories, exchange rate theories and regional trading bloc theories and their impact on economic welfare.• To analyse the principle and the different exchange rate regimes' impact on businesses.• To integrate the concept and opening economies of developing countries like India through RTB and multilateral route (WTO).
E-103	Decision Sciences	<ul style="list-style-type: none">• To make plain the scientific issues and value judgments underlying these decisions.• To identify tradeoffs that might accompany any particular action or

		<p>inaction.</p> <ul style="list-style-type: none"> To bring together artificial intelligence, business context and subject matter expertise to bridge the gap between data and the people who make decisions.
E-104	Managerial Economics	<ul style="list-style-type: none"> To develop an understanding of the applications of managerial economics. To interpret regression analysis and discuss why it is employed in decision-making. Discuss optimization and utility including consumer behavior. To assess the relationships between short- run and long-run costs.
E-105	Accounting for Managerial Decisions	<ul style="list-style-type: none"> To absorb basic accounting fundamentals and to prepare Vertical Financial Statements as per Indian Companies Act 2013. To mature in financial analysis skills and learn to prepare Cash Flow Statement, Estimated Working Capital and Receivables management. To analyze ratios and core concepts of business finance and its importance in managing a business.
E-106	Business Computing	<ul style="list-style-type: none"> To gain familiarity with the concepts and terminology used in the development, implementation and operation of business application systems. To explore various methods that Information Technology can be used to support existing businesses and strategies. To investigate emerging technology in shaping new processes, strategies and business models.

SECOND SEMESTER

COURSE CODE	COURSE TITLE	COURSE OUTCOME
E- 201	Managing People in	<ul style="list-style-type: none"> To establish practical organizational workforce plans and practices, which aim

	Organizations	<p>to solve problems in alignment with organizational goals and objectives</p> <ul style="list-style-type: none"> • To have a conceptual understanding of the strategic role of human resources management in a health care organization • To understand and value the impact of workforce diversity and globalization on health care organizations.
E-202	Business Communication	<ul style="list-style-type: none"> • To understand and demonstrate writing and speaking processes through invention, organization, drafting, revision, editing, and presentation. • To understand the importance of specifying audience and purpose and to select appropriate communication choices and to understand and appropriately apply modes of expression, i.e., descriptive, expository, narrative, scientific, and self-expressive, in written, visual, and oral communication. • To participate effectively in groups with emphasis on listening, critical and reflective thinking, responding and understand and apply basic principles of critical thinking, problem solving, and technical proficiency in the development of exposition and argument.
E-203	Marketing Management	<ul style="list-style-type: none"> ❖ To formulate a marketing* plan that will meet the needs or goals of a business or organization helps to develop an integrated marketing communications plan* for a product*, concept, good and/or service based on an identified market need or target. ❖ To formulate strategies for developing new and/or modified products*, concepts, goods and services that respond to evolving market needs and to develop strategies for the efficient and effective placement/ distribution of products*, concepts, goods, and services that respond to evolving markets ❖ To evaluate the impact of using different marketing strategies for a product, concept, good and/or service, on the finances, Return on Investment (ROI) and business goals of an organization
E-204	Entrepreneurship	<ul style="list-style-type: none"> • To apply new ideas, methods and ways of thinking.

		<ul style="list-style-type: none"> ● To engage with a range of stakeholders to deliver creative and sustainable solutions to specific problems. ● To communicate effectively both orally and in writing. Work effectively with colleagues with diverse skills, experiences and be able to critically reflect on own practice.
E-205	Managerial Finance	<ul style="list-style-type: none"> ● To explain the concept of fundamental financial concepts, especially time value of money. ● To apply capital budgeting projects using traditional methods. ● To analyze the main ways of raising capital and their respective advantages and disadvantages in different circumstances.
E-206	Operations Management for Executives	<ul style="list-style-type: none"> ● To apply knowledge of fundamental concepts of operations management. ● To apply knowledge of approaches to operational performance improvement.

THIRD SEMESTER

COURSE CODE	COURSE TITLE	COURSE OUTCOME
E-301	Business Ethics and Corporate Governance	<ul style="list-style-type: none"> ● To explore the relationship between ethics and business and the subsequent theories of justice and economics across different cultural traditions. ● To comprehend the relationship between ethics, morals and values in the workplace. ● To analyze and understand various ethical philosophies to explain how they contribute to current management practices.
E-302	Strategic Management	<ul style="list-style-type: none"> ● To be able to describe major

		<p>theories, background work, concepts and research output in the field of strategic management.</p> <ul style="list-style-type: none"> • To be able to demonstrate a clear understanding of the concepts, tools & techniques used by executives in developing and executing strategies and will appreciate its integrative and interdisciplinary nature. • To be able to demonstrate effective application of concepts, tools & techniques to practical situations for diagnosing and solving organizational problems.
E-303	Society, Business and Management	<ul style="list-style-type: none"> • To understand the evolving role and problems with multinational corporations in the global environment. • To examine the social, political, legal and regulatory environments of surrounding business. • To provide a holistic understanding of their impact on the global environment.

FOURTH SEMESTER

COURSE CODE	COURSE TITLE	COURSE OUTCOME
E-401	Supply Chain Management	<ul style="list-style-type: none"> • To develop a sound understanding of the important role of supply chain management in today's business environment • To be familiar with current supply chain management trends Understand and apply the current supply chain theories, practices and concepts utilizing case problems and problem-based learning situations • To develop and utilize critical management skills such as negotiating, working effectively within a diverse business environment, ethical decision making and use of information technology.
E-402	Managing Multinationals	<ul style="list-style-type: none"> • To explain business expansion abroad and key issues related to their operations in other countries. • To compare cultures and societies globally using socioeconomic and cultural frameworks. • To develop an entry strategy into other markets recognizing the nature of institutions and forces governing the

		process of globalization.
E-403	Project Study	<ul style="list-style-type: none"> • To allows students present their findings in response to a question or proposition that they choose themselves. • To test the independent research skills students have acquired during their time at university, with the assessment used to help determine their final grade. • To critically review the literature that addresses the major question, or series of questions, relevant to your research topic. It is important that it conveys the current state of knowledge on the topic to the reader as clearly, concisely and convincingly as possible.

ELECTIVES

MARKETING MANAGEMENT

E-404	Service Marketing	<p>CO1 To acquaint the students with the unique challenges faced by service marketers.</p> <p>CO2 To focus on the emergence of service economy: contributory factors, consumption pattern analysis, economic transformation.</p>
E0405	Advertising Management	<p>CO1 To acquaint the students with concepts, techniques and role of advertising in promoting products and services.</p> <p>CO2 To give experience in the application of concepts for developing an effective advertising programme.</p>

E-406	Digital Marketing	<p>CO1 To describe the emerging dimensions of the internet marketing and develop suitable strategies to leverage the potential of e-marketing for achieving organizational goals.</p> <p>CO2 To introduce Internet Marketing: Nature and scope, Evolution of WWW and the Digital World: Digital Marketing Process, Marketing with Networks.</p>
SUPPLY CHAIN MANAGEMENT		
E-407	Big Data Analytics	<p>CO1. To have computational thinking (Ability to translate vast data in to abstract concepts and to understand database reasoning)</p> <p>CO2. To gain the ability to design and conduct experiments, as well as to analyze and interpret data</p> <p>CO3. To gain the ability to use techniques, skills and modern engineering tools necessary for engineering practice</p>
E-408	Digital Supply Chain Management	<p>CO1. To develop a working knowledge of spreadsheets to master Supply Chain Management</p> <p>CO2. To understand how analytics can be applied to various domains of a supply chain to generate economic value</p> <p>CO3. To learn the Supply Chain optimisation techniques: Transportation, Transshipment, Logistics Network Design, Linear Programming and Sensitivity</p>
E-409	Circular and Sustainable Economy	<p>CO1. To apply the concept of circular economy to environmental engineering problems</p> <p>CO2 To understand the concept of circularity and conduct relevant research</p> <p>CO3 To use the principles of circularity for application to sustainable development</p> <p>CO4 To apply complexity aspects of circular economy for creating</p>

		<p>circular business models</p> <p>CO5. To understand the logistics for Waste Management: Waste Management in the context of reverse logistics, Waste Treatment Legislation, Reuse & refurbishment markets and take back business models</p>
FINANCE		
E-410	Working Capital Management	<p>CO1 To acquaint the students with the importance of the working capital management.</p> <p>CO2 To focus on the techniques used for effective working capital management both at micro and macro level.</p>
E-411	Merchant Banking & Financial Services	<p>CO1 To understand role of Financial Services in Business organizations and to give an insight into the strategic, regulatory, operating and managerial issues.</p> <p>CO2 To examine the present status and developments that are taking place in the financial services sector.</p> <p>CO3 To develop an integrated knowledge of the functional areas of financial services industry in the real-world situation.</p>
E-412	Financial Modelling & Business Forecast	<p>CO1 To develop concepts and techniques that are applied to financial and modelling and business forecasting.</p> <p>CO2 To focus on Econometric Methods for Finance: Objective behind building of econometric models, micro and macro models.</p>
HUMAN RESOURCE MANAGEMENT		
E-413	Change and Intervention Strategies	<p>CO1 To facilitate the learning of organization development theory and change interventions techniques.</p> <p>CO2 To help students connect theories on organizational change and intervention techniques.</p> <p>CO3 To develop a plan for the analysis of a concrete problem of change and formulate proposals for intervention.</p>

E-414	Global Human Resource Management	CO1 To provide conceptual clarity and diagnostic tools to identify and understand how social and cultural factors influence management systems. CO2 To understand cultural stereotypes; Influence of Social and
		Cultural concepts in business organizations.
E-415	Industrial Relations	CO1 To expose students to the conceptual and practical aspects of industrial relations. CO2 To introduce the students to Industrial Relations: Concept & Scope; Industrial Relations Perspectives: Conflict model Vs. Collaboration model. Globalisation and the emerging socio-economic scenario.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Management

PhD (Management)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES (POS):

PO 1: To study concepts and techniques needed to understand a range of business disciplines as well as to research issues arising in professional business practice.

PO 2: To provide students with the opportunity to learn the latest academic theories, concepts, techniques and applications with emphasis on teaching and research in the field of management.

PO 3: To extend the knowledge, expertise and skills of students through the application of research to business problems and issues by including internships, teaching experiences and special study projects as a part of the curriculum.

PO 4: To develop the student's ability to carry out independent research at an advanced level and enhance their ability to deliver their ideas, research methodology and findings using formal presentations with critiques of their analytical, written, oral and media presentation skills in business, professional and educational environments.

PO 5: To create opportunities for the University's bachelor and master's degree students to continue their business education by undertaking the doctoral degree course of students.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1: To demonstrate advanced knowledge and competence in the latest academic theories, concepts, technology-enabled opportunities, financially justified analysis, research operations and market-based economy in a global field of business administration.

PSO 2: To demonstrate integration from business and non-business disciplines to generate novel ideas, strategies and practical approaches to address business issues faced by organizations.

PSO 3: To demonstrate effective research skills including formulation of research problem; integration of previous publications into an appropriate literature review, design of a research study, data analysis and ability to summarize and present the results.

PSO 4: To generate, evaluate and assess the ethical obligations and responsibilities of business for responsible management.

PSO 5: To demonstrate an ability to address complex industry challenges using the frameworks of industry rules and regulations that build prescriptive conclusions and real-world experience and knowledge.

COURSE OUTCOMES:

Subject Code	Course title	Course outcome
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MPHD 01	Research Methodology	<p><u>To gain knowledge regarding:</u></p> <ul style="list-style-type: none"> ● Fundamentals of Research Methodology. ● Quantitative methods. <p><u>To gain skills regarding:</u></p> <ul style="list-style-type: none"> ● Decision making on research topics ● Identifying sources of research problems. ● Collecting and analysing data. ● Competency developed: ● Literature Review 3 ● Applying various methods for collecting primary and secondary data. ● Analysing collected data. ● Modelling, developing hypothesis and devising new algorithms. ● Drawing inference
	1 week workshop on Research Methodology	
MPHD02	Research and Publication Ethics	<ul style="list-style-type: none"> ● Understanding of ethical issues related to Research and Publication. ● Patents and rights. ● IPR – Intellectual Property Rights Skills gained: ● Write research papers/thesis following publication ethics. ● Related issues. ● Competency developed ● Publish ethically. ● Ways for avoiding plagiarism
	1 day workshop on research and publication ethics	
MPHD 03	Contemporary issues in HRM	<ul style="list-style-type: none"> · To apply the theories and knowledge in the formulation of research problems
	1 day workshop on conceptual paper writing	
	Contemporary issues in Marketing /1 day workshop on conceptual paper work	<ul style="list-style-type: none"> · To apply the theories and knowledge in the formulation of research problems
	Contemporary issues in Finance/1 day workshop on conceptual paper work	<ul style="list-style-type: none"> · To apply the theories and knowledge in the formulation of research problems

	Contemporary issues in Logistics and Supply Chain Management/1 day workshop on conceptual paper work	· To apply the theories and knowledge in the formulation of research problems
MPHD 04	Application and Advanced Research Studies in HRM	· To comprehend the specialised knowledge in the field
	1 day workshop on synopsis writing	
	Application and Advanced Research Studies in Marketing / 1 day workshop on synopsis	· To comprehend the specialised knowledge in the field
	Application and Advanced Research Studies in Finance/ 1 day workshop on synopsis	· To comprehend the specialised knowledge in the field
	Application and Advanced Research Studies in Logistics and Supply Chain Management/ 1 day workshop on synopsis	· To comprehend the specialised knowledge in the field

CURRICULUM OF ACADEMIC PROGRAMMES



Department of Spanish Studies,
School of Languages
MA (Spanish Integrated)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

PO1 To provide students with a well-rounded proficiency in the Spanish language, encompassing basic, intermediate, and advanced levels in listening, speaking, reading, and writing, while fostering cultural competence through literature, history, and culture courses integrated throughout the program.

PO2 To familiarize students with linguistic principles, enabling them to comprehend the intricacies of language learning and acquisition, particularly in the context of Spanish as a foreign language.

PO3 To introduce students to literary theories and the fundamentals of research, equipping them with the skills necessary to contribute to the field of knowledge by offering fresh perspectives and interpretations in their chosen dissertation topics.

PO4 To create a comprehensive educational experience that goes beyond language acquisition, incorporating the rich tapestry of Spanish culture, history, and literature into the curriculum to enrich students' understanding of the language and its context.

PO5 To empower students with the tools and knowledge needed to engage critically with the Spanish language and culture, fostering a deeper appreciation for the subject and the ability to make meaningful contributions to the field of study through their research and interpretations.

PROGRAM SPECIFIC OUTCOMES (PSOCs)

PSO1 To achieve an advanced level of communication in the Spanish language, students have honed their linguistic abilities, enabling them to express themselves effectively and fluently.

PSO 2 To excel in the fields of linguistics, applied linguistics, translation, interpretation, and literary theories, students have developed a robust command over these subjects, equipping them with comprehensive knowledge and skills.

PSO 3 To prepare students for research in their chosen field, they have acquired the necessary skills and expertise, making them proficient in conducting research and contributing meaningfully to their academic and professional endeavors.

COURSE OUTCOMES:

SEMESTER I		
Course Code	Course Title	Course Out Come
SLS - 101	Everyday Spanish-I	Students will be able to : <ul style="list-style-type: none"> • Express themselves orally. • Introduce themselves. • Deliver basic messages of daily life.
SLS - 102	Spanish through Audio visual-I	Students will be able to: <ul style="list-style-type: none"> • Develop basic listening skills. • Respond to basic questions. • Deliver basic messages of daily life.
SLS - 103	Grammar in Practice-I	Students will be able to: <ul style="list-style-type: none"> • Develop skills to use grammar correctly. • Communicate correctly in a given situation. • Develop knowledge of Spanish language at a basic level.
SLS – 104	Introduction to appreciation of Spanish Literature (in English)	Students will be able to: <ul style="list-style-type: none"> • Get familiarized with Spanish Literature as well as Literature in general. • Understand the concept of literary analysis and understand the basic literary tools used. • Develop understanding of literary composition, styles etc.
SLS – 105	Spanish History & Culture-I	Students will be able to: <ul style="list-style-type: none"> • Learn about the timeline of Spanish History. • Develop knowledge of Spanish History up to the 18th Century. • Learn about the cultural aspects of the period.
Semester II		
SLS - 106	Everyday Spanish-II	Students will be able to : <ul style="list-style-type: none"> • Have conversations formally and informally. • Speak in the simple past. • Express continuous actions.

SLS – 107	Spanish through Audio-visual-II	Students will be able to: <ul style="list-style-type: none"> • Develop basic listening skills and converse in a more formal set-up. • Respond to questions in the simple past. • Deliver basic messages in present continuous tense.
SLS – 108	Grammar in Practice-II	Students will be able to: <ul style="list-style-type: none"> • Understand Spanish language grammar rules. • Develop better communication and writing skills. • Comprehend the language well.
SLS – 109	Introduction to appreciation of Latin American Literature (in English)	Students will be able to: <ul style="list-style-type: none"> • Analyze literary texts from Latin America. • Understand literary composition, styles etc. for enhancing literary comprehension and written expression. • Learn language through analysis of selected literary texts.

SLS – 110	Spanish History & Culture-II	Students will be able to: <ul style="list-style-type: none"> • Develop knowledge about Spanish Culture. • Understand the timeline of the 20th Century. • Develop an understanding of politics in Spain.
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Semester III

SLS – 201	Introduction to Literature-I (focus on Spain)	Students will be able to: <ul style="list-style-type: none"> • Understand the timeline of Spanish literature. • Understand the major trends and tendencies in a given historical context. • Read and analyse excerpts from seminal works of Spanish literature.
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SLS – 202	Grammar in Practice-III	Students will be able to: <ul style="list-style-type: none"> • Understand Spanish language grammar rules at the intermediate level. • Develop better communication and writing skills. • Comprehend the language well.
SLS – 203	Communicative Spanish-I	Students will be able to: <ul style="list-style-type: none"> • Develop greater oral fluency. • Improve accuracy of expression. • Develop communicative strategies.
SLS – 204	Written Expression-I	Students will be able to: <ul style="list-style-type: none"> • Write short texts with a simple and clear aim. • Write basic messages in everyday life context. • Write texts using all the tenses.
SLS – 205	Latin America: History and Culture-I	Students will be able to: <ul style="list-style-type: none"> • Understand the history of Latin America. • Identify the geographical description of Latin America. • Develop an understanding of the chronological events starting from Classical Period till Colonisation.

LEL – 440	Hispanic World: Culture & Civilization-I (Elective Course)	Students will be able to: <ul style="list-style-type: none"> • Understand the timeline of the major historical events pertaining to the Hispanic World. • Understand the characteristics and issues of the contemporary Hispanic World. • Watch films on the issues of Latin America to analyse a situation in a given context.
Semester IV		

SLS – 206	Introduction to Literature-II (focus on Latin America)	Students will be able to: <ul style="list-style-type: none"> • Understand the timeline of Latin American literature with the genre pertaining to each period. • Analyse Latin American literary works in historical and cultural context. • Identify rhetorical appeals and strategies of the Latin American Writers.
SLS – 207	Grammar in Practice-IV	Students will be able to: <ul style="list-style-type: none"> • Understand Spanish language grammar rules at the intermediate level. • Develop better communication and writing skills. • Comprehend the language well.
SLS – 208	Communicative Spanish-II	Students will be able to: <ul style="list-style-type: none"> • Have wider conversational vocabulary. • Express themselves with fluency. • Participate in spoken exchanges.
SLS – 209	Written Expression-II	Students will be able to: <ul style="list-style-type: none"> • Develop a set of writing skills at the intermediate level. • Express themselves using idiomatic expressions. • Write especially in the business world.
SLS – 210	Latin American History & Culture-II	Student will be able to: <ul style="list-style-type: none"> • Explore the History of colonial Latin America. • Gain understanding of the origins, development and impact of revolutionary movements in Latin America. • Reflect and discuss important issues of the complex colonial Latin America.

LEL - 441	Hispanic World: Culture & Civilization II (Elective Course)	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Develop awareness about certain cultural practices that shapes social values, political affiliations and economic contributions in Hispanic society. • Understand the differences and struggle of Hispanics in Latin America and the United States through art expressions such as films, literature and music. • Discuss the commonalities between India and Latin America taking multiculturalism into account.
Semester V		
SLS – 301	Reading and Analysis of Texts on Spanish Themes (Literary and Non- Literary)	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Read and analyse literary as well as non-literary texts on Spanish themes. • Analyse texts through analogies and imitation. • Learn the vocabulary in a context as well as identify the linguistic nuances in the texts.
SLS – 302	Introduction to Translation (Commercial/Social Science Texts into English)	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand translation theories, terminologies, techniques and challenges. • Translate commercial and social science texts using these techniques. • Translate technical texts.
SLS – 303	Spanish for Specific Objectives-I	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand multidisciplinary use of Spanish. • Acquire professional knowledge in multiple fields. • Learn traditional and modern models through class participation,

		and acts.
SLS – 304	Contemporary Spain	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the key aspects of Spanish society and culture in modern times. • Learn about the contemporary developments in Spain in the 20th and 21st Century. • Analyse and deduce logically on a given situation taught throughout the course.
Semester VI		

SLS – 305	Reading & Analysis of Texts on Latin American Themes	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the Spanish used in various Latin American countries. • Analyse and understand the political background of the texts • Connect the texts with the history of Latin America
SLS – 306	Literary Translation (Into English/Hindi)	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand translation theories, terminologies, techniques and challenges. • Translate Spanish and Latin American literary texts using these techniques. • Translate short literary texts.

SLS – 307	Spanish for Specific Objectives-II	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand multidisciplinary use of Spanish. • Acquire professional knowledge in multiple fields. • Learn traditional and modern models through class participation, and acts.
SLS – 308	Contemporary Latin America	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Attain understanding of Latin American history from the beginning of the twentieth century to the present. • Explore the issues such as Latin America in the global economy, relations between Latin America and the United States, Dictatorships and democracies in the 20th Centuries, • Understand the new challenges in Latin America as well as the new possibilities of change emerging constantly in Latin America.

Semester VII		
SLS – 401	Spanish Literature: Middle Ages	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Acquire knowledge of the origins of Spanish literature. • Read seminal literary works from the Middle Ages. • Understand the evolution of the Spanish language in the course of time through texts from the Middle Ages. • Identify the significance of the Middle Ages in contemporary times.

SLS – 402	Theory and Practice of Translation: Commercial & Technical Texts	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand Translation as a process and a product. • Understand the theories of Translation. • Practice translation of commercial and technical texts. • Identify problems of translation.
SLS – 403	Cultural History of Spain	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the evolution of Spanish as a language as well as an identity of a people. • Understand Spanish culture through art and artefacts. • Develop an understanding of cultural history of Spain since the Middle Ages till date. • Understand the contemporary issues in Spain in a context.
SLS – 404	Introduction to Linguistics	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the basics of Linguistics. • Get an understanding of concepts like Semantics, Syntax, Phonemes, Morphology etc. • Understand theories of language acquisition. • Conduct study of language through theory and practice.
Semester VIII		
SLS – 405	Spanish Literature: Golden Age	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Familiarize with the most well known texts from the very significant time period in Spanish literature i.e. Golden Age. • Understand the various genres of literature with help of the selected texts.

		<ul style="list-style-type: none"> • Identify the importance and significance of the Golden Age in contemporary times. • Understand the evolution of Spanish language in the course of time through these texts.
SLS – 406	Literary Translation (Into Spanish)	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand Literary Translation as a process and a product. • Understand the theories of Translation. • Practice translation of literary texts pertaining to different genres. • Analyse the strategies employed in various translated texts of a source text.
SLS – 407	Cultural History of Latin America	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Gain a thorough understanding of the major themes of Latin American history. • Understand history as a creative endeavour, as a tool that gives a guide to understanding the present. • Develop the ability to think critically about the subjectivity of the apparently factual, transparent discourse and to argue creatively and convincingly. • Understand the contemporary issues in Latin America in a context.

SLS – 408	Introduction to Theories of Literature	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Develop an understanding of literary theories. • Read texts from diverse fields and analyse them using the theories. • Develop an understanding of the existing trends from Spain and Latin America in the field. • Develop an understanding of the emerging trends from Spain and Latin America in the field.
Semester IX		
SLS – 501	Spanish Literature-I: Enlightenment, Romanticism & Realism	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Develop an understanding of the 18th and 19th Century Spanish Literature. • Gain an understanding of literary trends emerging from Spain from the period. • Read one complete work from 19th Century Spanish literature. • Analyse texts in the context of 19th Century Spanish intellectual history.
SLS – 502	Latin American Literature-I: Focus on 19th Century	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the major intellectual trends in Latin America in the 19th Century. • Read texts from 19th Century Latin American literature. • Read one complete work from 19th Century Latin American literature. • Analyse texts in the context of 19th Century Latin American intellectual history.

SLS – 503	Introduction to Interpretation	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the different aspects of Interpretation. • Understand the techniques of Interpretations. • Understand the importance of speed in interpretation. • Develop necessary skills to interpret in different situations.
SLS – 504	Applied Linguistics with reference to Spanish as a Foreign Language	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand linguistic approaches and methods to translation. • Develop an understanding of classical and modern approaches for applied linguistics. • Learn about the teaching and learning methods of Spanish as a foreign language and its implementation in the context of India. • Develop didactic units.
SLS - 505	Research Methods for Dissertation	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the basics of research. • Develop necessary skills for academic writing. • Structure synopsis. • Understand the qualities of a good researcher.
Semester X		
SLS – 506	Spanish Literature-II: Focus on 20 th Century	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the major intellectual trends in Spain in the 20th Century. • Read texts from 20th Century Spanish literature. • Read one complete work from 20th Century Spanish literature. • Analyse texts in the context of 20th Century intellectual history of Spain.

SLS – 507	Latin American Literature-II: Focus on 20 th Century	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the major intellectual trends in Latin America in the 20th Century. • Read texts from 20th Century Latin American literature. • Read one complete work from 20th Century Latin American literature. <p>Analyse texts in the context of 20th Century Latin American intellectual history.</p>
SLS - 508	Consecutive and Simultaneous Interpretation	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the nuances of Interpretation. • Understand the differences between various types of Interpretations. • Build vocabulary pertaining to the ambit of interpretation. • Develop necessary skills to do consecutive and simultaneous interpretations.
SLS – 509	History of Ideas in Latin America & India in 20th Century	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Read texts written by Latin American intellectuals in India. • Understand the intellectual history of Latin America in the 20th Century. • Perceive commonalities between Latin America and India. • Appreciate and analyse reception of India in Latin America in contemporary times.

SLS – 510	Dissertation	Students will be able to: <ul style="list-style-type: none">• Complete an original research work in Spanish language in consultation with faculty-supervisor.• Write a dissertation on a topic pertaining to an aspect of Hispanic Studies.• Understand how to structure and format a research work.• Gain an understanding to develop a theoretical framework as well as a methodological framework for a research topic.
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CURRICULUM OF ACADEMIC PROGRAMMES



Department of Spanish Studies,
School of Languages
MA (Spanish)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

MA Spanish

PROGRAM OUTCOMES (POs):

PO1 To provide a strong foundation in linguistics, students are introduced to the intricacies of language, enabling them to grasp the process of learning and acquiring Spanish as a foreign language.

PO2 To broaden students' horizons, the curriculum includes an introduction to literary theories, equipping them with the fundamental principles required to critically analyze and interpret literary works within the context of their studies.

PO3 To encourage academic growth, students are guided in the basics of research methodology, allowing them to develop the skills needed to contribute new perspectives and insights to the field of knowledge within their chosen theme or topic for their dissertation.

PO4 To empower students with a multidisciplinary approach, the program combines linguistic understanding, literary theory, and research skills, facilitating a holistic and insightful approach to their academic pursuits.

PO5 To prepare students for meaningful contributions to their field of study, the curriculum not only imparts knowledge but also nurtures critical thinking and research capabilities, enabling them to make original and valuable contributions to the field.

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1 To ensure comprehensive language proficiency, students acquire a strong command over linguistics, enabling them to understand the intricacies of language structure and function.

PSO2 To cater to practical applications, students develop expertise in applied linguistics, translation, and interpretation, equipping them with the skills necessary for effective communication and cross-cultural understanding.

PSO3 To foster academic excellence, students are equipped with a deep understanding of literary theories and research methodologies, empowering them to contribute significantly to their field of study through critical analysis and innovative research endeavors.

COURSE OUTCOMES (COS):

Course Code	Course Title	Course Out Come
Semester I		
SLS – 401	Spanish Literature: Middle Ages	Students will be able to: <ul style="list-style-type: none">● Acquire knowledge of the origins of Spanish literature.● Read seminal literary works from the Middle Ages.● Understand the evolution of the Spanish language in the course of time through texts from the Middle Ages.● Identify the significance of the Middle Ages in contemporary times.
SLS – 402	Theory and Practice of Translation: Commercial & Technical Texts	Students will be able to: <ul style="list-style-type: none">● Understand Translation as a process and a product.● Understand the theories of Translation.● Practice translation of commercial and technical texts.● Identify problems of translation.
SLS – 403	Cultural History of Spain	Students will be able to: <ul style="list-style-type: none">● Understand the evolution of Spanish as a language as well as an identity of a people.● Understand Spanish culture through art and artefacts.● Develop an understanding of cultural history of Spain since the Middle Ages till date.● Understand the contemporary issues in Spain in a context.
SLS – 404	Introduction to Linguistics	Students will be able to: <ul style="list-style-type: none">● Understand the basics of Linguistics.● Get an understanding of concepts like Semantics, Syntax, Phonemes, Morphology etc.● Understand theories of language acquisition.● Conduct study of language through theory and practice.
Semester II		

SLS – 405	Spanish Literature: Golden Age	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Familiarize with the most well-known texts from the very significant time period in Spanish literature i.e. Golden Age. ● Understand the various genres of literature with help of the selected texts. ● Identify the importance and significance of the Golden Age in contemporary times. ● Understand the evolution of Spanish language in the course of time through these texts.
SLS – 406	Literary Translation (Into Spanish)	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Understand Literary Translation as a process and a product. ● Understand the theories of Translation. ● Practice translation of literary texts pertaining to different genres. ● Analyse the strategies employed in various translated texts of a source text.
SLS – 407	Cultural History of Latin America	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Gain a thorough understanding of the major themes of Latin American history. ● Understand history as a creative endeavour, as a tool that gives a guide to understanding the present. ● Develop the ability to think critically about the subjectivity of the apparently factual, transparent discourse and to argue creatively and convincingly. ● Understand the contemporary issues in Latin America in a context.
SLS – 408	Introduction to Theories of Literature	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Develop an understanding of literary theories. ● Read texts from diverse fields and analyse them using the theories. ● Develop an understanding of the existing trends from Spain and Latin America in the field. ● Develop an understanding of the emerging trends from Spain and Latin America in the field.
Semester III		

SLS – 501	Spanish Literature-I: Enlightenment, Romanticism & Realism	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Develop an understanding of the 18th and 19th Century Spanish Literature. ● Gain an understanding of literary trends emerging from Spain from the period. ● Read one complete work from 19th Century Spanish literature. ● Analyse texts in the context of 19th Century Spanish intellectual history.
SLS – 502	Latin American Literature-I: Focus on 19th Century	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Understand the major intellectual trends in Latin America in the 19th Century. ● Read texts from 19th Century Latin American literature. ● Read one complete work from 19th Century Latin American literature. ● Analyse texts in the context of 19th Century Latin American intellectual history.
SLS – 503	Introduction to Interpretation	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Understand the different aspects of Interpretation. ● Understand the techniques of Interpretations. ● Understand the importance of speed in interpretation. ● Develop necessary skills to interpret in different situations.
SLS – 504	Applied Linguistics with reference to Spanish as a Foreign Language	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Understand linguistic approaches and methods to translation. ● Develop an understanding of classical and modern approaches for applied linguistics. ● Learn about the teaching and learning methods of Spanish as a foreign language and its implementation in the context of India. ● Develop didactic units.

SLS - 505	Research Methods for Dissertation	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the basics of research. • Develop necessary skills for academic writing. • Structure synopsis. • Understand the qualities of a good researcher.
Semester IV		
SLS – 506	Spanish Literature-II: Focus on 20 th Century	<ul style="list-style-type: none"> • Understand the major intellectual trends in Spain in the 20th Century. • Read texts from 20th Century Spanish literature. • Read one complete work from 20th Century Spanish literature. • Analyse texts in the context of 20th Century intellectual history of Spain.
SLS – 507	Latin American Literature-II: Focus on 20 th Century	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the major intellectual trends in Latin America in the 20th Century. • Read texts from 20th Century Latin American literature. • Read one complete work from 20th Century Latin American literature. • Analyse texts in the context of 20th Century Latin American intellectual history.
SLS - 508	Consecutive and Simultaneous Interpretation	<p>Students will be able to:</p> <ul style="list-style-type: none"> • Understand the nuances of Interpretation. • Understand the differences between various types of Interpretations. • Build vocabulary pertaining to the ambit of interpretation. • Develop necessary skills to do consecutive and simultaneous interpretations.

SLS – 509	History of Ideas in Latin America & India in 20th Century	Students will be able to: <ul style="list-style-type: none">● Read texts written by Latin American intellectuals in India.● Understand the intellectual history of Latin America in the 20th Century.● Perceive commonalities between Latin America and India.● Appreciate and analyse reception of India in Latin America in contemporary times.
SLS – 510	Dissertation	Students will be able to: <ul style="list-style-type: none">● Complete an original research work in Spanish language in consultation with faculty-supervisor.● Write a dissertation on a topic pertaining to an aspect of Hispanic Studies.● Understand how to structure and format a research work.● Gain an understanding to develop a theoretical framework as well as a methodological framework for a research topic.

CURRICULUM OF ACADEMIC PROGRAMMES



Department of Spanish Studies,
School of Languages
PhD (Spanish)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

Ph.D. Spanish

PROGRAM OUTCOMES (POs):

PO1 To empower scholars with a robust academic foundation, the program imparts essential skills in research writing and ethics, ensuring they are equipped to undertake comprehensive research in specialized fields like applied linguistics, translation, interpretation, and Spanish and Latin American literature and culture studies.

PO2 To encourage rigorous scholarship, scholars are guided in the principles of research methodology, enabling them to conduct in-depth investigations and contribute to the academic discourse in their chosen areas of expertise.

PO3 To instill a commitment to scholarly integrity, the curriculum emphasizes ethical considerations in academic publishing, ensuring that scholars adhere to the highest standards of honesty and professionalism in their research and publications.

PO4 To prepare scholars for meaningful contributions to their respective fields, the program equips them with the tools necessary to undertake detailed research work, fostering their ability to generate new insights and knowledge in applied linguistics, translation, interpretation, and cultural studies.

PO5 To cultivate well-rounded researchers, the program combines practical research skills, ethical principles, and a deep understanding of their chosen fields, enabling scholars to excel in their academic pursuits and contribute positively to the broader academic community.

PROGRAM SPECIFIC OUTCOMES (PSO):

PSO: To equip scholars with advanced research skills and tools that they are able to write academic papers and thesis in the field of Hispanic studies.

COURSE OUTCOMES (COS):

Semester I		
Course Code	Course Title	Course Out Come
PSP-001	Research Methodology	Scholars will be able to: <ul style="list-style-type: none">• Understand the philosophy and mechanics of research.• Develop a knowledge of different styles of writing, their usage and suitability in thesis writing.• Acquire a theoretical thrust as well as a hands-on experience in writing research proposals.• Develop a knowledge of various types of research such as quantitative, qualitative research.
PSP-002	Research and Publications Ethics (RPE)	Scholars will be able to: <ul style="list-style-type: none">• Develop a knowledge of basics of philosophy of science and ethics, research integrity, publication ethics.• Identify research misconduct, predatory publications and use plagiarism tools.
PSP-003 (A)	Selected Aspects of Spanish Literature	Scholars will be able to: <ul style="list-style-type: none">• Identify important literary trends of Spanish Literature.• Read, analyse and identify the main characteristics of literary genres.• Clarify that literature and other cultural artefacts give voice to value systems, traditions, and beliefs.• Analyse literary works in a given context.

PSP-003(B)	Theory and Practice of Translation	<p>Scholars will be able to:</p> <ul style="list-style-type: none"> • Develop an understanding of theories and techniques of Translation • Apply the techniques of technical and literary translation in a context. • Understand and develop the process of translating different kinds of literary as well as non-literary texts • Discuss strategies employed in different target texts of one source text.
PSP-004(A)	India in Hispanic Intellectual Thought	<p>Scholars will be able to:</p> <ul style="list-style-type: none"> • Deal with some of the manifestations of literary, cultural, philosophical or socio-political reflections on India observed in Spain and Latin America . • Establish an intellectual history connecting Spain, Latin America and India through analysis of texts. • Develop an understanding and capacity to appreciate and analyse the nature of Indian reception in Latin America and Spain from colonial times and in the 20th Century. • Identify Indian themes and personalities by perceiving commonalities between Spain, Latin America and India.

PSP-004(B)	Methodology of Learning and Teaching Spanish in context of India	<p>Scholars will be able to:</p> <ul style="list-style-type: none">• Develop and increase the knowledge (theoretical and practical) of specific aspects of applied linguistics relevant to learning of Spanish as a foreign language.• Understand different methodologies, techniques and approaches of Spanish language teaching and acquisition/learning in context of India.• Put in practice the methodologies, techniques and approaches in a real (like) teaching environment.• Analyse and prepare didactic material for Spanish language learning in context of India.
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CURRICULUM OF ACADEMIC PROGRAMMES



Department of English
(School of Languages)
BA (English Honours)



DOON UNIVERSITY
KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES (POs):

On successful completion of the Bachelors Honours degree in English Literature, students will be able to-

1. Demonstrate a broad and coherent body of knowledge with depth in the underlying principles and concepts;
2. Integrate knowledge of the diversity of cultures and peoples;
3. Apply critical thinking, analytical abilities, independent judgment, intercultural sensitivity and regional, national and global perspectives to identify and solve problems in English Language and Literature and life alike.
4. Hone their academic and critical writing abilities.
5. Demonstrate capacity for reflection, planning, ethical decision- making and inter-disciplinary teamwork in diverse contexts of community engagement.
6. To be prepared for pursuing multitude of post-BA endeavours, including higher studies and careers including publishing, journalism and others

COURSE OUTCOMES (COs)**FIRST SEMESTER**

Course Type	Course Code	Title of the Course	Course Outcome
Core	SLE 401	Background to English Literature	<ol style="list-style-type: none">1. To comprehend and analyse the characteristics of literary history and their development in chronological order2. To recognize the impact of discovery of new lands and circulation of new ideas across Europe3. To identify the shift of the worldview with change in the timeline of the literary history4. To develop understanding of social and intellectual background5. To compare the similarities and dissimilarities among the literary ages.
Core	SLE 402	English Poetry 1 (15th Century to early 18th Century)	<ol style="list-style-type: none">1. To develop an understanding of poems from 15th century to 18th century2. To appraise the different types of poems3. To identify the type of society through specific poems of the age4. To develop a critical eye for technique, structure, meter and tone of the poems.
Ability enhancement compulsory	SLE 403	English Communication	<ol style="list-style-type: none">1. To enhance communicative skills like writing, reading, speaking and listening2. To develop

course AECC			communication etiquettes 3. To express an ability to communicate effectively 4. To reinforce language proficiency 5. Extend their knowledge of contemporary issues.
Core	SLE 404	Seminar	1. To be able to map the critical understanding of text, society and culture 2. To analyze the text through brainstorming 3. To develop presentation skills

SEMESTER II

Course type	Course Code	Title of the Course	Course Outcome
Core	SLE 405	English Drama 1	1. To develop understanding of Renaissance dramatists 2. To identify the shift of the worldview towards humanism post Renaissance and Reformation 3. To develop an understanding of tragedy and comedy 4. To learn about comedy of Humors

Core	SLE 406	English Fiction 1	<ol style="list-style-type: none"> 1. To estimate the social, cultural, religious and gendered impact on the literature of the time 2. To identify the reasons of the emergence of prose and novels and the decline of drama in England 3. To assess the impact of science, technology, industrialization, revolution and its reflection in consequent emergent cultural and political issues of the day 4. To appraise different aspects of novels.
Ability enhancement compuls	EES 110	Environmental Study	<ol style="list-style-type: none"> 1. To sensitize towards sustainable environment 2. To strengthen the understanding of ideas and concepts related to the
ory course AECC			<ol style="list-style-type: none"> study of environment 3. To assess the impact of damage incurred on environment
SEC	SLE 407	Ecology and Literature	<ol style="list-style-type: none"> 1. To develop critical awareness about sustainable practices 2. To explore environmental issues through literary and historical narratives 3. To understand environmental crises
Core	SLE 408	Women's Writings in India	<ol style="list-style-type: none"> 1. To develop knowledge of the seminal Indian women writers and their texts 2. To assess women's literary expressions and their navigation of socio-cultural spaces from India 3. To recognize the struggles of women in India in overcoming barriers of gender, caste, class and culture

SEMESTER III

Course Type	Course Code	Title of the Course	Course Outcome
Core	SLE 409	English Poetry II	<ol style="list-style-type: none">1. To compare and contrast between Romantic and Victorian tendencies through poems2. To critical assessment of poetry3. To develop understanding of literary concepts like ode, dramatic monologue and Pre-Raphaelite movements4. To explore critical and creative thinking.
Core	SLE 410	Literary Criticism	<ol style="list-style-type: none">1. To develop an overview of the critical theories since classical times2. To apply the critical theories to literary texts
			<ol style="list-style-type: none">3. To recognize the relevance of the theories in the social context4. To develop the art of critical thinking.
	SLE 411	Literature and Film	<ol style="list-style-type: none">1. To develop an understanding of the technical terminology associated with film studies2. To interpret films as text and evaluate them critically3. To appraise the process of adaption of texts into films4. To recognize the nuances of cinematography5. To assess various film genres and their characteristics

Core	SLE 412	Self-Study of any two authors (with a special focus on the given text)	<ol style="list-style-type: none"> 1. To estimate the social, philosophical, economic and cultural impacts on Indian society 2. To develop an understanding of Indian literature 3. To appraise the philosophical aspects in literature and art 4. To identify aspects of autobiographical fiction in texts.
Skill Enhancement Course SEC	LGN-401	Indian economy since 1947	<ol style="list-style-type: none"> 1. To develop an understanding of Indian economy 2. To comprehend importance and aspects of economy 3. To critically assess the role of planning and five year Plans in Indian economy.

SEMESTER IV

Course Type	Course Code	Title of the Course	Course Outcome
Skill Enhancement Course SEC	LGN 402	India Since 1947-II	<ol style="list-style-type: none"> 1. To develop an understanding of the beginnings of the modern Indian political system after Independence 2. To appraise the different aspects of Indian political system in history 3. To assess the impact of Nehruvian era to the Coalition era 4. To identify the reasons of the emergence of women movement in India.

Core	SLE 413	English Drama II	<ol style="list-style-type: none"> 1. To estimate the social and cultural impact of movements like modernism and expressionism through texts 2. To develop an understanding of theatre of the absurd and theatre of cruelty 3. To assess and interpret modern dramatists' texts.
	SLE 414	English Fiction II	<ol style="list-style-type: none"> 1. To develop an understanding of modernistic novels and its impact on the society 2. To appraise the emergence of female narratives in art and literature 3. To interpret the literary concepts and ideas like interior monologue, dystopian fiction, primitivism and modernism.
Core	SLE 415	Literary Terms and Movements	<ol style="list-style-type: none"> 1. To develop an understanding of various literary terms 2. To assess how movements and ideas revolutionised the entire Europe 3. To identify the shift of the worldview in different ages through movements and texts 4. To compare the similarities
			between the Renaissance and contemporary ideas.
	SLE 416	Human Resource Management	<ol style="list-style-type: none"> 1. To develop understanding of concept and functions of Human Resource Management 2. To understand the importance of training and management 3. To assess real life engagement of Human resources.

Core	SLE 417	Indian Writing in English	<ol style="list-style-type: none"> 1. To develop a knowledge of the seminal writers and texts of India 2. To recognize the importance and benefits of translation 3. To recognize the loss of ethos that inevitably occurs due to translation 4. To review the past through the reconstruction of the culture through their translated texts 5. To develop a knowledge of the different languages and literatures of India
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SEMESTER V

Course Type	Course Code	Title of the Course	Course Outcome
Core	SLE 418	Introduction to Literary Theory	<ol style="list-style-type: none"> 1. To develop an overview of the critical theories of Rasa and Dhvani since Indian classical times 2. To compare Indian and Western literary theoretical frameworks 3. To apply the critical theories to literary texts 4. To recognize the relevance of the theories in the social context 5. To develop the art of critical thinking

Skill Enhancement Course SEC	SLE 419	Advertising	<ol style="list-style-type: none"> 1. To understand the importance of concepts, tools and techniques of advertising 2. To explore theoretical frameworks and usage in practical fields 3. To assess information about copywriting, ASCI, etc.
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Core	SLE 420	European Modernism	<ol style="list-style-type: none"> 1. To develop an overview of the contemporary critical theories like Marxism and Psychoanalysis 2. To assess the relevance of the theories in the social context 3. To explore range of experimental and avant-garde trends in literature 4. To demonstrate a broad understanding of the major debates concerning modernism and modernity in Europe
	SLE 421	Postcolonial Literature	<ol style="list-style-type: none"> 1. To recognize the difference in colonial and post-colonial sensibilities 2. To develop an understanding of the post-colonial theory 3. To evaluate texts on the basis of post-colonial tenets 4. To appraise the importance and efforts to decolonize 5. To develop an understanding of Indian Colonial History and struggle against it
Core	SLE 422	Understanding India through Creative Writings in English: 1900-1950	<ol style="list-style-type: none"> 1. To recognize and use basic terminology in creative writing through the texts by Indian writers 2. To use the knowledge to apply major styles and techniques in creative writing 3. To develop critical reading
			<p>skills for writing the criticism through Indian literature in English</p> <ol style="list-style-type: none"> 4. To explore the social, cultural and political background of the society, space and text.

Core	SLE 423	Indian Classical Literature	<ol style="list-style-type: none"> 1. To develop knowledge about the masterpieces in Indian classical literature 2. To be motivated by the superb classical drama of Kalidas, Vyasa and Sudraka 3. To do a comparative study of English literature and Indian classical literature 4. To understand the richness of Indian literature
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SEMESTER VI

Course Type	Course Code	Title of the Course	Course Outcome
Core	SLE 424	American Literature	<ol style="list-style-type: none"> 1. To appraise the idea of multiculturalism in America 2. To compare and contrast the various sociological theories of American cultural milieu 3. To recognize and reflect the social problems in America
Core	SLE 425	Literature of Diaspora	<ol style="list-style-type: none"> 1. To develop understanding of the term diaspora and literature associated with it 2. To recognize the issues like identity crisis, nostalgia and the idea of home among diasporic communities 3. To interpret the inter-generational issues that exist in diasporic communities.
Core	SLE 426	Dissertation	<ol style="list-style-type: none"> 1. To identify research methods 2. To state research questions.

			<ol style="list-style-type: none">3. To identify literature for review.4. To critically analyze and evaluate the knowledge and understanding in relation to the agreed area of study.5. To integrate theory and practice.6. To develop responses based on the evaluation and analysis undertake.7. To apply knowledge and understanding in relation to the agreed area of study.8. To communicate in written form by integrating, analyzing and applying key texts and practices.9. To demonstrate advanced critical research.
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CURRICULUM OF ACADEMIC PROGRAMMES



Department of English
(School of Languages)

MA (English)



DOON UNIVERSITY
KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOME (POs):

On successful completion of the Masters in English Literature, students will be able to-

- 1. Demonstrate a broad and coherent body of knowledge with depth in the underlying principles and concepts;**
- 2. Integrate knowledge of the diversity of cultures and peoples;**
- 3. Apply critical thinking, independent judgment, intercultural sensitivity and regional, national and global perspectives to identify and solve problems in English Language and Literature;**
- 4. Demonstrate capacity for reflection, planning, ethical decision- making and inter-disciplinary teamwork in diverse contexts of community engagement**

COURSE OUTCOMES (COs):

First Semester

Course Type	Course Code	Course Title	Course Outcome
Core	SLE 501	British Poetry-I	<ol style="list-style-type: none">1. To critically analyze individual poems, as well as develop a socio-political and historical understanding of British Poetry of the period covered in the course2. To develop a critical understanding of British Poetry—its origin, forms, evolution, trends and movements.3. To understand historical-cum-critical perspective on British Poetry4. To underline the significance of the poets in totality and to see how they become a part of a literary tradition
Core	SLE 502	Classical Literature in English	<ol style="list-style-type: none">1. To lay emphasis on critical analysis and writing about texts in the context of ancient and modern debates about their meaning2. To develop an understanding of the classical works their philosophy and socio-political thought.3. To introduce the major texts of Western and Indian classical literatures4. To familiarize students with cultural practices, inspirations, stimulus and influences and understand texts as historical chronicles and sources of moral values and examples of characters that fill life.5. To provide students with a working knowledge of key elements of the Indian and Greek classical and Judaeo-Christian traditions6. To understand and analyze more fully different literary texts and cultural backgrounds—their universality and contemporaneity.

Core	SLE 503	Literary Criticism-I	<ol style="list-style-type: none"> 1. To familiarize the students with major literary critical texts from Plato to Samuel Johnson 2. To examine the critical text in the context of the socio-political and philosophical dimensions of renaissance/ early modernity, and neo classicism. 3. To read the text closely to develop understanding of the key concepts and themes of literary criticism
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Core	SLE 504	British Drama- I	<ol style="list-style-type: none"> 1. To understand the growth and development of drama down the ages. 2. To shape its structure in the medieval ages in the form of the Miracle and Morality plays and going through the interludes, drama finally acquired its generic form in the Elizabethan age. 3. To develop orientation towards the literary and theatrical structures and idioms of drama in adopted by playwrights during the medieval, Elizabethan, Jacobean and Restoration periods. 4. To identify diverse categories and genres like comedy, tragedy, history and tragicomedies. 5. To comprehend the essentials of drama in the 15th century Morality plays, Shakespearean drama, Jacobean Drama and Restoration comedies. 6. To prioritize reading of the text, understanding its thematic nuances and relating the same to the historical and cultural contexts. 7. To understand the text in the light of classical and modern and Post-modern tools of criticism. 8. To understand and explain important portions of the text with respect to their respective linguistic and thematic backdrop.
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Second Semester

Course Type	Course Code	Course Title	Course Outcome
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Core	SLE 505	British Novel-I	<ol style="list-style-type: none"> 1. To familiarize the students with the 18th /19th century British novel. 2. To discuss the context of the rise of the novel. 3. To read the text under consideration in the light of its socio-historical backdrop. 4. To research the literary and cultural backdrop of the text and author. 5. To understand the significance of intrinsic literary features such as point of view, character, language, narrative strategies and authorial intention and examined it at
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			length.
Core	SLE 506	British Drama- II	<ol style="list-style-type: none"> 1. To make the students understand the theatrical relevance of the plays along with their literary significance. 2. To lay emphasis on the reading of the text and their application with a state of art tools of criticism. 3. To understand drama in their historical and socio- political context. 4. To emphasize upon the literary and theatrical context of the prescribed dramas
Core	SLE 507	Literary Criticism- II	<ol style="list-style-type: none"> 1. To examine the intellectual, socio-political, cultural and philosophical context of literary criticism since the Enlightenment 2. To conduct close reading of the critical text, as well as examination of the influence of the respective theory on literary texts
Core	SLE 508	British Poetry- II	<ol style="list-style-type: none"> 1. To approach the poems in terms of their socio-historical background 2. T examine the major genres of 19th century poetry such as the lyric, ode, etc.

Third Semester

Course Type	Course Code	Course Title	Course Outcome
	SLE 509	Indian Writing in English	<ol style="list-style-type: none">1. To examine issues concerning Indian Writing in English such as the representation of culture, identity, history, constructions of nation, (post)national and gender politics, cross-cultural transformations etc.2. To understand the texts examining issues such as nationalism, post-colonialism and globalization3. To focus on the status of English as a
			language in India.
	SLE 510	British Poetry- III	<ol style="list-style-type: none">1. To develop an understanding between poetry and politics in the backdrop of World War I & II.2. To examine modernism as a trend in literature and the arts.
	SLE 511	Literary Theory-I	<ol style="list-style-type: none">1. To articulate the broader ways in which literary theory applies to their own culture, global culture, and their own lives;2. To demonstrate the ability to apply various theories to works of literature and aspects of contemporary culture3. To demonstrate the ability to articulate theoretical concepts orally through class participation and formal presentation of their assignments

	SLE 512(A)	19TH /20TH Century European Novel	<ol style="list-style-type: none"> 1. To provide an understanding of the novel from through the comparative study of the European long fiction from the 19th and 20th Century 2. To explore the forms and the range of narrative possibilities and thematic concerns 3. To understand formal techniques and the devices of narration 4. To introduce number of major European novels 5. To explore the development in styles and content of the European novel in context to the social, cultural and political contexts 6. To examine key concepts in contemporary literature in the lights of these developments
	SLE 512(B)	Modern European Drama	<ol style="list-style-type: none"> 1. To develop an understanding of each drama in its cultural, literary and theatrical context 2. To stage scripts presented through the selection of dramas
	SLE 512(C)	Gender Literature and	<ol style="list-style-type: none"> 1. To develop familiarization with women studies, gender being an important area of study in most disciplines, including literary theory, drama studies, film theory, and the like 2. To conduct a focused investigation of the text 3. To interrogate the issues of gender, caste and class

Semester fourth

Course Type	Course Code	Title of the Course	Course Outcome
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	SLE 513	Literary Theory-II	<ul style="list-style-type: none"> ● To read and reread the prescribed texts ● To enable the understanding of the critical/ literary theory ● To enhance the ability to analyze the canonical texts of English literature from the perspective of the class, race and gender ● To familiarize with theoretical tools that offer feminist, Marxist and postcolonial readings of texts
	SLE 514	Indian Poetics	<ul style="list-style-type: none"> ● To respond to the major text of modernist novel, ● To develop critical understanding between modernism and modernity as manifest in the prescribed texts ● To develop an understanding of the relationship between the novel and the society ● To develop an understanding of the socio-political and philosophical contexts of the development of the major traits of the modern novel
	SLE 515(A)	Indian Poetics	<ol style="list-style-type: none"> 1. To introduce the representative texts from the four major schools of literary criticism and theory in India such as Rasa, Dhvani,, and Vakrokti.
			<ol style="list-style-type: none"> 2. To develop cognitive knowledge of the history of Indian poetics 3. To conduct close reading of the selected portions of these texts helped understanding of the different concepts and categories of literature, literary criticism, and literary theory in the Indian tradition

	SLE 515(B)	Theatre/ Film and Literature	<ol style="list-style-type: none"> 1. To gain intrinsic learning of the relationship between literature and the theatre and literature and cinema 2. To train the learner's mind in understanding the rudiments of theatre and films 3. To have the ability to research the basic ingredient of performing arts 4. To analyze the changes in the original shape and how a piece of 5. To understand transformations in the texture and meaning of literature in the new medium of theatre or cinema
	SLE 515(C)	Introduction to Linguistics	<ol style="list-style-type: none"> 1. To introduce the fundamentals of Linguistics 2. To enable understanding of scientific, historical, psychological and sociological factors 3. To develop an understanding of the growth and evaluation of a language 4. To develop an understanding of the various process of word formation in English 5. To improve language skills- listening, reading, speaking and writing through key properties of language, language Varieties
	SLE 516(A)	American/African American Literature	<ol style="list-style-type: none"> 1. To acquaint the students with the essential characteristics of American/African American Literature 2. To briefly survey the foreign and native influences, which went to make up its character, and get a glimpse of the changing social environment from 1900 to the present day
	SLE 516(B)	African Literature	<ol style="list-style-type: none"> 1. To gain a broad and deep understanding of African Literary works 2. To develop understanding of the long and
			complex literary history through representative texts

	SLE 516(C)	Indian Writing in English Translation	<ol style="list-style-type: none"> 1. To develop an understanding of English Literature through vernacular and classical literature 2. To be able to address the gaps through some major classic Indian texts translated into English 3. To develop an understanding texts of Uttarakhand 4. To develop an understanding of the writers of diverse genres and subjectivities such as Dalit and feminist writers have been given equal space. 5. To develop sensitization towards the Indian Bhasa or vernacular texts 6. To develop an understanding of the process of translation and transcreation 7. To enhance knowledge gained through the readings of these texts about different cultures and communities of the country and their respective sensibilities and literary practices
	SLE 516(D)	Asian Literature	<ol style="list-style-type: none"> 1. To develop the ability to identify and analyze a variety of representative Asian literary masterpieces, genres and authors, especially those representing the core Asian culture 2. To develop an understanding of the social and historical contexts to trace the emergence of Asian genres over time and across cultures 3. To develop cognitive intelligence to identify major themes of representative Asian poetic and fictional works from China, Japan, Korea and Pakistan 4. To gain familiarity with different forms and basic concepts of Asian aesthetics
	SLE 516 (E)	Dissertation	<ol style="list-style-type: none"> 1. To identify research methods. 2. To state research questions. 3. To identify literature for review. 4. To critically analyze and evaluate the

			<p>knowledge and understanding in relation to the agreed area of study.</p> <ol style="list-style-type: none">5. To integrate theory and practice.6. To develop responses based on the evaluation and analysis undertake.7. To apply knowledge and understanding in relation to the agreed area of study.8. To communicate in written form by integrating, analyzing and applying key texts and practices.9. To demonstrate advanced critical research skills
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CURRICULUM OF ACADEMIC PROGRAMMES



Department of English
(School of Languages)
(PhD English)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR

DEHRADUN-248001

S.No.	Course	Course Code	Course Credit	Course Outcome
Core Compulsory				
1	Research Methodology	PEG 001	4	<ol style="list-style-type: none"> 1. To introduce scholars to the philosophy and mechanics of research 2. To train scholars in the use of language, style and discourses suitable for thesis-writing, 3. To expose scholars to theories of literature, and help them acquire both a theoretical thrust and hands-on experience in writing research proposals before they embark upon the execution of the thesis proper
2	Research and Publication Ethics	PEG 002	2	<ol style="list-style-type: none"> 1. To develop an understanding of research methodology and its basic concepts 2. To identify the trends in contemporary research to successfully formulate relevant research questions 3. To comprehend the different mechanics of writing and effectively use them in their research 4. To understand and apply the virtual technologies in diverse areas of research 5. To apply the MLA guidelines to research documentation
Elective Courses				
	Contemporary Literary Theory	PEG 003(A)	4	1. To understand the history of English literature and explore its relevance in specific details.

				<p>2. Comprehend and analyze the characteristics of literary movements and their development in chronological order Enhance English writing skills and understand the fundamental concepts of language and communication Apply the knowledge of literary genres in interdisciplinary fields.□ To read and analyze the representative texts as categorized under the various genres.</p> <p>3. Communicate the new ideas of literature through written and verbal assessment and explore the concepts of critical thinking through major literary theories.</p> <p>4. Identify the political and intellectual interrelations between literature and society and develop a gender-sensitive outlook through an understanding of the women's condition in the society.</p>
	Gender, Sexuality, Caste and Subaltern Studies	PEG 003(B)	4	<p>1. Identify the difference between sex and gender</p> <p>2. Recognize the basic ideas of gender studies and types of feminism</p> <p>3. Appraise the foundational ideas of the feminist philosophy □Develop an understanding of the</p>

				<p>various challenges faced by women in different settings.</p> <p>4. Develop more sensitivity to the gender discrimination around them</p>
	Indian Literatures translated in English	PEG 004(A)	4	<p>1. 1.To introduce the student to the polyphony of modern Indian writing and translation.</p> <p>2. T o u n d e r s t a n d t h e multifaceted nature of cultural identities in the various Indian literatures through indigenous literary traditions.</p> <p>3. To compare literary texts produced across Indian regional landscapes to seek similarities and differences in thematic and cultural perspectives.</p> <p>4. To explore images in literary productions that express the writers sense of their society.</p> <p>5. Wherever possible, to conduct a comparative study of the original and the translated texts to see the process of negotiation that constructs , and is constructed in, the English language translation.</p> <p>6. To encourage the students to explore texts outside of the suggested reading lists to realize the immense</p>

				<p>various challenges faced by women in different settings.</p> <p>4. To develop more sensitivity to the gender discrimination around them</p>
	Indian Literatures translated in English	PEG 004(A)	4	<p>1. To introduce the student to the polyphony of modern Indian writing in translation.</p> <p>2. To understand the multifaceted nature of cultural identities in the various Indian literatures through indigenous literary traditions.</p> <p>3. To compare literary texts produced across Indian regional landscapes to seek similarities and differences in thematic and cultural perspectives.</p> <p>4. To explore images in literary productions that express the writers' sense of their society .</p> <p>5. To compare study of the original and the translated texts to see the process of Negotiation that constructs , and is constructed in, the English language translation.</p>

				<p>6. To encourage the students to explore texts outside of the suggested reading lists to realize the immense treasure trove of translated Indian literary works.</p>
	<p>Post-Colonial Studies</p>	<p>PEG 004(B)</p>	<p>4</p>	<ol style="list-style-type: none"> 1. To gain a postcolonial perspective on literature written in India and other erstwhile colonies 2. To identify major postcolonial writers and trends in postcolonial literatures 3. To apply postcolonial methodology to interpret literature 4. To think in a self-reflexive manner about their own history 5. To think critically and engage with the postcolonial times in a nuanced manner. 6. To carry out research in the field of post-colonial literatures 7. To work in a group as the presentations in the course have been designed as a group activity 8. To articulate themselves both in speaking and writing in a lucid manner

	<p>Ecology and Literature</p>	<p>PEG 004(C)</p>	<p>4</p>	<ol style="list-style-type: none"> 1. To engage with environmental issues through literary narratives 2. To understand environmental crises. 3. To develop critical awareness about sustainability issues 4. To explore environmental issues via historical narratives
	<p>PEG 003 (A)</p>	<p>Contemporary Literary Theory</p>	<ul style="list-style-type: none"> ● To familiarize students with the literary premises and intellectual background pertinent to important eras of the literary and critical theory. ● To encourage students to discover their own literary and critical "theories" as they read. ● To introduce and examine practical critical concepts that are influential and important at the present time. ● To help students know how to read, comprehend, discuss, analyze, and interpret critical texts of all types. Special emphasis will be placed on the cultivation of critical thinking, writing, and conversational skills. ● To help update their knowledge of current literary issues and critical theories. ● To explore possible applications of critical theory to various literary texts. ● To develop students' knowledge of the terms used in the criticism of literature. ● To demonstrate in-depth knowledge of foundational critical texts. ● To historicize and contextualize foundational theoretical and critical texts. ● To employ critical methodologies appropriate to the practice of critical discipline 	

CURRICULUM OF ACADEMIC PROGRAMMES



**Department of French and Francophone Studies
(School of Languages)**

MA (French Integrated)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

PO1. To inculcate the knowledge of French as a foreign language.

PO2. To initiate an understanding of French literature amongst Indian learners over a period of ten semesters.

PO3. To ensure that, at the end of the program, students must have fluency in Spoken French and proficiency in its written expression.

PO4. To enable students to translate texts from source languages into French and vice versa. **PO5.** To familiarize students with elements of the history, geography, and culture of France.

PROGRAMME SPECIFIC OUTCOMES:

PSO1. To demonstrate advanced linguistic proficiency in French in all four components, including speaking, writing, listening, and reading, at the end of the MA Integrated Programme in French.

PSO2. To provide opportunities for professional advancement, allowing students to make a career in the corporate sector as translators and interpreters, or to pursue advanced studies in literature, foreign language teaching, or translation.

PSO3. To foster the development of intercultural competences through the courses offered, enabling students to analyze and critique various subject matters such as the current political scenario, socio-economic factors, history, and literature.

PSO4. To equip students with the skills necessary to become effective cross-cultural trainers.

PSO5. To enhance overall communication skills, enabling students to express themselves effectively in French through structured, articulate, and well-organized thoughts.

COURSE OUTCOMES :

Semester 1:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 101	French through Communicative Approach I	At the end of the semester, the learner should be able to have a dialogue in French, i.e., ask simple questions and answer them. The language acquisition resulting from the current course would correspond to the level A1 of the Cadre Européen Commun de Référence (CECR).
Core	SLF - 102	French through Creative Activities I	At the end of this course, a learner should be able to fill in forms with personal details such as in a hotel or write a postcard, send a simple email or a SMS in French. This would correspond to the level A1 of the cadre Européen Commun de Référence (CECR).
Core	SLF - 103	Corrective Phonetics I	Through the exercises on pronunciation, intonation, rhythm, students will be able to clearly pronounce sounds and intonation patterns which are particular to the French language.
Core	SLF - 104	Life in France & Francophone Countries I	In this course, students will acquire the knowledge of La Francophonie, as well as Institutions such as the Organization Internationale de la Francophonie. At the end of the semester, students must be well versed with the history and geography as well as the social, political and cultural values and attitudes of various French-speaking peoples around the world.

Semester 2:

Course Type	Course Code	Course Title	Course Outcomes
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Core	SLF - 105	French through Communicative Approach II	At the end of the semester, learners should be able to converse in simple terms on themes such as family, social and professional life, education and personal likes, dislikes and tastes etc. This would correspond to the level A1 and parts of A2 of the Cadre Européen Commun de Référence (CECR).
Core	SLF - 106	French through Creative Activities II	At the end of this course, offered in continuation of French through Creative Activities – I, a learner should be able to write short, simple notes and messages. S/he can write a very simple personal letter, for example thanking someone for something. This would correspond to the level A1 and parts of A2 of the Cadre Européen Commun de Référence (CECR).
Core	SLF - 107	Corrective Phonetics - 2	During the current course, which is a follow-up of Corrective Phonetics – I, the teacher shall intensify pronunciation, intonation, rhythm and melody related exercises to reinforce oral skills with a view to improving the communicative competence of the learner.
Core	SLF - 108	Life in France & Francophone Countries - II	Learners possess an understanding of history, culture and civilisation of the member states that are a part of the <i>Organisation internationale de la francophonie</i> .

Semester 3:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 201	French through Communicative Approach - III	At the end of the semester, learners should be able to connect phrases in a simple way in order to describe experiences and events, his / her dreams, hopes and ambitions. S/he can briefly give reasons and explanations for opinions and plans or can narrate a story or relate the plot of a book or film and describe his / her reactions.

			This would correspond to the levels A2 and parts of B1 of the Cadre européen commun de référence (CECR).
Core	SLF - 202	French through Creative Activities - III	At the end of the semester, learners should be able to write simple connected texts on topics which are familiar or of personal interest, as well as write personal letters describing experiences and impressions. This would correspond to the levels A2 and parts of B1 of the Cadre européen commun de référence (CECR).
Core	SLF - 203	French through Texts - I	At the close of the semester, learners should be able to understand texts that consist mainly of high frequency everyday language, and also understand the descriptions of events, feelings and wishes in personal letters etc. Furthermore, they should also be able to understand contemporary literary texts.
Core	SLF - 204	French through Culture and Civilisation - I	Learners will have knowledge of the maximum number of aspects of French and Francophone culture, ranging from art and architecture to cinema, cuisine, colonization and decolonization, economy, festivals, politics and sport. They will also be acquainted with the terminology of these aspects.
Elective	LEL - 445	Modern French Writers (19th Century onwards)	At the successful completion of this course, students will be able to talk about the literary situation of France in the 19th and 20th century. They will also be able to explain the impact of important socio-political events on the literary movements of this period.

Semester 4:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 205	French through Communicative Approach - IV	At the end of the semester, learners should be able to deal with most situations likely to arise while traveling in an area where the language is spoken, and even enter unprepared into conversation on topics that are familiar, of personal interest or pertinent to everyday life (e.g.

			family, hobbies, work, travel and current events). This would correspond to the level of B1 of the Cadre européen commun de référence (CECR).
Core	SLF - 206	French through Creative Activities - IV	At the end of the semester, learners : Can write short, simple essays on topics of interest. Can summarize, report and give his/her opinion about accumulated factual information on familiar matters. Can write a description of an event, a recent trip – real or imagined..
Core	SLF - 207	French through Texts - II	Students can understand and analyze a variety of texts including letters, brochures, short official documents, and essays.
Core	SLF - 208	French through Culture & Civilisation - II	Students can trace the history of France from its origins to the Second Empire, talk about the impact of the French Revolution and mention the French colonial empire in the world.
Elective	LEL - 444	Introduction to Linguistics	By the end of this course, students will be able to identify the levels of linguistic description, analyze the linguistic structure of any language and explain the history of linguistics as a discipline .

Semester 5:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 301	Techniques of written Expression - I	Students will be able to draft texts of increasing complexity. They can write short stories and argumentative texts giving reasons in support of or against a particular point of view or explaining the advantages and disadvantages of various options.
Core	SLF - 302	Techniques of Oral Expression - I	This course, which is the first part of a programme spread over two semesters, helps a learner acquire techniques of oral expression, that s/he eventually uses in a debate or discussion to present a hypothesis,

			and then offer a logical and well-structured argument to explain and illustrate her position through examples, in order to convince a listener.
Core	SLF - 303	Major Literary Movements in France - I	Students will be able to explain and analyze the major works that define each literary movement, from the roman courtois and the chanson de geste of medieval literature to the humanist philosophers of the Renaissance; from the Pléiade poets to the playwrights of Classicism.
Core	SLF - 304	Initiation to Translation	Students shall be encouraged, through extensive translation exercises, to dwell upon problems of translation (determining meaning, finding equivalents, translating “faithfully” etc.). The focus shall be on translation from English/Indian languages to French in this semester.
Core	SLF - 305	State and Society under the III and IV Republics	Students will be able to talk about the achievements as well as the crisis of III and IV French Republics, including the Paris Commune, Dreyfus Affair, the two world wars and their impact on Europe etc.
Core	*SLF - 306	Terminology of Tourism, Art and Architecture of India	This vocational course will prepare students for career opportunities in the field of tourism and hospitality industry and will equip them with suitable professional skills.

Semester 6:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 307	Techniques of Written Expression - II	Students will practice written expression in different situations emphasizing: <ul style="list-style-type: none"> a. Punctuation b. Anaphores & cataphores c. Logical & rhetoric articulators d. Verbs (Tenses and time) e. Levels of the language (i.e. les registres de la langue)

Core	SLF - 308	Techniques of Oral Expression - II	Students will be trained in the art of the French exposé by practicing the various stages of rhetoric such as invention, arrangement, style, memory, and delivery, along with grammar and logic.
Core	SLF - 309	Major Literary Movements in France - II	Students will possess a knowledge of major literary movements from the 18th century to the present day such as the Enlightenment, Romanticism, Realism, Symbolism, Existentialism etc. and will be able to situate major literary works in their socio-historical context.
Core	SLF - 310	Commercial French	Students shall be equipped with the tools and terminology of Commercial French, with a view to facilitate understanding of commerce and economics in the French-speaking milieu. The terminology of Accounts, Commerce and Banking in French such as receipts and payments, assets and liabilities, import-export, taxes, transport & advertisement shall be made familiar to the students.
Core	SLF - 311	State and Society under the V Republic	Students will be made aware of the important events of 20th century France. They will be able to analyze the impact of colonization and decolonisation on contemporary French society. They will understand the constitutional reforms in France and the current political system. They will also know about the place of France in the European Union.

Semester 7:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 401	Introduction to Linguistics	At the end of the semester, students will possess an understanding of the following concepts: <ul style="list-style-type: none"> - Synchronie et diachronie - Langue & parole - Compétence & performance - Forme & contenu / signifié et signifiant - Axes syntagmatique et paradigmatic

			<p>- La double articulation</p> <p>They will also understand the eventual application of linguistics to fields such as literature, philosophy, sociology etc.</p>
Core	SLF - 402	Evolution of French Literature through different genres	Students understand the characteristics of different genres of literature and can situate the evolution of genres in their historical context.
Core	SLF - 403	History of Culture and Civilisation in France and Francophone Countries - Quebec	Students will be able to talk about history, geography, general culture and life, arts and literature, political and social structures, as well as some of the major debates about the nature of Quebec identity.
Core	SLF - 404	Theory and Practice of Translation	At the close of the semester, a student shall have learned basic translation techniques such as ‘emprunt’, ‘adaptation’, ‘étoffement’ or ‘dépouillement’. They will also be taught to be attentive to ‘faux amis’, ‘fausses précisions’, ‘surtraduction’ and ‘calque’, among others.
Core	*SLF - 405	Theories of Literature and Literary Trends - I	Students shall understand the criteria that make “good” literature through the writings of (or commentaries on the works of) thinkers such as Plato, Aristotle, Bharat, Longinus, Boileau, Kant, Hegel, Marx, Sartre and Adorno.
Core	*SLF - 406	North African Francophone Literature	Students will know of the birth and development of the francophone literature of the Maghreb region, i.e. Morocco, Algeria & Tunisia from the time of colonization up to the present day. They will be able to discuss this literature through its three phases - of imitation, revolt and hybridity. They will understand how Maghreb literature gives a voice to the poetic and political aspirations of the

			peoples of this region.
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Semester 8:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 407	Applied Linguistics	Students can understand the practical applications of Linguistics to First and Second Language learning and teaching. They will have a knowledge of notions such as mother tongue, second language and foreign language interferences, grammatical theories and models, among others.
Core	SLF - 408	Thematic Study of Literature	Students can read literature “diagonally”, identifying recurring images either in the works of a single author, or in synchrony with those of his/her contemporaries; in prose, poetry or theater; through history or in works belonging to a particular century, in a bid to identify major themes, that may run through significant works of a certain era, thus reflecting the “signs of the times”.
Core	SLF - 409	Culture and Civilisation in Contemporary France - Mass Media	Students will be trained not to see images, but to see through them. They will understand the nature, place and role of mass media in France and its relationship with French society, tracing its history as well as evolution, and influences in recent times.
Core	SLF - 410	Literary Translation	Students understand the concepts such as fidelity, adaptation and transcreation in a multicultural context. They will also be made aware of the questions such as the (in)visibility and the status of the translator,

			As well as translation and gender with special reference to feminist literary translation practice.
Core	*SLF - 411	Theories of Literature and Literary Trends- II	Students will learn a few approaches to a text such as les approches herméneutique, thématique, psychanalytique, sociocritique, la critique textuelle, les formalistes russes, le féminisme, etc.
Core	*SLF - 412	North American Francophone Literature - Canada	Students will learn the diversity of literary perspectives as well as styles within the French-speaking world. They will possess an understanding of the Francophone Literature of Canada, from its birth to the present day, laying emphasis on the socio-historical context that helped its birth and development over the centuries.

Semester 9:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 501	General Linguistics	Learners shall be acquainted with the different schools of Linguistics (structural, functional, transformational and generative grammar). They will learn of the evolution of language, varieties in idioms and linguistic usage.
Core	SLF - 502	Contemporary French Literature	Students shall understand the latest trends, both in terms of forms as well as themes that may one day lead to the birth of a new aesthetic in contemporary French Literature,

			through an overview of the current debates and the intellectual climate in France today.
Core	SLF - 503	Methodology of Teaching French as a Foreign Language	At the close of the semester, students will know of: - General principles of Modern Education applied to Foreign Language Teaching - Cadre européen commun de référence (CECR) or the Common European Framework of Reference for languages. - Teaching aids, Information and Communication Technology for language learning, and material production & evaluation. They will be able to teach a session to a class of beginners.
Core	SLF - 504	Specialized Translation (Commercial , Judicial, Scientific, Technical)	Students will learn of the basic methods of specialized translation of commercial/scientific/ judicial texts such as the preparation of a glossary, and also the use of authentic documents from the target language.
Core	*SLF - 505	History of Culture & Civilisation in France: French Art (1870 onwards)/ French Cinema (1895 onwards)	For French Art (1870 onwards), students learn about major art movements such as Impressionism, Fauvism, Cubism, Abstract Art etc. They can study representative works of art using codes of analysis. In French Cinema (1895 onwards), students become familiar with the history of French cinema and learn of major approaches to film criticism such as cine hermeneutics, semiotics and intertextuality.
Core	*SLF - 506	European Francophone Literature (Belgium, Switzerland, Luxembourg)	Students will learn of Francophone literary traditions of European francophone countries, with a view to understanding the similarities and

			differences between them and the literature from France.
Core	*SLF - 507	Francophone Literature of Sub - Saharan Africa	Learners will understand the concepts of Négritude, Créolité, immigration, exile, and postcolonialism expressed through the literatures of Sub-Saharan countries such as Burkina Faso, Cameroon, Central African Republic, Chad, the two Republics of the Congo, Ivory Coast, Gabon, Guinea, Mali, Niger, Rwanda, Senegal, Benin and Togo.

Semester 10:

Course Type	Course Code	Course Title	Course Outcomes
Core	SLF - 508	Lexicology / Semantics	Students will be able to: - explore the meaning of an expression in a systematic manner. - talk of the evolution of Lexicology with reference to French
Core	SLF - 509	Introduction to Comparative Literature	Students understand the cross-cultural perspectives on literature in the light of literary and aesthetic theories from different traditions. They can compare myths, motifs and themes in French, francophone and Indian texts from diverse languages to study points of convergence and divergence between them.
Core	SLF - 510	Fundamentals of Interpretation (Consecutive & Simultaneous)	Students are trained to grasp the meaning of a message accurately and to reproduce the same in the target language in an appropriate and natural form, while at the same time, keeping in mind the specificity of the language.
Core	SLF - 511	Theory & Practice of	Students acquire the art of writing a

		Dissertation Writing (including Dissertation)	coherent and well-structured dissertation on an academic subject (from literature, translation and interpretation, linguistics or civilization) comprising an introduction, a corpus and a conclusion.
Core	*SLF - 512	India in French Literature	Students learn to analyze the image of India in French literature, with a view to understanding the historical discourse on the country, as shaped by representations, stereotypes, myths and images of 'reality' propagated in Europe about the country, through the centuries, down to the present day.

* Extra Credit Courses

*Only four courses are offered at MA Level.

CURRICULUM OF ACADEMIC PROGRAMMES



**Department of French and Francophone Studies
(School of Languages)**

MA (French)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

M.A. French
Department of French and Francophone Studies
School of Languages
Doon University

PROGRAMME OUTCOMES:

- PO1. To increase and deepen understanding of the French language and Francophone cultures, the MA Programme in French offers a comprehensive curriculum.
- PO2. To accomplish this understanding, students will study across four semesters.
- PO3. To cover diverse domains, the program includes subjects such as Linguistics, Translation & Interpretation, Foreign Language Teaching, and Literatures of the Francophone world.
- PO4. To provide students with a well-rounded education in the French language and its cultural context.
- PO5. To equip students with valuable knowledge and skills in linguistics, translation, teaching, and the literature of the Francophone world.

PROGRAMME SPECIFIC OUTCOMES:

- PSO1. To conclude the MA Programme in French, students can express themselves effectively in French through structured, articulate, and well-organized thoughts.
- PSO2. To open career opportunities, students can enter the corporate sector as translators and interpreters or choose to pursue advanced studies in literature, foreign language teaching, or translation.
- PSO3. To enhance their intercultural competences, students develop the ability to analyze and critique various subject matters offered in the program, such as the current political scenario, socio-economic factors, history, and literature.
- PSO4. To prepare for potential careers as cross-cultural trainers, this skill can be particularly valuable.
- PSO5. To improve their overall communication skills, the MA Programme in French helps students become more effective communicators.

COURSE OUTCOMES:

Semester 1:

Course Code	Course Title	Course Outcomes
SLF - 401	Introduction to Linguistics	<p>At the end of the semester, students will possess an understanding of the basic concepts of Linguistics.</p> <p>They will also understand the eventual application of linguistics to fields such as literature, philosophy, sociology etc.</p>
SLF - 402	Evolution of French Literature through different genres	Students understand the characteristics of different genres of literature and can situate the evolution of genres in their historical context.
SLF - 403	History of Culture and Civilisation in France and Francophone Countries.	Students will be able to talk about history, geography, general culture and life, arts and literature, political and social structures, as well as some of the major debates about the nature of Quebec identity.
SLF - 404	Theory and Practice of Translation	<p>At the close of the semester, a student shall have learned basic translation techniques</p> <p>such as ‘emprunt’, ‘adaptation’, ‘étoffement’ or ‘dépouillement’. They will also be taught to be attentive to ‘faux amis’, ‘fausses précisions’, ‘surtraduction’ and ‘calque’, among others.</p>
*SLF - 405	Theories of Literature and Literary Trends - I	Students shall understand the criteria that make “good” literature through the writings of (or commentaries on the works of) thinkers such as Plato, Aristotle, Bharat, Longinus, Boileau, Kant, Hegel, Marx, Sartre and Adorno.

*SLF - 406	North African Francophone Literature	Students will know of the birth and development of the francophone literature of the Maghreb region, i.e. Morocco, Algeria & Tunisia from the time of colonization up to the present day. They will be able to speak of this literature through its three phases - of imitation, revolt and hybridity. They will understand how Maghreb literature gives a voice to the poetic and political aspirations of the peoples of this region.
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Semester 2:

SLF - 407	Applied Linguistics	Students can understand the practical applications of Linguistics to First and Second Language learning and teaching. They will have a knowledge of notions such as mother tongue, second language and foreign language interferences, grammatical theories and models, among others.
SLF - 408	Thematic Study of Literature	Students can read literature “diagonally”, identifying recurring images either in the works of a single author, or in synchrony with those of his/her contemporaries; in prose, poetry or theater; through history or in works belonging to a particular century, in a bid to identify major themes, that may run through significant works of a certain era, thus reflecting the “signs of the times”
SLF - 409	Culture and Civilisation in Contemporary France - Mass Media	Students will be trained not to see images, but to see through them. They will understand the nature, place and role of mass media in France and its relationship with French society, tracing its history as well as evolution, and influences in recent times.

SLF - 410	Literary Translation	Students understand the concepts such as fidelity, adaptation and transcreation in a multicultural context. They will also be made aware of the questions such as the (in)visibility and the status of the translator, as well as translation and gender with special reference to feminist literary translation practice.
*SLF - 411	Theories of Literature and Literary Trends- II	Students will learn a few approaches to a text such as les approches herméneutique, thématique, psychanalytique, sociocritique, la critique textuelle, les formalistes russes, le féminisme, etc.
*SLF - 412	North American Francophone Literature - Canada	Students will learn the diversity of literary perspectives as well as styles within the French-speaking world. They will possess an understanding of the Francophone Literature of
		Canada, from its birth to the present day, laying emphasis on the socio-historical context that helped its birth and development over the centuries.

Semester 3:

SLF - 501	General Linguistics	Learners shall be acquainted with the different schools of Linguistics (structural, functional, transformational and generative grammar). They will learn of the evolution of language, varieties in idioms and linguistic usage.
SLF - 502	Contemporary French Literature	Students shall understand the latest trends, both in terms of forms as well as themes that may one day lead to the birth of a new aesthetic in contemporary French Literature, through an overview of the current debates and the intellectual climate in France today.

SLF - 503	Methodology of Teaching French as a Foreign Language	<p>At the close of the semester, students will know of:</p> <ul style="list-style-type: none"> - General principles of Modern Education applied to Foreign Language Teaching - Cadre européen commun de référence (CECR) or the Common European Framework of Reference for languages. - Teaching aids, Information and Communication Technology for language learning, and material production & evaluation. <p>They will be able to teach a session to a class of beginners.</p>
SLF - 504	Specialised Translation (Commercial , Judicial, Scientific,	Students will learn of the basic methods of specialized translation of commercial/scientific/ judicial texts such as the preparation of a glossary, and also the use of authentic documents
	Technical)	from the target language.
*SLF - 505	History of French Art (1870 onwards) and Cinema (1895 onwards)	<p>For French Art (1870 onwards), students learn about major art movements such as Impressionism, Fauvism, Cubism, Abstract Art etc. They can study representative works of art using codes of analysis.</p> <p>In French Cinema (1895 onwards), students become familiar with the history of French cinema and learn of major approaches to film criticism such as cine hermeneutics, semiotics and intertextuality.</p>
*SLF - 506	European Francophone Literature (Belgium, Switzerland, Luxembourg)	Students will learn of Francophone literary traditions of European francophone countries, with a view to understanding the similarities and differences between them and the literature from France.

*SLF - 507	Francophone Literature of Sub - Saharan Africa	Learners will understand the concepts of Négritude, Créolité, immigration, exile, and postcolonialism expressed through the literatures of Sub-Saharan countries such as Burkina Faso, Cameroon, Central African Republic, Chad, the two Republics of the Congo, Ivory Coast, Gabon, Guinea, Mali, Niger, Rwanda, Senegal, Benin and Togo.
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Semester 4:

SLF - 508	Lexicology / Semantics	Students: -can explore the meaning of an expression in a systematic manner. - can talk of the evolution of Lexicology with reference to French
*SLF - 509	Introduction to Comparative Literature	Students understand the cross-cultural perspectives on literature in the light of literary and aesthetic theories from different traditions. They can compare myths, motifs and themes in French, francophone and Indian texts from diverse languages to study points of convergence and divergence between them
SLF - 510	Fundamentals of Interpretation (Consecutive & Simultaneous)	Students are trained to grasp the meaning of a message accurately and to reproduce the same in the target language in an appropriate and natural form, while at the same time, keeping in mind the specificity of the language.
SLF - 511	Theory & Practice of Dissertation Writing (including Dissertation)	Students acquire the art of writing a coherent and well-structured dissertation on an academic subject (from literature, translation and interpretation, linguistics or civilization) comprising an introduction, a corpus and a conclusion.

SLF - 512	India in French Literature	Students learn to analyze the image of India in French literature, with a view to understanding the historical discourse on the country, as shaped by representations, stereotypes, myths and images of 'reality' propagated in Europe about the country, through the centuries, down to the present day.
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CURRICULUM OF ACADEMIC PROGRAMMES



Department of Japanese Studies

School of Languages

MA (Japanese Integrated)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

PO1 Demonstrate the understanding of Japanese language along with culture, history, society and literature of Japan.

PO2 To display proficiency in spoken and written language to the advanced level

PO3 To carry out research in the field of Japanese studies

PROGRAM SPECIFIC OUTCOMES:

PSO1 Communicate in both spoken and written Japanese

PSO2 Develop the four language skills i.e. reading, speaking, writing and listening.

PSO3 To translate & interpret Japanese language

PSO4 To translate & interpret advance level Japanese language

PSO5 To gain a deeper understanding about culture, history, society and literature of Japan

COURSE OUTCOMES:

Course Type	Course Code & Course Title	Course Outcome
Core	SLJ-101 Japanese Sounds and Oral expressions	To ensure students are: CO1 Able to use daily greetings and classroom expressions CO2 Able to self-introduce CO3 Able to speak basic Japanese phrases and expressions CO4 Able to formulate and speak simple sentences based on the grammar Patterns taught in Course SLJ 103.
Core	SLJ-102 Introduction to Japanese scripts	To ensure students are: CO1 Able to read and write the hiragana and katakana scripts CO2 Able to write Kanji (as covered in text)
Core	SLJ-103 Basic sentence patterns- I	To ensure students are: CO1 Able to understand Japanese grammar vocabulary and Kanji, at beginner level, through prescribed text CO2 Able to read and comprehend the text
Core	SLJ-104 Composition I	To ensure students are: CO1 Able to form and write basic sentences. CO2 Able to write short passages on various topics using simple sentences CO3 Able to use grammar taught in course SLJ 103
Core	SLJ-105 Introduction to Japan-I	To gain knowledge about the culture, lifestyle of Japan and its people.
Core	SLJ-106 Spoken Japanese-I	To enable students to do day to day conversation based on the grammar patterns taught in Course SLJ 107
Core	SLJ-107 Basic Sentence Patterns-II	To understand Japanese grammar at beginner level
Core	SLJ-108 Reading Comprehension-II	To ensure students are: CO1 Able to read and comprehend short passages CO2 Able to answer questions related to the passage
Core	SLJ-109 Composition II	To ensure students are: CO1 Able to write short passages on easy topics CO2 Able to read and write Kanji (as covered in text)

Core	SLJ-110 History of Japan-I	To gain an understanding of Japan's historical development from Jomon period to Tokugawa period
Core	SLJ-201 Spoken Japanese-II	To be able to express day today matters and daily conversation in Japanese.
Core	SLJ-202 Intermediate Japanese –I	To gain an understanding of Japanese grammar vocabulary and Kanji, at intermediate level, through prescribed text
Core	SLJ-203 Composition and Comprehension -I	To ensure students are: CO1 Able to write intermediate level composition CO2 Able to use intermediate level grammar and vocabulary CO3 Able to use genkou youshi CO4 Able to read and Comprehend Intermediate level passages. CO5 Able to answer questions related to the passage
Core	SLJ-204 Translation- I	To ensure students are: CO1 Able to translate simple sentences and short passages related to Japanese culture from Japanese to English and English to Japanese CO2 Deepen the understanding of grammar and its appropriate use
Core	SLJ-205 History of Japan-II	To gain an understanding of Japan's historical development from Meiji period to Heisei Period
Elective	LEL 442 Indo Japan relation – I	To gain an understanding of India-Japan relations in Historical Perspective before Meiji era to 1947
Core	SLJ-206 Spoken Japanese –III	To ensure students are: CO1 Able to express orally on everyday matters CO2 Able to express on a wide range of topics relating to Japanese society and culture
Core	SLJ-207 Intermediate Japanese-II	To deepen the understanding of grammar vocabulary and Kanji, at intermediate level, through prescribed text.
Core	SLJ-208 Advanced Composition	To ensure students are: CO1 Able to write long compositions or essays on advanced level topics CO2 Able to use advanced level grammar

		and vocabulary
Core	SLJ-209 Translation-II	To ensure students are: CO1 Able to translate short passages related to Japanese culture, society, religion, life style from Japanese to English and English to Japanese CO2 Able to deepen their understanding of grammar and its appropriate use
Core	SLJ-210 Contemporary Japan and Japanese Society	CO1 To gain an understanding of key aspects of contemporary Japanese society and culture CO2 To gain an understanding of the characteristics of Japanese society CO3 To be familiar with selected social problems in contemporary Japan
Elective	LEL 443 Indo Japan relation – II	To ensure students are able to gain an: CO1 Understanding of India-Japan relations since 1947 CO2 Understanding of India-Japan relations in Contemporary times
Core	SLJ-301 Interpretation – I	To ensure students are: CO1 Able to do interpretation of basic topics CO2 Able to comprehend recorded text/news CO3 Able to interpret recorded audio such as news from Japanese to English and vice versa on various topics pertaining to culture, society, religion, lifestyle, etc.
Core	SLJ-302 Advanced Japanese-I	To ensure students are: CO1 Able to read authentic Japanese text CO2 Able to understand, analyze and summarize Japanese text
Core	SLJ-303 Reading Comprehension (Advanced)	To ensure students are: CO1 Able to comprehend long passages. CO2 Able to answer questions related to the passage

Core	SLJ-304 Translation	To ensure students are: CO1 Able to translate passages related to Japanese news and current affairs from Japanese to English and English to Japanese CO2 Able to deepen the understanding of advanced level grammar and its appropriate use
Core	SLJ-305 Interpretation – II	To ensure students are: CO1 Able to do interpretation of basic topics CO2 Able to comprehend recorded text/news CO3 Able to interpret recorded audio such as news from Japanese to English and vice versa on various topics pertaining to politics, economy, technology and Current affairs.
Core	SLJ-306 Advanced Japanese-II	To ensure students are: CO1 Able to Understand and analyze Japanese text CO2 Able to summarize Japanese text
Core	SLJ-307 Business Japanese	To ensure students are: CO1 Able to use formal Japanese (Keigo), CO2 Able to gain understanding of technical terms used in the Japanese workplace, culture, mannerism, and etiquettes maintained in Japanese companies CO3 Able to write formal, informal, and official Emails CO4 Able to write essays at an advanced Level
Core	SLJ-308 Introduction to Japanese Literature	To understand Japanese literature from ancient period to World War II.
Core	SLJ-401 Socio-cultural History of Japan-I	CO1 To understand the outline of Japan's cultural aspects with brief socio historical background from ancient era to Tokugawa period CO2 To understand performing and fine arts

Core	SLJ-402 Survey of Japanese Literature- I	CO1 To understand the literary traditions from ancient till the end of Tokugawa period CO2 To read Japanese literary text CO3 To deepen knowledge on prose, poetry, drama and diaries, and Monogatari of those eras
Core	SLJ-403 Translation	To be able to translate literary texts of different genres from Japanese into Hindi / English
Core	SLJ-404 Comparative Literature	To ensure students are able to gain: CO1 Understanding of various underling themes in Japanese and Indian literary works CO2 Familiarity with prominent authors of India and Japan CO3 Understanding of the influence of prominent personalities of Japan and India on each other's literature CO4 Familiarity with children literature of India and Japan
Core	SLJ-405 Socio-cultural History of Japan-II	To understand the outline of Japan's cultural aspects with brief socio-historical background from Meiji era to Second World War
Core	SLJ-406 Survey of Japanese Literature –II	CO1 To understand the literary traditions from Meiji till the end of Showa period. CO2 To deepen knowledge on essay, drama, poetry and fiction of those eras
Core	SLJ-407 Folk Traditions and Folklore of Japan	CO1 To gain an understanding of various oral traditions and folk art CO2 To gain understanding about Japanese mythology; rituals and traditions and their importance in folk culture and Folklore
Core	SLJ-408 Introduction to Japanese Linguistics	CO1 To understand the basics of general linguistics CO2 To gain understanding on Japanese linguistics at phonetic, morphological, syntactic and semantic level

Core	SLJ 409 Translation of Literary Texts	To ensure students are able to translate literary texts of different genres from Japanese into Hindi / English
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Core	SLJ-501 Intellectual History of Japan	To deepen knowledge on Japanese intellectual traditions such as concept of origin of Japanese people, Shintoism and introduction, adaptation and influence of foreign religious and philosophical thought from India, China and the West.
Core	SLJ-502 Reading Japanese Literary Texts – I	CO1 To read and appreciate original literary texts in Japanese from ancient till late Tokugawa period CO2 To gain knowledge about Japanese Authors
Core	SLJ-503 Interpretation-I	To acquire proficiency in interpreting Japanese text/news at the advanced level
Core	SLJ-504 Methodology of Teaching Japanese Language	To ensure students gain an: CO1 Understanding different methodologies of teaching foreign language, in general CO2 Understanding different methodologies of teaching Japanese CO2 Understanding of Methods of testing and evaluation
Core	SLJ 505 Dissertation-I	CO1 To gain an understanding on Research Methodology CO2 To be able to identify the research problem, hypothesis formation, research methods etc.
Core	SLJ-506 Popular Culture of Post war Japan	To gain an understanding of the various forms of art and entertainment prevalent in contemporary Japan such as cinema, pop music, manga, animation etc.
Core	SLJ-507 Reading Japanese Literary Texts –II	CO1 To be able to read and appreciate original literary texts in Japanese from Meiji period till date CO2 To gain knowledge about Japanese Authors
Core	SLJ-508 Interpretation-II	To acquire proficiency in interpreting Japanese text/news at the advanced level

Core	SLJ-509 Dissertation-II	To ensure students are able to: CO1 Write a dissertation on a topic of choice in Japanese CO2 Develop critical thinking and analytical Skills
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CURRICULUM OF ACADEMIC PROGRAMMES



Department of Japanese Studies

School of Languages

MA (Japanese)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

PO1 Demonstrate the understanding of Japanese language along with culture, history, society and literature of Japan.

PO2 To display proficiency in spoken and written language to the advanced level

PO3 To carry out research in the field of Japanese studies

PROGRAM SPECIFIC OUTCOMES:

PSO1 Communicate in both spoken and written Japanese

PSO2 Develop the four language skills i.e. reading, speaking, writing and listening.

PSO3 To translate & interpret Japanese language

PSO4 To translate & interpret advance level Japanese language

PSO5 To gain a deeper understanding about culture, history, society and literature of Japan

COURSE OUTCOMES:

Course Type	Course Code & Course Title	Course Outcome
Core	SLJ-101 Japanese Sounds and Oral expressions	To ensure students are: CO1 Able to use daily greetings and classroom expressions CO2 Able to self-introduce CO3 Able to speak basic Japanese phrases and expressions CO4 Able to formulate and speak simple sentences based on the grammar Patterns taught in Course SLJ 103.
Core	SLJ-102 Introduction to Japanese scripts	To ensure students are: CO1 Able to read and write the hiragana and katakana scripts CO2 Able to write Kanji (as covered in text)
Core	SLJ-103 Basic sentence patterns- I	To ensure students are: CO1 Able to understand Japanese grammar vocabulary and Kanji, at beginner level, through prescribed text CO2 Able to read and comprehend the text
Core	SLJ-104 Composition I	To ensure students are: CO1 Able to form and write basic sentences. CO2 Able to write short passages on various topics using simple sentences CO3 Able to use grammar taught in course SLJ 103
Core	SLJ-105 Introduction to Japan-I	To gain knowledge about the culture, lifestyle of Japan and its people.
Core	SLJ-106 Spoken Japanese-I	To enable students to do day to day conversation based on the grammar patterns taught in Course SLJ 107
Core	SLJ-107 Basic Sentence Patterns-II	To understand Japanese grammar at beginner level
Core	SLJ-108 Reading Comprehension-II	To ensure students are: CO1 Able to read and comprehend short passages CO2 Able to answer questions related to the passage
Core	SLJ-109 Composition II	To ensure students are: CO1 Able to write short passages on easy topics CO2 Able to read and write Kanji (as covered in text)

Core	SLJ-110 History of Japan-I	To gain an understanding of Japan's historical development from Jomon period to Tokugawa period
Core	SLJ-201 Spoken Japanese-II	To be able to express day today matters and daily conversation in Japanese.
Core	SLJ-202 Intermediate Japanese –I	To gain an understanding of Japanese grammar vocabulary and Kanji, at intermediate level, through prescribed text
Core	SLJ-203 Composition and Comprehension -I	To ensure students are: CO1 Able to write intermediate level composition CO2 Able to use intermediate level grammar and vocabulary CO3 Able to use genkou youshi CO4 Able to read and Comprehend Intermediate level passages. CO5 Able to answer questions related to the passage
Core	SLJ-204 Translation- I	To ensure students are: CO1 Able to translate simple sentences and short passages related to Japanese culture from Japanese to English and English to Japanese CO2 Deepen the understanding of grammar and its appropriate use
Core	SLJ-205 History of Japan-II	To gain an understanding of Japan's historical development from Meiji period to Heisei Period
Elective	LEL 442 Indo Japan relation – I	To gain an understanding of India-Japan relations in Historical Perspective before Meiji era to 1947
Core	SLJ-206 Spoken Japanese –III	To ensure students are: CO1 Able to express orally on everyday matters CO2 Able to express on a wide range of topics relating to Japanese society and culture
Core	SLJ-207 Intermediate Japanese-II	To deepen the understanding of grammar vocabulary and Kanji, at intermediate level, through prescribed text.
Core	SLJ-208 Advanced Composition	To ensure students are: CO1 Able to write long compositions or essays on advanced level topics CO2 Able to use advanced level grammar

		and vocabulary
Core	SLJ-209 Translation-II	To ensure students are: CO1 Able to translate short passages related to Japanese culture, society, religion, life style from Japanese to English and English to Japanese CO2 Able to deepen their understanding of grammar and its appropriate use
Core	SLJ-210 Contemporary Japan and Japanese Society	CO1 To gain an understanding of key aspects of contemporary Japanese society and culture CO2 To gain an understanding of the characteristics of Japanese society CO3 To be familiar with selected social problems in contemporary Japan
Elective	LEL 443 Indo Japan relation – II	To ensure students are able to gain an: CO1 Understanding of India-Japan relations since 1947 CO2 Understanding of India-Japan relations in Contemporary times
Core	SLJ-301 Interpretation – I	To ensure students are: CO1 Able to do interpretation of basic topics CO2 Able to comprehend recorded text/news CO3 Able to interpret recorded audio such as news from Japanese to English and vice versa on various topics pertaining to culture, society, religion, lifestyle, etc.
Core	SLJ-302 Advanced Japanese-I	To ensure students are: CO1 Able to read authentic Japanese text CO2 Able to understand, analyze and summarize Japanese text
Core	SLJ-303 Reading Comprehension (Advanced)	To ensure students are: CO1 Able to comprehend long passages. CO2 Able to answer questions related to the passage

Core	SLJ-304 Translation	To ensure students are: CO1 Able to translate passages related to Japanese news and current affairs from Japanese to English and English to Japanese CO2 Able to deepen the understanding of advanced level grammar and its appropriate use
Core	SLJ-305 Interpretation – II	To ensure students are: CO1 Able to do interpretation of basic topics CO2 Able to comprehend recorded text/news CO3 Able to interpret recorded audio such as news from Japanese to English and vice versa on various topics pertaining to politics, economy, technology and Current affairs.
Core	SLJ-306 Advanced Japanese-II	To ensure students are: CO1 Able to Understand and analyze Japanese text CO2 Able to summarize Japanese text
Core	SLJ-307 Business Japanese	To ensure students are: CO1 Able to use formal Japanese (Keigo), CO2 Able to gain understanding of technical terms used in the Japanese workplace, culture, mannerism, and etiquettes maintained in Japanese companies CO3 Able to write formal, informal, and official Emails CO4 Able to write essays at an advanced Level
Core	SLJ-308 Introduction to Japanese Literature	To understand Japanese literature from ancient period to World War II.
Core	SLJ-401 Socio-cultural History of Japan-I	CO1 To understand the outline of Japan's cultural aspects with brief socio historical background from ancient era to Tokugawa period CO2 To understand performing and fine arts

Core	SLJ-402 Survey of Japanese Literature- I	CO1 To understand the literary traditions from ancient till the end of Tokugawa period CO2 To read Japanese literary text CO3 To deepen knowledge on prose, poetry, drama and diaries, and Monogatari of those eras
Core	SLJ-403 Translation	To be able to translate literary texts of different genres from Japanese into Hindi / English
Core	SLJ-404 Comparative Literature	To ensure students are able to gain: CO1 Understanding of various underling themes in Japanese and Indian literary works CO2 Familiarity with prominent authors of India and Japan CO3 Understanding of the influence of prominent personalities of Japan and India on each other's literature CO4 Familiarity with children literature of India and Japan
Core	SLJ-405 Socio-cultural History of Japan-II	To understand the outline of Japan's cultural aspects with brief socio-historical background from Meiji era to Second World War
Core	SLJ-406 Survey of Japanese Literature –II	CO1 To understand the literary traditions from Meiji till the end of Showa period. CO2 To deepen knowledge on essay, drama, poetry and fiction of those eras
Core	SLJ-407 Folk Traditions and Folklore of Japan	CO1 To gain an understanding of various oral traditions and folk art CO2 To gain understanding about Japanese mythology; rituals and traditions and their importance in folk culture and Folklore
Core	SLJ-408 Introduction to Japanese Linguistics	CO1 To understand the basics of general linguistics CO2 To gain understanding on Japanese linguistics at phonetic, morphological, syntactic and semantic level

Core	SLJ 409 Translation of Literary Texts	To ensure students are able to translate literary texts of different genres from Japanese into Hindi / English
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Core	SLJ-501 Intellectual History of Japan	To deepen knowledge on Japanese intellectual traditions such as concept of origin of Japanese people, Shintoism and introduction, adaptation and influence of foreign religious and philosophical thought from India, China and the West.
Core	SLJ-502 Reading Japanese Literary Texts – I	CO1 To read and appreciate original literary texts in Japanese from ancient till late Tokugawa period CO2 To gain knowledge about Japanese Authors
Core	SLJ-503 Interpretation-I	To acquire proficiency in interpreting Japanese text/news at the advanced level
Core	SLJ-504 Methodology of Teaching Japanese Language	To ensure students gain an: CO1 Understanding different methodologies of teaching foreign language, in general CO2 Understanding different methodologies of teaching Japanese CO2 Understanding of Methods of testing and evaluation
Core	SLJ 505 Dissertation-I	CO1 To gain an understanding on Research Methodology CO2 To be able to identify the research problem, hypothesis formation, research methods etc.
Core	SLJ-506 Popular Culture of Post war Japan	To gain an understanding of the various forms of art and entertainment prevalent in contemporary Japan such as cinema, pop music, manga, animation etc.
Core	SLJ-507 Reading Japanese Literary Texts –II	CO1 To be able to read and appreciate original literary texts in Japanese from Meiji period till date CO2 To gain knowledge about Japanese Authors
Core	SLJ-508 Interpretation-II	To acquire proficiency in interpreting Japanese text/news at the advanced level

Core	SLJ-509 Dissertation-II	To ensure students are able to: CO1 Write a dissertation on a topic of choice in Japanese CO2 Develop critical thinking and analytical Skills
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CURRICULUM OF ACADEMIC PROGRAMMES



Department of German Studies

School of Languages

MA (German Integrated)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES

- PO1 To be able to speak basic to intermediate level German
- PO2 To be able to comprehend German language (TV, radio, converse with a native German over daily contexts etc.)
- PO3 To be able to read and understand basic to intermediate level texts (basic literature, newspaper, magazine, online contents etc.)
- PO4 To be able to write basic to intermediate level texts (letter, application, essay etc.)
- PO5 To be able to understand the nuances of culture of German speaking countries along with a basic understanding of history, geography, economy, sociopolitical and education system of German speaking world
- PO6 To be able to develop intercultural competence

1. Course Specific Outcomes

Course Code & Title	Course Outcome
Semester I	
SLG-101: Everyday German Language and Culture – I	CO1 – The student will be able to comprehend basic German structures CO2 – The student will be able to write basic German structures CO3 – The student will be able to grasp the basics of western European culture
SLG-102: Standard German Grammar – I	CO1 – The student will be able to comprehend the basics of German grammar CO2 – The student will be able to use basic German
SLG-103: Textual Comprehension and Recitation – I	CO1 – The student will be able to construct basic sentences in German CO2 – The student will be able to speak German in segments
SLG-104: German through Audio-Visual Aids – I	CO1 – The student will be able to understand basic German audio visual media CO2 – The student will be able to gain confidence to speak basic German
SLG-105: India and Germany (in English) – I	CO1 – The student will be able to learn in depth the various aspects of the German culture
Semester II	
SLG-106: Everyday German Language and Culture – II	CO1 – The student will be able to comprehend basic German structures CO2 – The student will be able to write basic German structures CO3 – The student will be able to grasp the basics of western European culture
SLG-107: Standard German Grammar – II	CO1 – The student will be able to comprehend the basics of German grammar CO2 – The student will be able to use basic German
SLG-108: Textual Comprehension and Recitation – II	CO1 – The student will be able to construct basic sentences in German CO2 – The student will be able to speak German in segments
SLG-109: German through Audio-Visual Aids – II	CO1 – The student will be able to understand basic German audio visual media CO2 – The student will be able to gain confidence to speak basic German

SLG-110: India and Germany (in English) – II	CO1 – The student will be able to learn in depth the various aspects of the German culture
Semester III	
SLG-201: Advanced Structural Study of German – I	CO1 – The student will be able to use German on the intermediate level with confidence CO2 – The student will be able to understand the advanced grammar of German CO3 – The student will be able to construct advanced level sentences
SLG-202: Written Expression (Aufsatzkurs) – I / Oral & Written Communication – I	CO1 – The student will be able to write texts in German on the intermediate level with confidence CO2 – The student will be able to have an enriched vocabulary in German CO3 – The student will be able to recite basic texts in German
SLG: 203: Contemporary German Speaking Countries/Germany in Europe – I	CO1 – The student will be able to understand in detail about the German speaking Europe
SLG: 204: Introduction to the Study of Literature – I	CO1 – The student will be able to comprehend basic literary texts in German CO2 – The student will be able to have an enriched vocabulary in German CO3 – The student will be able to have enhanced reading skills
SLG-205: Cultural History of Europe – I	CO1 – The student will be able to understand the major historical developments due the medieval ages in Europe which shaped the modern world
LEL-434: Structure and Functioning of EU – I (elective)	CO1 – The student will be able to understand the formation and the functioning of the European Union
Semester IV	
SLG-206: Advanced Structural Study of German – II	CO1 – The student will be able to use German on the intermediate level with confidence CO2 – The student will be able to understand the advanced grammar of German CO3 – The student will be able to construct advanced level sentences
SLG-207: Written Expression (Aufsatzkurs) – I / Oral & Written Communication – II	CO1 – The student will be able to write texts in German on the intermediate level with confidence CO2 – The student will be able to have an enriched vocabulary in German CO3 – The student will be able to recite basic texts in German

SLG: 208: Contemporary German Speaking Countries/Germany in Europe – II	CO1 – The student will be able to understand in detail about the German speaking Europe
SLG: 209: Introduction to the Study of Literature – II	CO1 – The student will be able to comprehend basic literary texts in German
	CO2 – The student will be able to have an enriched vocabulary in German CO3 – The student will be able to have enhanced reading skills
SLG-210: Cultural History of Europe – II	CO1 – The student will be able to understand the major historical developments due the medieval ages in Europe which shaped the modern world
LEL-435: Structure and Functioning of EU – II (elective)	CO1 – The student will be able to understand the formation and the functioning of the European Union
Semester V	
SLG-301: History of German Literature – I	CO1 – The student will be able to understand the chronology of German literature CO2 – The student will be able to enrich the language with German literature CO3 – The student will be able to have an enriched vocabulary in German
SLG-302: German Linguistics – I	CO1 – The student will be able to understand the functioning of the languages in general CO2 – The student will be able to understand specifically the linguistic phenomena in German
SLG-303: Introduction to Translation – I	CO1 – The student will be able to learn the basic of German-Hindi/English translation CO2 – The student will be able to improve German while practicing translation to/from German
SLG-304: Social and Cultural History of German Speaking Countries – I	CO1 – The student will be able to learn in depth the various aspects of the German speaking countries in Europe
Semester VI	
SLG-305: History of German Literature – II	CO1 – The student will be able to understand the chronology of German literature CO2 – The student will be able to enrich the language with German literature CO3 – The student will be able to have an enriched vocabulary in German

SLG-306: German Linguistics – II	CO1 – The student will be able to understand the functioning of the languages in general CO2 – The student will be able to understand specifically the linguistic phenomena in German
SLG-307: Introduction to Translation – II	CO1 – The student will be able to learn the basic of German-Hindi/English translation CO2 – The student will be able to improve German while practicing translation to/from German
SLG-308: Social and Cultural History of German Speaking Countries – II	CO1 – The student will be able to learn in depth the various aspects of the German speaking countries in Europe
Semester VII	
SLG: 401: Introduction to Theory of Literature – I	CO1 – The student will be able to understand the theories of literature CO2 – The student will be able to improve an understanding of German literature
SLG-402: Theory and Practice of Translation – I	CO1 – The student will be able to understand the theories of translation CO2 – The student will be able to have competence in German-Hindi/ English translation CO3 – The student will be able to improve German while practicing translation to/from German
SLG-403: Specialized Study of Literature – I (Critical Study of a genre)	CO1 – The student will be able to gain depth in the German language while using German literature CO2 – The student will be able to understand various genre of German literature
SLG-404: German History through Films and/or Texts	CO1 – The student will be able to improve German with audio-visual components CO2 – The student will be able to
Semester VIII	
SLG-405: Introduction to Theory of Literature – II	CO1 – The student will be able to understand the theories of literature CO2 – The student will be able to improve an understanding of German literature
SLG-406: Theory and Practice of Translation – I	CO1 – The student will be able to understand the theories of translation CO2 – The student will be able to have competence in German-Hindi/ English translation CO3 – The student will be able to improve German while practicing translation to/from German

SLG-407: Specialized Study of Literature – I (Critical Study of a genre)	CO1 – The student will be able to gain depth in the German language while using German literature CO2 – The student will be able to understand various genre of German literature
SLG-408: Writing Techniques/Writing a	CO1 – The student will be able to have basic skills in the academic writing
Research Paper	
Semester IX	
SLG-501: Introduction to Philosophy – I	CO1 – The student will be able to have understanding of philosophical texts in German CO2 – The student will be able to have a critical understanding on the philosophical themes
SLG-502: Interpretation – I	CO1 – The student will be able to have basic skills in interpreting from German to Hindi/ English CO2 – The student will be able to have competence to speak/ interpret on various themes
SLG-503: Texts of German Literature – I	CO1 – The student will be able to work on literary various texts in German CO2 – The student will be able to have an advanced comprehension in German
SLG-504: Dissertation (Preparation of Research Proposal/Plan)	CO1 – The student will be able to plan a research work in a systematic manner
Semester X	
SLG-505: Introduction to Philosophy – I	CO1 – The student will be able to have understanding of philosophical texts in German CO2 – The student will be able to have a critical understanding on the philosophical themes
SLG-506: Interpretation – I	CO1 – The student will be able to have basic skills in interpreting from German to Hindi/ English CO2 – The student will be able to have competence to speak/ interpret on various themes
SLG-507: Texts of German Literature – I	CO1 – The student will be able to work on literary various texts in German CO2 – The student will be able to have an advanced comprehension in German
SLG-508: Dissertation (Preparation of Research Proposal/Plan)	CO1 – The student will be able to plan and execute a research work in a systematic manner

CURRICULUM OF ACADMIC PROGRAMMES



Department of German Studies
School of Languages
MA (German)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES

- PO1 The learner will be able to develop written and oral translation skills (German ↔ English)
- PO2 The learner will be able to read and analyze advanced literary and philosophical texts
- PO3 The learner will be able to develop critical understanding of various literary and translation theories
- PO4 The learner will be able to do academic writing

COURSE OUTCOMES

Semester I	
SLG: 401: Introduction to Theory of Literature – I	CO1 – The student will be able to understand the theories of literature CO2 – The student will be able to improve an understanding of German literature
SLG-402: Theory and Practice of Translation – I	CO1 – The student will be able to understand the theories of translation CO2 – The student will be able to have competence in German-Hindi/ English translation CO3 – The student will be able to improve German while practicing translation to/from German
SLG-403: Specialized Study of Literature – I (Critical Study of a genre)	CO1 – The student will be able to gain depth in the German language while using German literature CO2 – The student will be able to understand various genre of German literature
SLG-404: German History through Films and/or Texts	CO1 – The student will be able to improve German with audio-visual components CO2 – The student will be able to
Semester II	
SLG-405: Introduction to Theory of Literature – II	CO1 – The student will be able to understand the theories of literature CO2 – The student will be able to improve an understanding of German literature
SLG-406: Theory and Practice of Translation – I	CO1 – The student will be able to understand the theories of translation CO2 – The student will be able to have competence in German-Hindi/ English translation CO3 – The student will be able to improve German while practicing translation to/from German

SLG-407: Specialized Study of Literature – I (Critical Study of a genre)	CO1 – The student will be able to gain depth in the German language while using German literature CO2 – The student will be able to understand various genre of German literature
SLG-408: Writing Techniques/Writing a	CO1 – The student will be able to have basic skills in the academic writing
Research Paper	
Semester III	
SLG-501: Introduction to Philosophy – I	CO1 – The student will be able to have understanding of philosophical texts in German CO2 – The student will be able to have a critical understanding on the philosophical themes
SLG-502: Interpretation – I	CO1 – The student will be able to have basic skills in interpreting from German to Hindi/ English CO2 – The student will be able to have competence to speak/ interpret on various themes
SLG-503: Texts of German Literature – I	CO1 – The student will be able to work on literary various texts in German CO2 – The student will be able to have an advanced comprehension in German
SLG-504: Dissertation (Preparation of Research Proposal/Plan)	CO1 – The student will be able to plan a research work in a systematic manner
Semester IV	
SLG-505: Introduction to Philosophy – I	CO1 – The student will be able to have understanding of philosophical texts in German CO2 – The student will be able to have a critical understanding on the philosophical themes
SLG-506: Interpretation – I	CO1 – The student will be able to have basic skills in interpreting from German to Hindi/ English CO2 – The student will be able to have competence to speak/ interpret on various themes
SLG-507: Texts of German Literature – I	CO1 – The student will be able to work on literary various texts in German CO2 – The student will be able to have an advanced comprehension in German
SLG-508: Dissertation (Preparation of Research Proposal/Plan)	CO1 – The student will be able to plan and execute a research work in a systematic manner

CURRICULUM OF ACADEMIC PROGRAMMES



Department of Chinese Studies

School of Languages

MA (Chinese Integrated)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

The Chinese Language Program at the Department of Chinese Studies, School of Languages, offers an integrated M.A. with courses ranging from elementary first-year level to advanced fourth-year level. Throughout each year, our courses are designed to enable students to acquire the following skills in Chinese language, literature, culture, and linguistics.

- **PO1:** To use culturally appropriate expressions to converse in Mandarin Chinese about intermediate-level topics such as such as personal background and needs, social conventions, and routine tasks, including receiving simple instructions and directions. Students will be able to make comparisons between products and practices to help them understand perspectives.
- **PO2:** To interact at a functional level in some familiar contexts. They will also be able to Identify and pronounce 400 additional Chinese characters (every semester)
- **PO3:** To gain an understanding on everyday topics and social situations (e.g., making new friends from China, dining in a Chinese restaurant) and providing simple responses (e.g., asking for help, apologizing, planning a trip to China) and providing full responses in appropriate manner.
- **PO4:** To comprehend and write a short and long paragraph using Chinese characters and Pinyin Romanization. Using complex sentences and multiple tenses, read, write, and comprehend a paragraph written in Chinese characters.
- **PO5:** To be able to recognize and pronounce 3500-4000 Chinese characters in an appropriate tone.

PROGRAM SPECIFIC OUTCOMES (PSO):

- **PSO1:** By the end of third year students will be able to prepare themselves for the fourth-year level as independent readers. Students will be able to develop a better command of language across all four major skills (speaking, listening, reading, and writing). The students were exposed to a variety of genres of readings; textbooks were switched out for highly selected authentic Chinese texts.
- **PSO2:** The students will be able to sustain a conversation in a well-structured speech. As a result, they are able to make coherent arguments and express themselves on unfamiliar and abstract topics.
- **PSO3:** The students will be able to comprehend the main points and most details of a general speech beyond everyday situations. To achieve that they were exposed to authentic Chinese media and popular culture materials
- **PSO4:** By using complex sentence patterns, they will be able to write essays and research findings with greater precision, detail, and control of syntax structures.
- **PSO5:** Having completed four semesters of **Master's degree** program in Chinese, the learner will have all the essential skills and training to become a Chinese studies expert. The learner will be able to fulfill the role of a translator or an interpreter or both. At the same time, the learner would have been trained to carry out further quality research in Chinese studies and contribute to the growth of Chinese studies globally in general and in India in particular.

FIRST SEMESTER

Semester I		
Course Code	Course Title	Course Outcome
CNC101	Elementary Sounds and Tones -I	4
		<p>The course aims to introducing Chinese Language to the learners. The focus will be on enhancing the listening reading ability of the students. The students at the end of the course will be able to engage in simple conversation.</p>
CNC102	Elementary Comprehension-I	4
		<p>This course aims at reading and understanding basic Chinese characters, words, and sentences. The focus will be on understanding elementary-level Chinese grammar, small Chinese texts, short sentences, and sentence construction.</p>
CNC103	Elementary Writing Chinese-I	4
		<p>This course aims at introducing to the students' Chinese characters '<i>hanzi</i>' having listening to Chinese. The focus will be to develop a deep understanding of characters and the ability to write them with proper stroke order. The other area of focus will be the grammar. The students will be introduced to Chinese grammar. The objective is to enhance the comprehension and writing ability of the students.</p>

CNS105	Elementary Reading Chinese-1	2	This course aims at building the base of Chinese language students by introducing to them basic and important Chinese grammatical constructions, words and phrases. It mainly aims at perfecting their Chinese pronunciation and tones and building a comfort level to engage in basic conversation using Chinese.
CNE 101/ CNG101	Introduction to China (Antiquity to 1840)- I	4	This course aims at introducing to the students Chinese history and equip them with fundamental knowledge about China's progress through history.
CNA101	Basic Chinese-I	2	The program provides learners with the basics of the Chinese language, such as Common Chinese Expressions and Key Words, Chinese Communication Tools, Chinese Travel Vocabulary, and constructing their own sentences. Throughout the course, all Chinese words and phrases will be taught in Romanized form (pinyin).
CNV101	From University VAC Pool	2	
Total Credits		22	

Semester II			
CNC106	Elementary Intonation and Conversation	4	The course aims at enhancing the language skill of the learners. The students will be introduced to Chinese Culture and society through texts. The focus will be on the development of listening and reading ability and inter-communication skill of the learner through text books and audio-visual materials

CNC107	Elementary Comprehension Chinese-II	4	This course aims at reading and understanding basic Chinese characters, words, and sentences. The focus will be on understanding elementary-level Chinese grammar, small Chinese texts, short sentences, and sentence construction.
CNC108	Elementary Writing Chinese-II	4	This course aims at enriching the learners' vocabulary and their comprehension ability. The focus will be on a deeper understanding of Chinese grammar and Chinese characters. At the end of this course students will be able to form sentences
			and paragraphs using the grammar taught in the classroom.
CNS109	Elementary Chinese Reading-II	2	This course aims at building the base of Chinese language students by introducing to them basic and important Chinese grammatical constructions, words and phrases. It mainly aims at perfecting their Chinese pronunciation and tones and building a comfort level to engage in basic conversation using Chinese.
CNE 101/ CNG102	Modern China (1840-1949)	4	This course introduces the students to the history of Modern China which covers the period from 1840 to 1949 (the establishment of PRC).
CNA102	Basic Chinese-II	2	The curriculum is designed to introduce students from other learning disciplines to basic Chinese language knowledge and equip them with survival-level Chinese language skills.
CNV102	From University VAC Pool	2	
Total Credits		22	

THIRD SEMESTER

Course Code	Course Title	Course Outcome
SLC-201	Selected Readings-I	<ul style="list-style-type: none"> Students will be able to learn to comprehend a text, the grammatical structures used in the text, and the vocabulary used in the text. They will be able to write more complex sentences.
SLC-202	Chinese Oration-I	<ul style="list-style-type: none"> Students will be able to develop their Chinese listening and speaking skills so that they will be able to better understand the language and better express their ideas and thoughts in the language. Students will be able to express themselves in simple sentences.
SLC-203	Composition –I	<ul style="list-style-type: none"> Students will be able to write proper grammatical constructions and convey their ideas in simple language. Students will be able to write short compositions on various topics using different grammatical tools available like idioms, proverbs etc.
SLC-204	Introduction to China Culture-I	<ul style="list-style-type: none"> Students will be able to gain basic knowledge of China's rich cultural heritage.
SLC-205*	Contemporary China (1949 onwards)	<ul style="list-style-type: none"> Students will be able to gain a deeper understanding of political events, society, and economic development since the establishment of the PRC in 1949.

FOURTH SEMESTER

Course Code	Course Title	Course Outcome
SLC-206	Selected Reading-II	<ul style="list-style-type: none"> Students will be able to comprehend more complex texts and grammar and learn different grammatical structures in Chinese.
SLC-207	Chinese Oration-II	<ul style="list-style-type: none"> Students will be able to develop their Chinese listening and speaking skills so that they will be able to better understand the language and express themselves. Using proper intonation and conversation, they will be able to improve their ability to speak Chinese.
SLC-208	Composition-II	<ul style="list-style-type: none"> Students will be able to write simple compositions and letters on various topics.
SLC-209	Introduction to Chinese Culture-II	<ul style="list-style-type: none"> Students will acquire an in-depth understanding of Chinese culture.

SLC-210*	Socio-political and economic conditions in China	<ul style="list-style-type: none"> Students will be able to study socio-cultural, political, and economic trends in China since 1949.
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FIFTH SEMESTER.

COURSE CODE	COURSE TITLE	COURSE OUTCOME
SLC-301	Selected Readings-III	<ul style="list-style-type: none"> Students will be able to enhance their understanding and application of Chinese grammar along with cultivating a deeper understanding of the language through a series of specially selected stories with rich literary language.
SLC-302	Chinese Oration-III	<ul style="list-style-type: none"> Students will be able to master more basic Chinese vocabulary and phrases, understand how Chinese people communicate with each other in different situations, and learn Chinese customs and taboos, so that they will be able to learn more about the Chinese language and culture and communicate effectively with each other in Chinese. By increasing their vocabulary, students will be able to improve their spoken Chinese.
SLC-303	Newspaper Chinese-I	<ul style="list-style-type: none"> Students will be able to learn journalistic Chinese, news media language and jargon, and abbreviations used in Chinese newspapers. They will also be able to carry out basic translation of newspaper texts.
SLC-304	Composition-III	<ul style="list-style-type: none"> Students will be able to be further develop their writing skills. Students will be able to write a good composition using tools like different grammatical structures, vocabulary, proverbs, idioms, four-word compounds, and so on.

SIXTH SEMESTER

SLC-305	Selected Readings-IV	<ul style="list-style-type: none"> Students will be able to read and comprehend longer texts with more complicated grammar. They will be able to read simple prose pieces.
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SLC-306	Chinese Oration-IV	<ul style="list-style-type: none"> • Students will be able to enhance their spoken ability. They will be able to listen and understand Chinese audio texts and respond to them in proper Chinese. • They will be express themselves in Chinese and carry out conversation about various topics concerning the world around them.
SLC-307	Newspaper Chinese-II	<ul style="list-style-type: none"> • Students will be able to read Chinese newspaper and carry out simple translation of the journalistic texts.
SLC-308	Composition-IV	<ul style="list-style-type: none"> • Students will be able to write compositions on various topics. They will acquire skills to write grammatically correct compositions and convey their ideas in an articulate manner.

SEVENTH SEMESTER.

Course Code	Course Title	Course Outcome
SLC-402	The Theories and Practice of Translation-I	<ul style="list-style-type: none"> • As the name of the course suggest, the course in its first semester of the Master's degree program is aimed at initiating the learner to the theories of translation and introduce the world of translation studies to them by helping them practice translation texts pertaining to the fields as varied as those of environment, diplomacy, culture, defense, politics etc.
SLC-404	Interpretation-I	<ul style="list-style-type: none"> • The course is aimed at improving the listening, speaking and comprehension skills of the learner, to help them equip with the basic tenets of bilingual interpretation. • As a parallel course to SLC-402, the course relies upon audio- visual texts pertaining to the fields of environment, diplomacy, culture, defense, politics etc. • The learner is trained to carry out elementary level interpretation in the first semester of the Master's degree program.
SLC-409	History of Modern Chinese Literature	<ul style="list-style-type: none"> • The course is aimed at introducing the history of modern Chinese literature to the learner. At the end of the first semester, the learner would have learnt about the history of the modern Chinese literature in its socio-politico-economic and cultural context.

SLC-411	Selected Readings in Modern and Contemporary Chinese Literature-I	<ul style="list-style-type: none"> • The course in tandem with the SLC-409 course, is focuses on introducing to the learners the works of the May Fourth writers. • By the end of the semester, the learners would have learnt and understood these works in their socio-politico-economic and cultural context.
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EIGHTH SEMESTER

Course Code	Course Title	Course Outcome
SLC-406	The Theories and Practice of Translation-II	<ul style="list-style-type: none"> • As the name of the course suggests, the course in its second semester of the Masters degree program is aimed at help the learner delve further into the theories of translation and get them interested in exploring further the world of translation studies to by helping them practice translation texts of intermediate level pertaining to the fields as varied as those of environment, diplomacy, culture, defense, politics etc.
SLC-408	Interpretation-II	<ul style="list-style-type: none"> • The course is aimed at further strengthening of the listening, speaking and comprehension skills of the learner, to help them equip with the basic tenets of bilingual interpretation. • As a parallel course to SLC-406, the course relies upon audio- visual texts pertaining to the fields of environment, diplomacy, culture, defense, politics etc. • The learner is trained to carry out upper elementary level interpretation in the second semester of the Master's degree program.
SLC-410	History of Modern Chinese Literature	<ul style="list-style-type: none"> • The course is aimed at imparting the learners the knowledge of the history of the post-1949 Chinese literature. • By the end of the semester, the learner would have an understanding of the vicissitudes of Chinese literature during the Mao period, cultural revolution and the post-Mao period.
SLC-412	Selected Readings in Modern and Contemporary Chinese Literature-II	<ul style="list-style-type: none"> • The course in focuses on introducing to the learners the works which can be said to be produced in the post-May Fourth period uptill the founding of the People's Republic of China in 1949 . • By the end of the semester, the learners would have lerant and understood these works and their writers in their socio-politico-economic and cultural context.

NINTH SEMESTER

Course Code	Course Title	Course Outcome
SLC-504	Interpretation-III	<ul style="list-style-type: none"> Having completed two semesters of training in elementary and upper elementary interpretation skill, the learner in the third semester will be trained to carry out intermediate level interpretation.
		<ul style="list-style-type: none"> By the end of the semester the learner will be expected to carry out consecutive bilingual interpretation in a classroom emulating settings such as an interview, conference, speech, negotiation etc.
SLC-509	The Theories and Practice of Translation-III	<ul style="list-style-type: none"> Building upon the two semesters of the same course, the learner will be trained to carry out bilingual translation exercises of literary works such as prose and poetry and Vice-versa and appreciate the nuances as well as beauty of translation, all the while comparing and contrasting the practices with the prevalent translation theories in India, China and the rest of the world.
SLC-510	Selected Readings in Modern and Contemporary Chinese Literature-III	<ul style="list-style-type: none"> The course by the end of the semester would have introduced the literary works produced during the Mao period to the learners. The course will also help the learners understand the imagination of the new nation from a socio-politico-cultural perspective and compare the same with the subjects and context of the modern Chinese literature.
SLC-512	History of Ancient Chinese Literature-I	<ul style="list-style-type: none"> The course aims to equip the learner with the evolution and transformation of the Chinese literature from the antiquity till the Tang period. In this course the learners will explore and understand the philosophical and literary traditions of the ancient China, specially from the advent of the major school of thoughts such as Confucianism, Daoism, Legalism etc. to the influence of Buddhism on these traditions.

TENTH SEMESTER

Course Code	Course Title	Course Outcome
SLC-503	Report on Dissertation	<ul style="list-style-type: none"> The course outcome includes the learner writing a ten thousand characters long dissertation on a topic pertaining to his/her area of research interest in the field of Chinese studies under the supervision of a faculty with similar area of research expertise or research interest. The course should be seen as the outcome of the training the learner is imparted in critical thinking and research aptitude during the first three semesters of the Masters degree program.

		<ul style="list-style-type: none"> Equipped with the research methodology acuity, the dissertation will be the first threshold the learner crosses to become a researcher.
SLC-508	Interpretation-IV	<ul style="list-style-type: none"> Having completed three semesters of training in elementary, upper elementary and intermediate interpretation skill, the learner in the fourth semester will be trained to carry out advance level interpretation. By the end of the semester the learner will be expected to carry out consecutive as well as simultaneous bilingual interpretation in a
		classroom emulating setting such as an interview, conference, speech, negotiation etc.
SLC-513	History of Ancient Chinese Literature-II	<ul style="list-style-type: none"> As a continuation of the SLC-512, the course will focus on the literary traditions and literary works of the post-Tang dynasty till the Qing dynasty. The course will also help the learner understand the socio- political-cultural aspect of China of this period.

CURRICULUM OF ACADEMIC PROGRAMMES



Department of Chinese Studies

School of Languages

MA (Chinese)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

- **PO1:** To use culturally appropriate expressions to converse in Mandarin Chinese about intermediate-level topics such as such as personal background and needs, social conventions, and routine tasks, including receiving simple instructions and directions. Students will be able to make comparisons between products and practices to help them understand perspectives.
- **PO2:** To interact at a functional level in some familiar contexts. They will also be able to Identify and pronounce 400 additional Chinese characters (every semester)
- **PO3:** To gain an understanding on everyday topics and social situations (e.g., making new friends from China, dining in a Chinese restaurant) and providing simple responses (e.g., asking for help, apologizing, planning a trip to China) and providing full responses in appropriate manner.
- **PO4:** To comprehend and write a short and long paragraph using Chinese characters and Pinyin Romanization. Using complex sentences and multiple tenses, read, write, and comprehend a paragraph written in Chinese characters.
- **PO5:** To be able to recognize and pronounce 3500-4000 Chinese characters in an appropriate tone.

PROGRAM SPECIFIC OUTCOMES (PSO):

- **PSO1:** The students will be able to prepare themselves as independent readers. Students will be able to develop a better command of language across all four major skills (speaking, listening, reading, and writing). The students were exposed to a variety of genres of readings; textbooks were switched out for highly selected authentic Chinese texts.
- **PSO2:** The students will be able to sustain a conversation in a well-structured speech. As a result, they are able to make coherent arguments and express themselves on unfamiliar and abstract topics.
- **PSO3:** The students will be able to comprehend the main points and most details of a general speech beyond everyday situations. To achieve that they were exposed to authentic Chinese media and popular culture materials
- **PSO4:** By using complex sentence patterns, they will be able to write essays and research findings with greater precision, detail, and control of syntax structures.
- **PSO5:** Having completed four semesters of **Master's degree** program in Chinese, the learner will have all the essential skills and training to become a Chinese studies expert. The learner will be able to fulfill the role of a translator or an interpreter or both. At the same time, the learner would have been trained to carry out further quality research in Chinese studies and contribute to the growth of Chinese studies globally in general and in India in particular.

FIRST SEMESTER.

Course Code	Course Title	Course Outcome
SLC-402	The Theories and Practice of Translation-I	<ul style="list-style-type: none"> As the name of the course suggest, the course in its first semester of the Master's degree program is aimed at initiating the learner to the theories of translation and introduce the world of translation studies to them by helping them practice translation texts pertaining to the fields as varied as those of environment, diplomacy, culture, defense, politics etc.
SLC-404	Interpretation-I	<ul style="list-style-type: none"> The course is aimed at improving the listening, speaking and comprehension skills of the learner, to help them equip with the basic tenets of bilingual interpretation. As a parallel course to SLC-402, the course relies upon audio- visual texts pertaining to the fields of environment, diplomacy, culture, defense, politics etc. The learner is trained to carry out elementary level interpretation in the first semester of the Master's degree program.
SLC-409	History of Modern Chinese Literature	<ul style="list-style-type: none"> The course is aimed at introducing the history of modern Chinese literature to the learner. At the end of the first semester, the learner would have learnt about the history of the modern Chinese literature in its socio-politico-economic and cultural context.
SLC-411	Selected Readings in Modern and Contemporary Chinese Literature-I	<ul style="list-style-type: none"> The course in tandem with the SLC-409 course, is focuses on introducing to the learners the works of the May Fourth writers. By the end of the semester, the learners would have learnt and understood these works in their socio-politico-economic and cultural context.

SECOND SEMESTER

Course Code	Course Title	Course Outcome
SLC-406	The Theories and Practice of Translation-II	<ul style="list-style-type: none"> As the name of the course suggests, the course in its second semester of the Masters degree program is aimed at help the learner delve further into the theories of translation and get them interested in exploring further the world of translation studies to by helping them practice translation texts of intermediate level pertaining to the fields as varied as those of environment, diplomacy, culture, defense, politics etc.

SLC-408	Interpretation-II	<ul style="list-style-type: none"> • The course is aimed at further strengthening of the listening, speaking and comprehension skills of the learner, to help them equip with the basic tenets of bilingual interpretation. • As a parallel course to SLC-406, the course relies upon audio- visual texts pertaining to the fields of environment, diplomacy, culture, defense, politics etc. • The learner is trained to carry out upper elementary level interpretation in the second semester of the Masters degree program.
SLC-410	History of Modern Chinese Literature	<ul style="list-style-type: none"> • The course is aimed at imparting the learners the knowledge of the history of the post-1949 Chinese literature. • By the end of the semester, the learner would have an understanding of the vicissitudes of Chinese literature during the Mao period, cultural revolution and the post-Mao period.
SLC-412	Selected Readings in Modern and Contemporary Chinese Literature-II	<ul style="list-style-type: none"> • The course in focuses on introducing to the learners the works which can be said to be produced in the post-May Fourth period uptill the founding of the People’s Republic of China in 1949 . • By the end of the semester, the learners would have lerant and understood these works and their writers in their socio-politico-economic and cultural context.

THIRD SEMESTER

Course Code	Course Title	Course Outcome
SLC-504	Interpretation-III	<ul style="list-style-type: none"> • Having completed two semesters of training in elementary and upper elementary interpretation skill, the learner in the third semester will be trained to carry out intermediate level interpretation.
		<ul style="list-style-type: none"> • By the end of the semester the learner will be expected to carry out consecutive bilingual interpretation in a classroom emulating settings such as an interview, conference, speech, negotiation etc.
SLC-509	The Theories and Practice of Translation-III	<ul style="list-style-type: none"> • Building upon the two semesters of the same course, the learner will be trained to carry out bilingual translation exercises of literary works such as prose and poetry and Vice-versa and appreciate the nuances as well as beauty of translation, all the while comparing and contrasting the practices with the prevalent translation theories in India, China and the rest of the world.

SLC-510	Selected Readings in Modern and Contemporary Chinese Literature-III	<ul style="list-style-type: none"> The course by the end of the semester would have introduced the literary works produced during the Mao period to the learners. The course will also help the learners understand the imagination of the new nation from a socio-politico-cultural perspective and compare the same with the subjects and context of the modern Chinese literature.
SLC-512	History of Ancient Chinese Literature-I	<ul style="list-style-type: none"> The course aims to equip the learner with the evolution and transformation of the Chinese literature from the antiquity till the Tang period. In this course the learners will explore and understand the philosophical and literary traditions of the ancient China, specially from the advent of the major school of thoughts such as Confucianism, Daoism, Legalism etc. to the influence of Buddhism on these traditions.

FOURTH SEMESTER

Course Code	Course Title	Course Outcome
SLC-503	Report on Dissertation	<ul style="list-style-type: none"> The course outcome includes the learner writing a ten thousand characters long dissertation on a topic pertaining to his/her area of research interest in the field of Chinese studies under the supervision of a faculty with similar area of research expertise or research interest. The course should be seen as the outcome of the training the learner is imparted in critical thinking and research aptitude during the first three semesters of the Masters degree program. Equipped with the research methodology acuity, the dissertation will be the first threshold the learner crosses to become a researcher.
SLC-508	Interpretation-IV	<ul style="list-style-type: none"> Having completed three semesters of training in elementary, upper elementary and intermediate interpretation skill, the learner in the fourth semester will be trained to carry out advance level interpretation. By the end of the semester the learner will be expected to carry out consecutive as well as simultaneous bilingual interpretation in a
		classroom emulating setting such as an interview, conference, speech, negotiation etc.
SLC-513	History of Ancient Chinese Literature-II	<ul style="list-style-type: none"> As a continuation of the SLC-512, the course will focus on the literary traditions and literary works of the post-Tang dynasty till the Qing dynasty. The course will also help the learner understand the socio-political-cultural aspect of China of this period.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Environment and Natural Resources
MSc (Environmental Science)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

M. Sc. Environmental Science

About the Programme

The Master in Environmental Science aims to give a broad appreciation of the major processes of environmental change and of the people and institutions involved in environmental protection. The course seeks to produce environmental experts/professionals who are interdisciplinary and analytical in their approach to environmental issues, and competent and aware decision makers.

PROGRAMME OUTCOMES (POs)

PO1 To understand the relationship between social and natural systems by mastering the skills needed to develop solutions to environmental problems.

PO2 To examine the ethical, cultural, economic and legal aspects of environmental responsibility and provide systemic solutions such remediation, mitigation and adaption towards environmental changes at different scales.

PO3 To sensitize the students on the environmental issues and challenges at regional, national and global scale

PO4 To impart knowledge, practical training, analytical techniques and skills to solve the environmental problems.

PO5 To prepare students for successful career in environmental departments in universities and colleges, research institutes, industries, consultancy and NGOs, etc.

COURSE OUTCOMES:

FIRST SEMESTER

Course Type	Course code	Course Title	Course outcomes
Core	EES-511	Ecology and Environment	<p>The students will be able to:</p> <ul style="list-style-type: none">❖ Understand the basic facts of population community and ecosystem level ecology and recognize the interconnections among the major concepts of ecology and environment.❖ Design an ecological study that addresses relevant questions, carry out the study using the appropriate equipment, and interpret and present the study to peers.❖ Investigate how the ecological concepts learnt in class relate to current environmental problems.

Core	EES – 515	Environmental Pollution	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the basic facts of pollutants in air, water and soil system. ❖ Clearly and concisely understand the difference between pollutants level and its impact on Ecology and Human life. ❖ Recognize the interconnections/ transportation of the pollutants in Environmental matrix and undertake measurement of pollutants: scientifically designing the sampling and data analysis.
Core	EES-521	Earth Surface and its Processes	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Learn about the significance of subject in relation to Environmental Studies. ❖ Evaluate the geomorphic significance of anthropogenic activities. ❖ Understand the fundamental concepts of
			Earth surface and its processes in relation to Environment.
Elective	EES – 517	Environmental Chemistry	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the role of basic chemistry principles behind different environmental process. ❖ Identify the origin and composition of Air, Soil, and aqueous environment and their physic-chemistry ❖ Understand the chemistry behind cause and transport of various pollutants in air, soil and water.
Elective	EES – 516	Environmental Impact Assessment	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the major principles and different steps within the Environmental Impact Assessment. ❖ Understand and access the different case studies in Environmental Impact Assessment. ❖ Plan for mitigation of the impacts & monitor the mitigation measures and acquire knowledge about Environmental Legislation & Environmental Audit.

General	EGC – 571	Environmental Issues, Laws and Policies	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Learn about the significance of development in International and National environmental law and fundamental principles that have emerged. ❖ Comprehending the statutory and regulatory mechanism pertaining to environment. ❖ Understanding the judicial response to Environmental issues in India.
General	EGC-596	Computational methods in Environmental science	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Master the basic techniques required to use and run the climate models or environmental models. ❖ Skill themselves with one of the computer programming languages such as python. ❖ Skill themselves in using computer programs to customize environmental models for specific purpose.

SECOND SEMESTER

Course	Course	Course Title	Course Outcomes
Type	code		
Core	EES-513	Aquatic Environment	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Demonstrate a basic understanding of the physical, chemical, and biological characteristics of Aquatic ecosystems. ❖ Apply knowledge on aquatic ecosystems and environmental issues based on current research in a future profession inside or outside academia. ❖ Independently and in groups, plan and carry out field studies and laboratory experiments as well as compile, critically analyze and evaluate results.

Core	EES – 627	Environmental Microbiology & Biotechnology	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Gain the basic knowledge on how to prepare and perform sampling and microbial analyses to determine the abundance, growth rate and microbial community composition in different environment. ❖ Understand the role of microbes in n degradation of natural organic compounds and selected pollutants in the environment. ❖ Learn how biotechnological tools can be used to study environmental assessment, monitoring and remediation.
Core	EES – 514	Geomatics	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the principles of remote sensing and geographic information systems. ❖ Apply remote sensing and GIS to solving problems of Environmental Science and mapping of natural resources. ❖ Maximize the efficiency of planning and spatial decision making and integrate geographically referenced data and develop queries to generate usable information.
Core	EES – 618	Analytical Techniques	
		and Instrumentation	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Recognize the role of various analytical techniques in environmental monitoring. ❖ Understand the basic principles behind common analytical techniques and some important instruments. ❖ Perform qualitative and quantitative analysis of air, soil, and water samples.

Core	EES – 520	Atmosphere, Weather and Climate	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the physical laws governing the structure and evolution of atmospheric phenomena. ❖ Demonstrate how atmospheric processes govern the air pollutants flow and dispersal in the air. ❖ Quantitatively analyse the weather phenomena, planetary boundary layer and its role in climate models. ❖ Apply the concepts and understanding of Atmosphere weather and climate system for various system analysis
Elective	EES – 551:	Environment Waste Management	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the major sources of environmental wastes and their impact on environment. ❖ Participate in waste management program effectively. ❖ Learn about the development of innovative technologies to recover resources from waste resources.
Elective	EES – 555:	Hazards, Risk Analysis and Management	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Define hazard, hazard analysis, and risks, Job Safety Analysis, and Field Level Hazard assessment processes and how they lead to safe work procedures. ❖ Identify who is responsible for risk assessment and control, which risk assessment models are effective, and how risk assessments are performed.
General	EES 556	Society and Environmental Economics	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Apply economic principles to analyze specific environmental problems and issues; ❖ Identify the sources of 'market failure' (inefficiency) and the economic principles of pollution control; ❖ Utilize various 'instruments' developed by economists to deal with environmental problems to evaluate alternative courses of action for policy makers.

THIRD SEMESTER

Course Type	Course code	Course Title	Course outcomes

Core	EES-554	Statistics & Computer Applications	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Design proper sampling methods and its analysis and master different statistical techniques to analyse the data. ❖ Create quantitative models to solve real world problems in appropriate contexts. ❖ Skill themselves in using statistical software in visualizing, analysing statistical models.
Core	EES – 518	Environmental Toxicology	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the fundamental concepts of environmental toxicology and its application in human development. ❖ Recognize the major sources of environmental toxicants and their management. ❖ Be able to develop concept for green chemicals for eco-toxicity mitigation
Core	EES – 619	Green Technology	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Appreciate the role and potential of technology in creating a safer environment. ❖ Become aware about evolving new techniques for clean energy, green buildings, green chemistry, resource reduction and pollution prevention. ❖ Enlist different concepts of green technology in a project.
Core	ENR – 556	Traditional Knowledge IPR Issue	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand current and emerging issues relating to the intellectual property protection, including those relating to indigenous knowledge or culture, information technology especially the distribution

			<p>of material on the internet, biotechnology and international trade</p> <ul style="list-style-type: none"> ❖ Understand fundamental legal principles relating to confidential information, copyright, patents, designs, trademarks and unfair competition; ❖ Understand the legal and practical steps needed to ensure that intellectual property rights remain valid and enforceable; ❖ Demonstrate a capacity to identify, apply and assess ownership rights and marketing protection under intellectual property law as applicable to information, ideas, new products and product marketing;
Elective		Optional From List of electives	
	EES –635	Field Study/Internship	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Apply their knowledge and skills acquired in the classroom to a professional context; ❖ Understand what skills are transferable to new contexts; identify and understand the practices and protocols of the particular Institution/Industry. ❖ Refine and reassess career goals as a result of the experience gained during internship.
	EES-680	Seminar	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Learn the presentation and discussion skills and develop critical thinking. ❖ Engage in big questions related to latest developments taking in field.

Elective Courses

Course code	Course Title	Course Outcomes
ENR-559	Disaster Management	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand Disasters, man-made Hazards and Vulnerabilities. ❖ Understand disaster management mechanism. ❖ Understand capacity building concepts and planning of disaster managements.
ETC-530	Solid & Hazardous Waste Management	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Sample and characterize solid waste; analyse hazardous waste constituents including QA/QC issues. ❖ Understand health and environmental issues related to solid waste management; apply steps in solid waste management-waste reduction at source. ❖ Learn about the collection techniques, materials and resource recovery/recycling,
EES- 615	Limnology & Chemical Speciation in Aquatic System	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Analyse and evaluate abiotic and biotic conditions in aquatic systems ❖ Account for structure and dynamics in biogeochemical cycles and organism communities ❖ Carry out basic sampling and analyses in freshwater field/laboratory systems
ETC-540	Air Pollution	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Identify the major sources and sinks of air pollutants. ❖ Understand the key chemical transformations of air pollution. ❖ Relate air pollution regulation and its scientific basis and provide solutions to air pollution problems.
EES- 530	Water Pollution	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the chemical compositions of natural waters, and explain how and why these compositions vary, describe the main sources of water pollution, the main types of pollutant and how each type may be controlled ❖ Outline the extent of water pollution in the country and in selected global locations ❖ Identify the criteria for drinking water acceptability and outline the processes used to treat water for a public water supply

EES-625	Microbial Ecology	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Relate metabolic reactions carried out by microbes to global biogeochemical cycling of elements: understand the mechanisms how abiotic factors can influence on the microbial growth and microbial cells and how we can use this knowledge for controlling the growth of microorganisms. ❖ Understand how the specific environmental properties of soils, oceans and biofilms affect microbial communities therein. Understand relations between microorganisms and plants, animals and man. ❖ Describe the distribution and role of microorganisms in different habitats such as atmosphere, water ecosystems and soil. ❖ Equip students with the knowledge and skills for entry into careers involving microbiological applications and techniques
EES-570	Global climate change and its impacts	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the current evidence for global warming, model and apply the techniques of ‘measuring’ the Earth's temperature. ❖ Understand the current warming in relation to climate changes throughout the Earth's history ❖ Explain factors forcing climate change, and the extent of anthropogenic influence and assess the ‘best predictions’ of current climate models.
ENR-560	Soil science and Soil ecology	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Describe the various mineral and organic components of soils, including how changes in various quantities affect soil physical and chemical properties. ❖ Understand pedogenesis and how different parent materials create soils with varying properties. Understand water retention and movement in soils, especially as it relates to plant water availability. ❖ Develop basic understanding of soil chemistry, including pH and CEC, especially how they relate to nutrient availability and, when feasible, adjustments, such as liming, that can improve conditions for plant growth. ❖ Develop an introductory understanding of soil taxonomy, including the various insects, microbes and other organisms.

ENR-552	Trees outside forest	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand the significance of various tree farming practices in ecosystem services. ❖ Understand and appreciate the importance of tree in urban context. ❖ Develop suitable models for creating urban green spaces.
ETC-510	Water and Wastewater engineering	
ENR-515	Integrated Watershed management	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Suggest technical measures for soil erosion control both due to water and wind, ❖ Assess the current status of the watershed at field, by taking up accurate investigation measures and conduct survey. ❖ Suggest drought control measures, water conservation structures, including design
EES-612	Science of climate change	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand natural and human-influenced drivers of our climate system and implications. ❖ Assess the credibility of scientific information and I communicate locally-relevant climate change solutions to a non-science audience ❖ Make informed & responsible decisions with regard to our climate system
EES-614	Environmental Modeling	<p>The students will be able:</p> <ul style="list-style-type: none"> ❖ To explain the physical and chemical laws basis of environmental models. ❖ To learn skill of running air quality models, water quality models. ❖ To skill themselves in applying these models in specific area under specific scenario.
EES-621	Environmental Biochemistry and Biophysics	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Understand biochemical degradation of pollutants inside the Cell, Cellular interactions with pollutants, and Pollutant interactions with biological systems at different levels. ❖ Understand about the metal toxicity in cell and bio interaction of cell with the environment.

		❖ Use databases, computational tools and online resources effectively.
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FOURTH SEMESTER

Course Type	Course code	Course Title	Course outcome
Core	EES-690	THESIS/DIS SERTATION	<p>The students will be able to:</p> <ul style="list-style-type: none"> ❖ Plan, and engage in, an independent and sustained critical investigation and evaluation of a chosen research topic relevant to environment and society. ❖ Systematically identify relevant theory and concepts, relate these to appropriate methodologies and evidence, apply appropriate techniques and draw appropriate conclusions. ❖ Appropriately apply qualitative and/or quantitative evaluation processes to original data. ❖ Understand and apply ethical standards of conduct in the collection and evaluation of data and other resources, communicate research concepts and contexts clearly and effectively both in writing and orally.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Environment and Natural Resources
MSc (Environmental Science Specialization in
Natural Resource Management)



DOON UNIVERSITY
KEDARPUR, P.O-AJABPUR DEHRADUN-248001

MSc (Environmental Science Specialization in Natural Resource Management)

About the Programme

The Masters in Environmental Science with specialization on Natural Resource Management aims to provide awareness of natural resources, their mapping, management and sustainable development besides the basic understanding of the major processes of environmental change. It is especially designed to give an understanding of the connections and ability to communicate between different disciplines.

Programme outcomes

PO1. To offer a comprehensive understanding of processes and mechanisms related to conflicting interests over the use of natural resources, the program will provide valuable insights.

PO2. To foster advanced knowledge, students will delve deeply into a relevant topic within the field of natural resource management in their master's thesis.

PO3. To promote contributions to the management and sustainable use of natural resources, students are encouraged to work in a multidisciplinary team.

PO4. To address ethical dilemmas related to perceived justice in resource allocation conflicts is a key aspect of this program.

PO5. To engage with various sectors, including organizations, education, and industry, the interdisciplinary master's program in Natural Resources provides a broad perspective.

FIRST SEMESTER

Course Type	Course code	Course Title	Course Outcomes
Core	ENR-513	Fundamentals of Natural Resource Management	<ul style="list-style-type: none">❖ To make students aware about various Natural resources and their distribution pattern around the globe❖ To assess the benefits, opportunities, and challenges of Natural resources in today's economy❖ To understand how nature works regarding

			<p>the climate, biodiversity and the flow of natural resources, and realize the impact of human activity on the environment</p> <ul style="list-style-type: none"> ❖ To recognize the interactions between energy, water and food and the how their sustainability will safeguard the future of humans and the ecosystem on the planet ❖ To understand various approaches and role of Sustainable Development Goals (SDG's) in Resource Management
Core	ENR –514	Forest Ecosystem and Management	<ul style="list-style-type: none"> ❖ To understand the fundamental concepts of forest biology and ecology, and forest management. ❖ To identify different forest biomes, types in world and India. ❖ To understand the major factors that lead to the interaction between people, society and forests that are critical for development of policies and plans for forest conservation and sustainable management.
Core	EES–521	Earth Surface and its Processes	<ul style="list-style-type: none"> ❖ To learn about the significance of subject in relation to Environmental Studies. ❖ To evaluate the geomorphic significance of anthropogenic activities. ❖ To understand the fundamental concepts of Earth surface and its processes in relation to Environment.
Elective	ENR –557	Himalayan Ecosystem and People	<ul style="list-style-type: none"> ❖ To understand the geological history and biogeography of mountain regions in general and the Himalayan region specifically. ❖ To gain an understanding of the challenges mountain communities face and the unique and progressive conservation efforts being made in Himalayas.

Elective	EES-516	Environmental Impact Assessment	<ul style="list-style-type: none"> ❖ To understand the major principles and different steps within the Environmental Impact Assessment. ❖ To be able to understand and access the different case studies in Environmental Impact Assessment. ❖ To plan for mitigation of the impacts & monitor the mitigation measures and acquire knowledge about Environmental Legislation & Environmental Audit.
General	EGC -571	Environmental Issues, Laws, and Policies	<ul style="list-style-type: none"> ❖ To learn about the significance of development in International and National environmental law and fundamental principles that have emerged. ❖ Comprehending the statutory and regulatory mechanism pertaining to environment. ❖ Understanding the judicial response to Environmental issues in India.
General	EGC-596	Computational methods in Environmental science	<ul style="list-style-type: none"> ❖ To master the basic techniques required to use and run the climate models or environmental models. ❖ To gain skill with one of the computer programming language such as python. ❖ To gain skill in using computer programs to customize environmental models for specific purpose.

SECOND SEMESTER

Course Type	Course code	Course Title	Course outcomes
Core	ENR-511	Water Resources and their Management	<ul style="list-style-type: none"> ❖ To identify different problems related to water resources planning, management and development. ❖ To understand ecological and hydrological processes and concepts and apply them to watershed management actions such as harvesting, grazing, and restoration. ❖ To apply assessment and classification tools to watersheds and their components to determine how management actions affect hydrologic responses.

Core	ENR-516	Biodiversity Assessment and Conservation	<p>Obtain knowledge and understanding of ecological and evolutionary processes that are important for conservation of biodiversity. Understand important approaches and practices in biodiversity conservation and management. Acquire skills in analyzing and evaluating the importance of biological processes on conservation of biodiversity.</p>
Core	EES-618	Analytical Techniques and Instrumentation	<ul style="list-style-type: none"> ❖ Recognize the role of various analytical techniques in environmental monitoring. ❖ Understand the basic principles behind common analytical techniques and some important instruments. ❖ Able to perform qualitative and quantitative analysis of air, soil, and water samples.
Core	EES-514	Geomatics	<ul style="list-style-type: none"> ❖ Understand the principles of remote sensing and geographic information systems. ❖ Apply remote sensing and GIS to solving problems of Environmental Science and mapping of natural resources. ❖ Maximize the efficiency of planning and spatial decision making and integrate geographically referenced data and develop queries to generate usable information.
Core	EES – 520:	Atmosphere, Weather and Climate	<ul style="list-style-type: none"> ❖ Understand the physical laws governing the structure and evolution of atmospheric phenomena. ❖ Demonstrate how atmospheric processes govern the air pollutants flow and Dispersal in the air. ❖ Quantitatively analyze the weather phenomena, planetary boundary layer and its role in climate model ❖ To apply the concepts and understanding of Atmosphere weather and climate system for various system analysis

Elective	EES-515	Hazards, Risks Analysis and Management	<ul style="list-style-type: none"> ❖ Define hazard, hazard analysis, and risks, Job Safety Analysis, and Field Level Hazard Assessment processes and how they lead to safe work procedures. ❖ Identify who is responsible for risk assessment and control, which risk assessment models are effective, and how risk assessments are performed
Elective	ENR-558	Wildlife Management and Ecotourism	<p>Understand the general principles of ecology as how they related to terrestrial and/or aquatic plant and animal conservation and management. Students will be able to identify species, characteristics, habitat requirements and life cycles of birds, fish and/or mammalian wildlife species.</p> <p>Critically evaluate current events and public information related to wildlife conservation and management as being scientifically-based or opinion-based and contributes to the knowledge base of information.</p> <p>Write in a style appropriate for technical or informative publications for various audiences related to wildlife conservation and management.</p>
General	EES -556	Society and Environmental Economics	<ul style="list-style-type: none"> ❖ Apply economic principles to analyze specific environmental problems and issues; ❖ Identify the sources of 'market failure'(inefficiency) and the economic principles of pollution control; ❖ Utilize various' instruments developed by

			economists to deal with environmental problems to evaluate alternative courses of action for policymakers.
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THIRD SEMESTER

Course Type	Course code	Course Title	Course Outcomes
Core	EES-554	Statistics & Computer Applications	<p>Design proper sampling methods and its analysis and master different statistical techniques to analyze the data.</p> <p>Create quantitative models to solve real world problems in appropriate contexts.</p> <p>To skill themselves in using statistical software in visualizing, analyzing statistical models.</p>
Core	ENR –512	Energy Resources and their Management	<ul style="list-style-type: none"> ❖ Understand the production and consumption of primary energy sources and demand in India. ❖ Recognize the primary and renewable energy sources ❖ Prepare the energy management plans.
Core	ENR-555	Biological Resources Management	<ul style="list-style-type: none"> ❖ Assess the benefits, opportunities, and challenges of bio-resources in today's economy ❖ Understand how nature works regarding the climate, biodiversity and the flow of natural resources, and realize the impact of human activity on the environment ❖ Recognize the interactions between energy, water and food and the how their sustainability will safeguard the future of humans and the ecosystem on the planet ❖ Understand the variety of technologies currently employed and under development for production of bio-energy and bio-products from biomass and algae.
Core	ENR –553	Restoration Ecology	<ul style="list-style-type: none"> ❖ Understand how restoration is fundamental to sustainable development, mitigating and adapting to climate change, enhancing food security as well as water and biodiversity conservation. ❖ Understand and explore the science upon which actions to assist the recovery of degraded, damaged or destroyed ecosystem should be based. ❖ Real-world degradation problems and restoration solutions will be examined to equip students with the knowledge and skills for entry into careers involving

			ecological restoration policy and/or practice.
Core	EES-619	Green Technology	<ul style="list-style-type: none"> ❖ Appreciate the role and potential of technology in creating a greener environment. ❖ Become aware about evolving new techniques for clean energy, green buildings, green chemistry, resource reduction and pollution prevention. ❖ Enlist different concepts of green technology in a project.
Elective		Optional From List of electives	
General	ENR-556	Traditional Knowledge and IPR Issue	<ul style="list-style-type: none"> ❖ Understand fundamental legal principles relating to confidential information, copyright, patents, designs, trademarks and unfair competition; ❖ Identify, apply and assess principles of law relating to each of these areas of intellectual property; understand the legal and practical steps needed to ensure that intellectual property rights remain valid and enforceable; ❖ Demonstrate a capacity to identify, apply and assess ownership rights and marketing protection under intellectual property laws applicable to information, ideas, new products and product marketing; ❖ Understand current and emerging issues relating to the intellectual property protection, including those relating to indigenous knowledge or culture, information technology especially the distribution of material on the internet, biotechnology and international trade
Elective	EES-635	Field Study/Internship	<ul style="list-style-type: none"> ❖ Apply their knowledge and skills acquired in the classroom to a professional context; ❖ Understand what skills are transferable to new contexts; identify and understand the practices and protocols of the Institution/Industry. ❖ Refine and reassess career goals as a result of the

			experience gained during internship.
Elective	EES-680	Seminar	<ul style="list-style-type: none"> ❖ Learn the presentation and discussion skills and develop critical thinking. ❖ Engage in big questions related to latest developments taking in field.

FOURTHSEMESTER

Course Type	Course code	Course Title	Course outcomes
Core	EES-690	THESIS/DISSERTATION	<ul style="list-style-type: none"> ❖ Plan, and engage in, an independent and sustained critical investigations and evaluation of a chosen research topic relevant to environment and society. ❖ Systematically identify relevant theory and concepts, relate these to appropriate
			<p>Methodologies and evidence, apply appropriate techniques and draw appropriate conclusions</p> <ul style="list-style-type: none"> ❖ Appropriately apply qualitative and/or quantitative evaluation processes to original data. ❖ Understand and apply ethical standards of conduct in the collection and evaluation of data and other resources, communicate research concepts and contexts clearly and effectively both in writing and orally.

Elective Courses

Course code	Course Title	Course Outcomes
ENR-559	Disaster Management	<ul style="list-style-type: none"> ❖ Understanding Disasters, man-made Hazards and Vulnerabilities. ❖ Understanding disaster management mechanism. ❖ Understanding capacity building concepts and planning of disaster managements.

ETC-530	Solid & Hazardous Waste Management	<ul style="list-style-type: none"> ❖ Sampling and characterization of solid waste; analysis of hazardous waste constituents including QA/QC issues. ❖ Understand health and environmental issues related to solid waste management; apply steps in solid waste management-waste reduction at source. ❖ Learn about the collection techniques, materials and resource recovery/recycling.
EES-615	Limnology & Chemical Speciation in Aquatic System	<p>Analyze and evaluate abiotic and biotic conditions in aquatic systems.</p> <p>Account for structure and dynamics in biogeochemical cycles and organism communities.</p> <p>Carry out basic sampling and analyses in freshwater field/laboratory systems</p>
ETC-540	Air Pollution	<ul style="list-style-type: none"> ❖ Identify the major sources and sinks of air pollutants. ❖ Understand the key chemical transformations of air pollution. ❖ Relate air pollution regulation and its Scientific basis and provide solutions to air pollution problems.
EES-530	Water Pollution	<ul style="list-style-type: none"> ❖ Understand the chemical compositions of natural waters, and explain how and why these compositions vary, describe the main sources of water pollution, the main types of pollutant and how each type may be controlled ❖ outline the extent of water pollution in the country and in selected global locations ❖ identify the criteria for drinking water acceptability and outline the processes used to treat water for a public water supply

EES-625	Microbial Ecology	<ul style="list-style-type: none"> ❖ Relate metabolic reactions carried out by microbes to global biogeochemical cycling of elements understand the mechanisms how abiotic factors can influence on the microbial growth and microbial cells and how we can use this knowledge for controlling the growth of microorganisms. ❖ Understand how the specific environmental properties of soils, oceans and biofilms affect microbial communities therein. Understand relations between microorganisms and plants, animals and man. ❖ Describe the distribution and role of microorganisms in different habitats such as atmosphere, water ecosystems and soil ❖ Equip students with the knowledge and skills for entry into careers involving microbiological applications and techniques
EES-570	Global climate change and its impacts	<ul style="list-style-type: none"> ❖ understand the current evidence for global warming, model and apply the techniques of ‘measuring’ the Earth's temperature ❖ understand the current warming in relation to climate changes throughout the Earth's history ❖ explain factors forcing climate change, and the extent of anthropogenic influence and assess the ‘best predictions’ of current climate models
ENR-560	Soil science and Soil ecology	<ul style="list-style-type: none"> ❖ Describe the various mineral and organic components of soils, including how changes in various quantities affect soil physical and chemical properties. ❖ Understand pedogenesis and how different

		<p>parent materials create soils with varying properties. Understand water retention and movement in soils, especially as it relates to plant water availability.</p> <p>Develop basic understanding of soil chemistry, including pH and CEC, especially how they relate to nutrient availability and, when feasible, adjustments, such as liming, that can improve conditions for plant growth.</p> <ul style="list-style-type: none"> ❖ Develop an introductory understanding of soil taxonomy, including the various insects, microbes and other organisms.
ENR-552	Trees outside forest	<ul style="list-style-type: none"> ❖ Understand the significance of various tree farming practices in ecosystems services. ❖ Understand and appreciate the importance of tree in urban context. ❖ Develop suitable models for creating urban green spaces.
ETC-510	Water and Wastewater engineering	
ENR-515	Integrated Watershed management	<ul style="list-style-type: none"> ❖ Suggest technical measures for soil erosion control both due to water and wind, ❖ Assess the current status of the watershed at field, by taking up accurate investigations measures and conduct survey. ❖ Suggest drought control measures, water conservation structures, Including design
EES-612	Science of climate change	<ul style="list-style-type: none"> ❖ Understand natural and human-influenced drivers of our climate system and implications. ❖ Assess the credibility of scientific information and communicate locally-relevant climate change solutions to an on-science audience ❖ Make informed & responsible decisions with regard our climate system
EES-614	Environmental Modeling	<ul style="list-style-type: none"> ❖ To explain the physical and chemical laws basis of environmental models. ❖ To learn skill of running air quality models, water quality models. ❖ To skill themselves in applying these

		environmental models in specific area under specific scenario.
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EES-621	Environmental Biochemistry and Biophysics	<ul style="list-style-type: none"> ❖ Understand biochemical degradation of pollutants inside the Cell, Cellular interactions with pollutants, and Pollutant interactions with biological systems at different levels. ❖ Understand about the metal toxicity in cell and bio-interaction of cell with the environment. ❖ Use databases, computational tools and online resources effectively.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Environment and Natural Resources

MTech (Environmental Technology)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

- **PO1:** To develop capacity to apply the knowledge of environmental science and engineering to provide sustainable solutions to environmental issues and challenges different industries and sectors are facing.
- **PO2:** To sensitize the students on the environmental issues and challenges at regional, national and global scale.
- **PO3:** To impart knowledge, practical training, analytical techniques and skills to solve the environmental problems industries and other sectors are facing.
- **PO4:** To prepare environmental engineers for a successful career in industry, government and private sectors for the development of sustainable technologies in respective sector.

COURSE OUTCOMES:

FIRST SEMESTER

Course Type	Course code	Course Title	Course Outcome
Core	ETC – 550	Basic Instrumentation in Environmental Science & Technology	<ul style="list-style-type: none">❖ Recognise the role of various instrumental and analytical techniques in Environmental technology.❖ Understand the principal and applications of key qualitative and quantitative analytical techniques.❖ Understand the post experimental treatment of results with various statistical methods
Core	ETC – 510	Principles and Design of Wastewater Treatment and Disposal Systems	<ul style="list-style-type: none">❖ Learn different characterization techniques for water & wastewater❖ Understand the principles & design of different physicochemical and biological unit operations/processes involved in water & wastewater treatment❖ Learn sludge management techniques
Core	ETC – 590	Remote Sensing & GIS Application in Environmental Management	<ul style="list-style-type: none">❖ Understand the principles of remote sensing (RS) and geographic information systems.❖ Apply RS & GIS to solve problems of Environmental Science & Engineering, and mapping of natural resources.❖ Maximize the efficiency of planning and spatial decision making and integrate geographically referenced data and develop queries to generate usable information

Core	ETC – 530	Solid and Hazardous Waste Management	<ul style="list-style-type: none"> ❖ Provide comprehensive overviews of solid and hazardous wastes management ❖ Identify current statutory and regulatory framework related to solid and hazardous waste management. ❖ Identify the common techniques for preventing, minimizing, recycling, disposing and treatment
			of solid and hazardous waste
Core	ETC – 500	Fundamental of Environmental Science and technology	<ul style="list-style-type: none"> ❖ Understand the basic concepts of ecosystems, and role of microorganisms in different biogeochemical cycles and nutrient recycling ❖ Learn fundamentals of growth kinetics and control of microbes and their applications in environmental engineering
Core	ETC -591	Statistical Applications	<ul style="list-style-type: none"> ❖ Able to design proper sampling methods and its analysis. ❖ To master different statistical techniques to analyze the data. ❖ To create quantitative models to solve real world problems in appropriate contexts. ❖ To skill themselves in using statistical software in visualizing, analyzing statistical models
Core	ETC - 554	Lab 1 (Instrumentation)	<ul style="list-style-type: none"> ❖ Summarize and classify capabilities and limitations of analytical instruments used in analysis of environmental pollutants. ❖ Able to perform qualitative and quantitative analysis of air, soil, and water samples
Core	ETC – 511	Lab 2 (Wastewater Treatment)	<ul style="list-style-type: none"> ❖ Trained to handle and characterize water & wastewater samples ❖ Learn operation of reactor (SBR) for wastewater treatment
Core	ETC-512	Lab 3 Solid waste management	<ul style="list-style-type: none"> ❖ Make physical and chemical analysis of solid wastes and apply them for a management system that will be set up. ❖ Plan a recycling program. ❖ Design a compost facility. ❖ Design and practical demonstration of waste-to-energy program (anaerobic digestion, fuel efficiency analysis, biochar, etc.). ❖ EIA of landfill sites

SECOND SEMESTER

Course Type	Course code	Course Title	Course Outcome
Core	ETC – 570	Environmental Impact Assessment and Management	<ul style="list-style-type: none"> ❖ Understand the major principles and different steps within the Environmental Impact Assessment. ❖ prepare EIA reports and evaluation criteria of a EIA reports. ❖ Be able to understand and access the different case studies in Environmental Impact Assessment. ❖ Be able to understand the human development with sustainable approaches
Core	ETC – 540	Air Pollution and its Control	<ul style="list-style-type: none"> ❖ Demonstrate a basic understanding of the physical, chemical, and biological characteristics of air pollutants ❖ Acquire a basic understanding of how to design sampling and analysis of air pollutants data ❖ Gain a familiarity with the basic tools of air pollution control methods ❖ Apply knowledge of air pollution legislation on designing Environmental management system for Industrial and municipal board
Core	ETC-597	Environmental System Analysis & Modelling	<ul style="list-style-type: none"> ❖ Be able to conceptually frame the model of environmental system for the modelling study ❖ Be able to explain the physical and chemical laws basis of environmental models ❖ Acquire skills in running air quality models, water quality models. ❖ Acquire skills in applying these models in specific area under specific scenario
Core	Elective I (ETE – 575)	Industrial Safety & Health Management	Acquire ability to identify different health hazards at workplace

			<ul style="list-style-type: none"> ❖ Learn methods to control unsafe or unhealthy hazards and propose methods to eliminate the hazard ❖ Learn to use most appropriate PPEs at workplace ❖ Comprehend the legislative measures in industrial safety
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Elective	Elective II (ETC-557)	Environmental Quality and Pollution Monitoring Techniques	<ul style="list-style-type: none"> ❖ Comprehend the transport of pollutants in the environment and techniques of pre-concentration before analysis. ❖ Understand the sampling protocols and sample preparation aspects for environmental analysis. ❖ Knows about systematic monitoring of water,
			soil, air, and solid waste samples.
Core	ETC – 541	Lab 4 (Air pollution)	<ul style="list-style-type: none"> ❖ Acquire a basic understanding of how to design sampling and analysis of air pollutants data ❖ Learn measurement of air pollution sampling and measurement of air pollutants
Core	ETC-596	Lab 5 (Computer Application in Environmental Engineering)	<ul style="list-style-type: none"> ❖ Learn the basic techniques required to use and run the air quality models, water quality or environmental models. ❖ Acquire skills with one of the computer programming language such as python. ❖ Acquire skills in using computer programs to customize environmental models for specific purpose
Elective	Elective III (ETC-515)	Industrial Wastewater Treatment	<ul style="list-style-type: none"> ❖ Learn prevention and control of industrial wastewater pollution ❖ Learn various industrial manufacturing process description, wastewater generation, source reduction options and waste treatment flow sheets of different industries. ❖ Acquire ability to use the most suitable methods (physicochemical/biological) to treat industrial effluents
Elective	Elective III (ETE-535)	Industrial Solid Waste Management	<ul style="list-style-type: none"> ❖ Evaluate the subject from the technical, legal and economical points by learning of all terms related to general solid waste management program for industries. ❖ Examine the technical points that are required to set up a solid waste management plan for an industry. ❖ Be able to understand waste minimization program for industrial sector and recycling option. ❖ Understand the major options for sustainable solid waste management for industrial sector.

Elective	Elective III (ETE-525)	Environmental Biotechnology	<ul style="list-style-type: none"> ❖ Impart the basic knowledge how to prepare and perform sampling and microbial analyses to determine the abundance, growth rate and microbial community composition in different environment. ❖ Understand the role of microbes in n degradation of natural organic compounds and selected pollutants in the environment. ❖ Learn how biotechnological tools can be used
			to study
			environmental assessment, monitoring and remediation
Elective	Elective III (ETE-577)	Environmental Audit & Certification	<ul style="list-style-type: none"> ❖ Comprehending the statutory and regulatory mechanism pertaining to environmental auditing and certification. ❖ Plan for mitigation of the impacts & monitor the mitigation measures and acquire knowledge about Environmental Legislation & Environmental Audit. ❖ Be able to understand and access the different case studies in Environmental Impact Assessment.
Elective	Elective III (ETE-594)	Environmental System Analysis	<ul style="list-style-type: none"> ❖ Learn Air Pollution Dispersion Modeling approaches ❖ Understand the role of various natural and man-made systems ❖ Acquire ability to apply environmental databases and environmental software Packages to address specific environmental problems
Elective	Elective III (ETE-514)	Membrane Processes for Water and Waste Treatments	<ul style="list-style-type: none"> ❖ Understand the fundamentals of membrane processes ❖ Able to design membrane bioreactors for wastewater treatment
Elective	Elective III (ETE-542)	Air Pollution Modeling	<ul style="list-style-type: none"> ❖ Learn various approaches to model formulation, its classification, and criteria for model selection. ❖ Learn indoor air quality models and ❖ Learn modeling approach to air pollution dispersion

Elective	Elective III (ETE-555)	Environmental Instrumentations	<ul style="list-style-type: none"> ❖ Recognize the role of various analytical techniques in environmental monitoring. ❖ Understand the basic principles behind common analytical techniques and some important instruments. ❖ Able to perform qualitative and quantitative analysis of air, soil, and water samples
Elective	Elective III (ETE-520)	Applied Environmental Chemistry	<ul style="list-style-type: none"> ❖ Understand the role of basic chemistry principles behind different environmental process. ❖ Identify the origin and composition of Air, Soil, and aqueous environment and their physico-chemistry ❖ Understand the chemistry behind cause and transport of various pollutants in air, soil and water
Elective	Elective III (ETE – 560)	Sustainable Urban Habitats and Green City	<ul style="list-style-type: none"> ❖ Understand the role of urban ecology, sustainability and cities ❖ Able to suggest mitigation measures to make cities resilient, social sustainability. ❖ Understand the concept of green building ❖ Learn assessments methods for the environmental impact of buildings
Course Type	Course code	Course Title	Course Outcome
Core	ETC – 580	Industrial Training/attachment (8 week) & Report Presentation	<ul style="list-style-type: none"> ❖ Acquainted with practical aspects of the environmental issues and their management in industrial sector. ❖ Apply their knowledge and skills acquired in the classroom to a professional context;

THIRD SEMESTER

			<ul style="list-style-type: none"> ❖ Understand what skills are transferable to new contexts; identify and understand the practices and protocols of the particular Industry/institution. ❖ Refine and reassess career goals as a result of the experience gained during internship. ❖ Learn the presentation and discussion skills and develop critical thinking
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Core	ETE – 582	Project Proposal Writing and seminar	<ul style="list-style-type: none"> ❖ Improve the professional competency and research aptitude ❖ Learn how to identify a research problem, write literature review, and research paper and dissertation in proper format. ❖ Understand ethical standards of conducting research, and plagiarism issues in dissertation and research publication. ❖ Learn the presentation and discussion skills and develop critical thinking.
Core	ETC – 593	Project - I	<ul style="list-style-type: none"> ❖ Improve the professional competency and research aptitude ❖ Develop the work practice to apply theoretical and practical tools/ techniques to solve real life problems related to industry and environment. ❖ Plan, and engage in, an independent and sustained critical investigation and evaluation of a chosen research topic relevant to environment and society. ❖ Systematically identify relevant theory and concepts, relate these to appropriate methodologies and evidence, apply appropriate techniques and draw appropriate conclusions ❖ Appropriately apply qualitative and/or quantitative evaluation processes to original data. ❖ Understand and apply ethical standards of conduct in the collection and evaluation of data and other resources, communicate research concepts and contexts clearly and effectively both in writing and orally.

FOURTH SEMESTER

Course Type	Course code	Course Title	Course Outcome
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Core	ETC – 594	Project – II	<ul style="list-style-type: none"> ❖ Improve the professional competency and research aptitude of the student by providing an opportunity to explore the research ideas ❖ Develop the work practice in students to apply theoretical and practical tools/ techniques to solve real life problems related to industry and environment ❖ Plan, and engage in, an independent and sustained critical investigation and evaluation of a chosen research topic relevant to environment and society. ❖ Systematically identify relevant theory and concepts, relate these to appropriate methodologies and evidence,
			<p>apply appropriate techniques and draw appropriate conclusions</p> <ul style="list-style-type: none"> ❖ Appropriately apply qualitative and/or quantitative evaluation processes to original data. ❖ Understand and apply ethical standards of conduct in the collection and evaluation of data and other resources, communicate research concepts and contexts clearly and effectively both in writing and orally

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Environment Science and
Natural Resources

PhD (Environmental Science)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOME OF PH.D. ENVIRONMENTAL SCIENCE

The Ph.D. in Environmental Science is designed to provide students with advanced knowledge and research experience to enter the workforce or academia. Environmental Science involves diverse areas that include biological sciences, ecology, chemistry, geology as well as studies specific to air/water pollution and hazardous wastes, environment monitoring, biodiversity conservation and natural resource management.

While it is expected that graduates of the program to possess diverse skills that meet their career interests, it is expected that they will exhibit or engage in the following:

- Academic Excellence :Advanced understanding of biological, geological, chemical and Physical processes, as well as environmental regulations and other scientific issues related to the environment.
- Excellence in Research: The doctoral dissertation requires extensive work leading to publications. Ph.D. candidates will aspire to be at the forefront of an evolving field to solve problems that are highly relevant in present and future political environments.
- Professional Skills: The students develop professional skills by taking courses where the stress is on real-world environmental problems.

COURSE OUTCOMES:

Course Type	Course Code	Course Title	Course Outcome
Core	EES-710	Research Methodology	<p>To acquire tools to mine literature, extract the data and identify the research gap</p> <p>To identify the research question, develop a hypothesis and evolve the experimental design</p> <p>To develop skill for statistical analyses, to present data, and write a research</p>

			paper
Core	EES-715	Research & Publication Ethics	<p>To understand basic philosophy of science and ethics, research integrity, publication ethics.</p> <p>To identify research misconduct and predatory publications indexing and citation database, open access publication, research matrix and plagiarism tools.</p>
Elective-1	EES-720	Basic Tools & Techniques in Environmental Science	<p>To recognize the role of various analytical techniques in environmental monitoring.</p> <p>To understand the basic principles behind common analytical techniques and some important instruments.</p> <p>To perform qualitative and quantitative analysis of air, soil, and water samples.</p> <p>To perform basic GIS mapping, basic reading and analyzing satellite data, Computational Techniques, Data Modelling</p>

E lective-II		Specialization Course	<p>To develop a review using a systematic search, and develop a research proposal on the target topic</p> <p>To identify the research objectives and develop a road map for the Ph.D. programme</p> <p>To conduct pilot research study and develop a suitable hypothesis for Ph.D. programme</p>
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CURRICULUM OF ACADEMIC PROGRAMMES

School of Media & Communication Studies

MA (Integrated Media and Communication Studies)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

PO1. To emphasize the importance of knowledge and skills, the program focuses on Media and Communication Studies.

PO2. To provide a well-rounded education, the curriculum covers not only Media and Communication but also exposure to other relevant disciplines and fields.

PO3. To equip the students, the program aims to help them acquire the necessary intellect and skills.

PO4. To facilitate employment opportunities, the goal is for students to be prepared for junior and middle-level positions in the media and communication sector.

PO5. To encourage entrepreneurial aspirations, students may also use their acquired knowledge and skills to start their own ventures in the field.

PROGRAMME SPECIFIC OUTCOMES:

PO1. To provide a comprehensive foundation, the program covers both Media and Communication knowledge and skills, in addition to exposure to related disciplines and fields.

PO2. To prepare the students for their future careers, the program's aim is for them to gain the essential expertise and abilities required for pursuing junior and middle-level positions in the media and communication industry.

PO3. To foster entrepreneurship, students are encouraged to consider initiating their own ventures.

PO4. To facilitate a well-rounded education, the curriculum blends Media and Communication with exposure to other relevant disciplines and fields.

PO5. To ensure the students' readiness for employment and entrepreneurial endeavors in the media and communication sector.

COURSE OUTCOMES: Course outcomes have been indicated under details of each course offered in different semesters of the academic programme.

Semester-I

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM: 100	Language skills – I (English)	<ul style="list-style-type: none">• The students will learn the basic grammatical concepts.• The students will have enhanced writing skills.
	COMM: 101	People and Culture of India	<ul style="list-style-type: none">• The students will have understanding of people and culture of India.• The students will have understanding of plurality & diversity of culture in India.

	COMM: 102	Introduction to Communication	<ul style="list-style-type: none"> • Student shall be acquainted with the basics of “Communication”. • Students will have clear understanding of the process and dynamics of communication processes
	COMM: 103	Basic Computer Applications for media	<ul style="list-style-type: none"> • Students will learn basic uses of computers for different media and communication needs. They will also be skilled for using different software and applications being used in media and communication Profession/Industry.
	COMM: 104	Development of media in India	<ul style="list-style-type: none"> • Students will know the history, evolution and development of different forms of Media in India.
	COMM: 105	Economic Development and Planning	<ul style="list-style-type: none"> • The students will have understanding of different aspects of Indian economy.

Semester-II

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM: 149	Language skills- II (English)	<ul style="list-style-type: none"> • The students will learn the basic grammatical concepts. • The students will have enhanced writing skills.
	COMM: 150	Indian Polity	<ul style="list-style-type: none"> • The students will have understanding of Indian constitution & polity.
	COMM:151	Mass communication: Concept and Process	<ul style="list-style-type: none"> • The students will learn the process of communication. • The students will have knowledge of mass media & mass communication.
	COMM: 152	Visual Communication	<ul style="list-style-type: none"> • The students will learn different aspects of visual communication. • The students will have enhanced learning of uses of visual communication.
	COMM: 153	Photography	<ul style="list-style-type: none"> • The students will learn tools and techniques of Photography
	COMM: 154	Media Laws and Ethics	<ul style="list-style-type: none"> • The students will have understanding of media laws and ethics to be followed by a responsible media person.

	COMM: 155	Environmental Studies	<ul style="list-style-type: none"> The students will have knowledge of environment & ecology and its importance for our live and living.
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Semester-III

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM: 200	Social System and Structure	<ul style="list-style-type: none"> The students will have a comprehensive understanding of Indian society & social structure.
	COMM: 201	Reporting and writing for print media	<ul style="list-style-type: none"> The students will acquire skills for reporting & writing for print media.
	COMM: 202	Communication for Development and– 3 credit [3+0] Social Change	<ul style="list-style-type: none"> The students will have understanding of the use of communication for development & social change. The students will acquire necessary skills for planning a development communication programme & campaign.
	COMM: 203	Public Relations	<ul style="list-style-type: none"> The students will learn tools and techniques of PR.
	COMM: 204	Lights, Camera, Sound	<ul style="list-style-type: none"> The students will learn tools and techniques of using Lights, Camera & Sound for television production.
	COMM: 205	Digital Media and Information age	<ul style="list-style-type: none"> The students will have understanding of Digital media & its implications for an information society.

Semester-IV

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM: 250	Reporting and Writing for Electronic Media	<ul style="list-style-type: none"> The students will learn tools and techniques for reporting & writing for electronic media. Students shall also acquire skills for writing for web media.
	COMM: 251	Advertising	<ul style="list-style-type: none"> The students will learn tools and techniques of Advertising.
	COMM: 252	International Communication	<ul style="list-style-type: none"> The students will acquire an understanding of international communication and dynamics involved therein.
	COMM: 253	Media and Film	<ul style="list-style-type: none"> The students will learn techniques of media & film appreciation.

		Appreciation	
	COMM: 254	Television Production	<ul style="list-style-type: none"> The students will learn tools and techniques of production for television media.
	COMM: 255	Radio Production	<ul style="list-style-type: none"> The students will learn tools and techniques of production for radio.

Semester-V

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM: 300	Communication Research	<ul style="list-style-type: none"> The students will learn methods of a communication research.
	COMM: 301	Contemporary Issues and Mass Media	<ul style="list-style-type: none"> The students will have understanding of topical debates surrounding media in India.
	COMM: 302	Media organization: Structure and Functions	<ul style="list-style-type: none"> The students will have media organizations. Students will also learn functions of different media organizations.
	COMM: 303	Theories and Models of Mass Communication	<ul style="list-style-type: none"> The students will have understanding of different theories & models of communication.
	COMM: 304	Print Design and Production	<ul style="list-style-type: none"> The students will learn tools & techniques of print design. Students will also learn production of printing material.
	COMM: 305	Audio - visual production (Workshop)	<ul style="list-style-type: none"> The students will have hands-on experience of different aspects of audio-visual production.

Semester-VI

Course Type	Course Code	Course Title	Course Outcomes

Core	COMM: 350	Communication Production (Print/TV/Radio)	<ul style="list-style-type: none"> The students will have a professional communication production for showing it to their prospective employers.
	COMM: 351	Dissertation	<ul style="list-style-type: none"> The students will acquire knowledge and skills about media research & process.

For next four semesters, curriculum as for 2-Years M.A. in Media & Communication Studies.

Details as given below:

M.A. Media & Communication Studies

Minimum Credits Requirement: 66 credits (including research project of 10 credit and minimum 07 credits in General courses)

Programme Outcome:

To gain knowledge and skills in relation to Media and Communication Studies.

Programme Specific Outcome:

PO1. To provide a holistic foundation, the program integrates expertise in Media and Communication with exposure to complementary disciplines and fields.

PO2. To prepare the students for future career opportunities, the program's objective is to equip them with the essential knowledge and skills required to pursue middle and senior-level positions within the media and communication sector.

PO3. To foster entrepreneurial aspirations, students are encouraged to explore the potential of initiating their own ventures.

PO4. To offer a well-rounded education, the curriculum combines knowledge of Media and Communication with exposure to other pertinent disciplines and fields.

PO5. To ensure that students are well-prepared for both employment in mid to senior-level roles within the media and communication industry and for entrepreneurship.

Course Outcome: Course outcomes have been indicated under details of each course.

VII & VIII Semester (For Integrated MA students)

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM-500	Principles of Communication	<ul style="list-style-type: none"> • Build a broader perspective on communication and processes; • Comprehend the ever-expanding meaning of mass communication and its broadening scope; • Get insights into communication topics in the context of their practical experiences; • Understand theories and models of mass communication, their critique and application; • Comprehend communication as a discipline,
			in theory and practice, which directly affects their day-to-day lives and understand the debates in social, cultural, political and economic contexts.
	COMM-520	Journalism: Skills and Concepts	<ul style="list-style-type: none"> • Understand the basics of Journalism focusing on its various elements and features, • Understand how a reporter covers a news event and writes a news story/feature on the event, • Understand to plan for and execute photo coverage of news event
	COMM-505	Introduction to Strategic Communications	<ul style="list-style-type: none"> • The basic objective of this course is to give a brief introduction of Public Relations, Advertising and Development Communication so as to enable the students to identify their inclination and subsequently help them choose their specialization.
	COMM-580	Print Design and Production	<ul style="list-style-type: none"> • The course will introduce students to the field of communication design and production for printed publications; principles of design and expression; letter forms, illustrative techniques, typographic layout and graphics; desktop publishing, digital fonts and other document enhancing software; application of design principles in newspapers, magazines, newsletters, brochures, mailers and other print documents.

	COMM-510	Communication Research	<ul style="list-style-type: none"> This course aims to introduce students to a variety of communication research methodologies. The students would first be introduced to the prominent research paradigms, gradually learning the quantitative and qualitative techniques of research methodologies. The course attempts to blend theory with practice. In other words, students would be exposed not only to different communication research methods but would also undertake small studies in order to familiarize themselves with some of the salient communication research methods.
	COMM-517	Media Policies, Laws, Regulations and Ethics	<ul style="list-style-type: none"> In this course, the students will learn the provisions of Indian Constitution and the laws that restrict or regulate the flow of information in Indian society. The course also examines specific policies and regulations pertaining to media and communication sector.
	COMM-508	Visual Communication	<ul style="list-style-type: none"> This course provides an understanding of visual messages: visual perception, design syntax, design elements and how they fit in the visual communication of mass media; the course also examines theoretical concepts of vision and perception, visual literacy, visual language, visual persuasion/manipulations, and the cultural implications of visual images.
	COMM-582	Electronic Media Production-I: Photography and Radio Production	<ul style="list-style-type: none"> To familiarize the students with two of the many components of Electronic Media Production, namely, Photography and Radio Production. To provide the students a well-rounded understating of the two streams. To acquaint the students with the theoretical foundations of Photography practice and Radio Production so as to develop in them a hands-on knowledge of the two streams.

	COMM-502	Mass Media and Society	<ul style="list-style-type: none"> • Understanding the relationship between media, society, polity and culture • Developing perspectives on the role of media in shaping/ influencing contemporary issues • To examine the relationship between media economy, media products, media technology, ownership patterns, audiences and larger society
	COMM-518	Political Economy of India	<ul style="list-style-type: none"> • The course aims at creating awareness about a range of issues/events/institutions/ideologies affecting and influencing emerging India viewed from personal, local, national and global perspectives. The idea is to spur informed personal response in the students on a given subject so as to form and express opinion with regard to the contemporary political and economic issues.
	COMM-501	Theories and Models of Mass Communication,	<ul style="list-style-type: none"> • Building an academic perspective on the concept and application of theory; • Understanding a range of school of thoughts and related theories of Mass Communication, critique and application;
			<ul style="list-style-type: none"> • Building a broader perspective of communication and its process; • Understanding various models of mass communication and their relation to theory.
General	COMM-515	Written and Oral Communication	<ul style="list-style-type: none"> • Upon completion of the course, the students shall acquire necessary skills for effective communication, both verbal & written.
	COMM-516	Statistical tool for computing in research	<ul style="list-style-type: none"> • Under this course, students will be taught and trained about any one statistical tool currently being used by social science researchers.
	COMM-519	Science Communication	<ul style="list-style-type: none"> • Upon completion of this course, the students shall understand nuances of science communication and how to effectively communicate science and scientific facts and discoveries for common people.
	COMM-521	Mainstream Cinema & Society	<ul style="list-style-type: none"> • The basic objective of this course is to give a brief introduction the development of Cinema in India and also to study the influence of various film movements on it.

Semester – IX (For Integrated MA students)

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM-605	News Media: Current practices	<ul style="list-style-type: none"> The objective of this course will be to teach and train students about current practices in different News Media, viz., Broadcast Media, Print Media & Online/Digital Media. The students are expected to develop requisite skills for these news media under faculty supervision.
	COMM-616	Public Relations & Advertising: Theory & Practice	<ul style="list-style-type: none"> The Course is aimed at familiarizing the students with the many-faceted world of public relations and advertising. Various aspects of the process and theory of the subject will be highlighted during the course.
	COMM-627	Communication & Development: Theory & Practice	<ul style="list-style-type: none"> This course will attempt to create a critical understanding of development in relation to communication processes. Besides understanding different theories, experiences & experiments pertaining to "Communication & Development", the students will also be trained about planning and implementing development communication programmes & campaigns.
	COMM-636	Electronic Media Production-II: Audio-Visual Production	<ul style="list-style-type: none"> To develop professional skills based on theoretical understanding of Audio-Visual Production. To offer hands-on practical experience on state-of-the-art sound, video, and lighting equipment
	COMM-628	Media Studies: Key Debates	<ul style="list-style-type: none"> This course aims at introduction and discussion on seminal works including contemporary debates and essays on the following broad areas: Communication and Society, Politics and Communication, Political Economy of Communication, Global Communication

Semester – X (For Integrated MA students)

Specializations

The School offers specialization in following four areas at the level of IVth Semester (Xth Semester for Int MA students), viz., Journalism, Public Relations & Advertising, Electronic Media Production, Development Communication & Media Studies):

Specialization: Journalism

1. Research Project (Journalism), COMM-609 - 10 credits
2. Selected area of study in News Media, (COMM-606) – 02 credits

Specialization: Public Relations & Advertising

1. Research Project (Public Relations & Advertising), COMM-619 - 10 credits
2. Selected area of study in Public Relations & Advertising (COMM-617) – 02 credits

Specialization: Development Communication & Media Studies

1. Research Project (Development Communication & Media Studies), COMM-629 - 10 credits
2. Selected area of study in Development Communication & Media Studies (COMM-629) – 02 credits

Specialization: Electronic Media Production

1. Research Project (Electronic Media Production), COMM-639 - 10 credits
2. Selected area of study in Electronic Media Production (COMM=637) – 02 credits

The aim of the **Research Project** in respective specialization will be to bring together the knowledge and skills acquired by students in a final work that is of professional quality relevant to the specialization. This will require the students to engage in depth with a topic and to carry out primary investigation thereof. Typically, it will require field work/library search, fresh research, analysis and thinking and the presentation of these findings in a manner appropriate to the problem/question chosen. Acceptable formats for the project could include a Dissertation OR a major creative work involving a Production. In both, a major component of the project is research and analysis. Evaluation will be based on final output of Project Research carrying 100 marks (50 marks evaluation by the course supervisor & 50 Marks by an external examiner).

Selected area of study in different specializations aims at study of emerging and/or contemporary trends relevant to the specialization. The teacher concerned will pick up different topics/areas/subjects for teaching & discussion/training under this course. Evaluation will be based on 30 Marks mid-term, 50 marks end-sem and 20 marks sessional (continuous and comprehensive evaluation). For Selected study in Electronic Media Production, evaluation will be based on 30 marks theory and 50 marks production assignment(s) and 20 marks sessional.

CURRICULUM OF ACADEMIC PROGRAMMES

School of Media & Communication Studies

MA (Media and Communication Studies)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOME: To gain knowledge and skills in relation to Media and Communication Studies.

PROGRAMME SPECIFIC OUTCOMES:

PSO1. To ensure a comprehensive foundation, the program encompasses expertise in Media and Communication, complemented by an exploration of related disciplines and fields.

PSO2. To prepare students for future career prospects, the program's primary aim is to furnish them with the vital knowledge and skills needed to pursue positions at middle and senior levels within the media and communication sector.

PSO3. To encourage entrepreneurial ambitions, students are motivated to explore the potential of establishing their own ventures.

PSO4. To offer a well-rounded educational experience, the curriculum combines proficiency in Media and Communication with exposure to other pertinent disciplines and fields.

PSO5. To guarantee that students are fully equipped for employment in middle and senior-level roles in the media and communication industry, as well as for entrepreneurial endeavors.

COURSE OUTCOMES: Course outcomes have been indicated under details of each course.

I & II Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM-500	Principles of Communication	<ul style="list-style-type: none"> • Build a broader perspective on communication and processes; • Comprehend the ever-expanding meaning of mass communication and its broadening scope; • Get insights into communication topics in the context of their practical experiences; • Understand theories and models of mass communication, their critique and application; • Comprehend communication as a discipline, in theory and practice, which
			directly affects their day-to-day lives and understand the debates in social, cultural, political and economic contexts.
	COMM-520	Journalism: Skills and Concepts	<ul style="list-style-type: none"> • Understand the basics of Journalism focusing on its various elements and features, • Understand how a reporter covers a news event and writes a news story/feature on the event, • Understand to plan for and execute photo coverage of news event
	COMM-505	Introduction to Strategic Communications	<ul style="list-style-type: none"> • The basic objective of this course is to give a brief introduction of Public Relations, Advertising and Development Communication so as to enable the students to identify their inclination and subsequently help them choose their specialization.
	COMM-580	Print Design and Production	<ul style="list-style-type: none"> • The course will introduce students to the field of communication design and production for printed publications; principles of design and expression; letter forms, illustrative techniques, typographic layout and graphics; desktop publishing, digital fonts and other document enhancing software; application of design principles in newspapers, magazines, newsletters, brochures, mailers and other print documents.

	COMM-510	Communication Research	<ul style="list-style-type: none"> This course aims to introduce students to a variety of communication research methodologies. The students would first be introduced to the prominent research paradigms, gradually learning the quantitative and qualitative techniques of research methodologies. The course attempts to blend theory with practice. In other words, students would be exposed not only to different communication research methods but would also undertake small studies in order to familiarize themselves with some of the salient communication research methods.
	COMM-517	Media Policies, Laws, Regulations and	<ul style="list-style-type: none"> In this course, the students will learn the provisions of Indian Constitution and the laws that restrict or regulate the flow of information in Indian society. The
		Ethics	course also examines specific policies and regulations pertaining to media and communication sector.
	COMM-508	Visual Communication	<ul style="list-style-type: none"> This course provides an understanding of visual messages: visual perception, design syntax, design elements and how they fit in the visual communication of mass media; the course also examines theoretical concepts of vision and perception, visual literacy, visual language, visual persuasion/manipulations, and the cultural implications of visual images.
	COMM-582	Electronic Media Production-I: Photography and Radio Production	<ul style="list-style-type: none"> To familiarise the students with two of the many components of Electronic Media Production, namely, Photography and Radio Production. To provide the students a well-rounded understating of the two streams. To acquaint the students with the theoretical foundations of Photography practice and Radio Production so as to develop in them a hands-on knowledge of the two streams.

	COMM-502	Mass Media and Society	<ul style="list-style-type: none"> • Understanding the relationship between media, society, polity and culture • Developing perspectives on the role of media in shaping/ influencing contemporary issues • To examine the relationship between media economy, media products, media technology, ownership patterns, audiences and larger society
	COMM-518	Political Economy of India	<ul style="list-style-type: none"> • The course aims at creating awareness about a range of issues/events/institutions/ideologies affecting and influencing emerging India viewed from personal, local, national and global perspectives. The idea is to spur informed personal response in the students on a given subject so as to form and express opinion with regard to the contemporary political and economic issues.
	COMM-501	Theories and Models of Mass Communication,	<ul style="list-style-type: none"> • Building an academic perspective on the concept and application of theory; • Understanding a range of school of thoughts and related theories of Mass Communication, critique and application;
			<ul style="list-style-type: none"> • Building a broader perspective of communication and its process; • Understanding various models of mass communication and their relation to theory.
General	COMM-515	Written and Oral Communication	<ul style="list-style-type: none"> • Upon completion of the course, the students shall acquire necessary skills for effective communication, both verbal & written.
	COMM-516	Statistical tool for computing in research	<ul style="list-style-type: none"> • Under this course, students will be taught and trained about any one statistical tool currently being used by social science researchers.
	COMM-519	Science Communication	<ul style="list-style-type: none"> • Upon completion of this course, the students shall understand nuances of science communication and how to effectively communicate science and scientific facts and discoveries for common people.
	COMM-521	Mainstream Cinema & Society	<ul style="list-style-type: none"> • The basic objective of this course is to give a brief introduction the development of Cinema in India and also to study the influence of various film movements on it.

Semester - III

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM-605	News Media: Current practices	<ul style="list-style-type: none"> The objective of this course will be to teach and train students about current practices in different News Media, viz., Broadcast Media, Print Media & Online/Digital Media. The students are expected to develop requisite skills for these news media under faculty supervision.
	COMM-616	Public Relations & Advertising: Theory & Practice	<ul style="list-style-type: none"> The Course is aimed at familiarizing the students with the many-faceted world of public relations and advertising. Various aspects of the process and theory of the subject will be highlighted during the course.
	COMM-627	Communication & Development: Theory & Practice	<ul style="list-style-type: none"> This course will attempt to create a critical understanding of development in relation to communication processes. Besides understanding different theories, experiences & experiments pertaining to “Communication & Development”, the students will also be trained about planning and implementing development communication programmes & campaigns.
			<ul style="list-style-type: none"> To develop professional skills based on theoretical understanding of Audio-Visual Production. To offer hands-on practical experience on state-of-the-art sound, video, and lighting equipment
	COMM-636	Electronic Media Production-II: Audio-Visual Production	<ul style="list-style-type: none"> This course aims at introduction and discussion on seminal works including contemporary debates and essays on the following broad areas: Communication and Society Politics and Communication Political Economy of Communication Global Communication
	COMM-628	Media Studies: Key Debates	

Semester – IV

Specializations

The School offers specialization in following four areas at the level of IVth Semester (Xth Semester for Int MA students), viz., Journalism, Public Relations & Advertising, Electronic Media Production, Development Communication & Media Studies):

Specialization: Journalism

3. Research Project (Journalism), COMM-609 - 10 credits
4. Selected area of study in News Media, (COMM-606) – 02 credits

Specialization: Public Relations & Advertising

3. Research Project (Public Relations & Advertising), COMM-619 - 10 credits
4. 2. Selected area of study in Public Relations & Advertising (COMM-617) – 02 credits

Specialization: Development Communication & Media Studies

3. Research Project (Development Communication & Media Studies), COMM-629 - 10 credits
4. Selected area of study in Development Communication & Media Studies (COMM-629) – 02 credits

Specialization: Electronic Media Production

3. Research Project (Electronic Media Production), COMM-639 - 10 credits
4. Selected area of study in Electronic Media Production (COMM=637) – 02 credits

The aim of the **Research Project** in respective specialization will be to bring together the knowledge and skills acquired by students in a final work that is of professional quality relevant to the specialization. This will require the students to engage in depth with a topic and to carry out primary investigation thereof. Typically, it will require field work/library search, fresh research, analysis and thinking and the presentation of these findings in a manner appropriate to the problem/question chosen. Acceptable formats for the project could include a Dissertation OR a major creative work involving a Production. In both, a major component of the project is research and analysis. Evaluation will be based on final output of Project Research carrying 100 marks (50 marks evaluation by the course supervisor & 50 Marks by an external examiner).

Selected area of study in different specializations aims at study of emerging and/or contemporary trends relevant to the specialization. The teacher concerned will pick up different topics/areas/subjects for teaching & discussion/training under this course. Evaluation will be based on 30 Marks mid-term, 50 marks end-sem and 20 marks sessional (continuous and comprehensive evaluation). For Selected study in Electronic Media Production, evaluation will be based on 30 marks theory and 50 marks production assignment(s)and 20 marks sessional.

CURRICULUM OF ACADEMIC PROGRAMMES

School of Media & Communication Studies

PhD (Media and Communication Studies)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOME: To instill an attitude, aptitude and skills of research and innovation in research scholars leading to creation of new knowledge and information.

PROGRAMME SPECIFIC OUTCOME: To bring out the best piece of research relevant to the subject of study chosen by the research scholar.

COURSE OUTCOME: Course Outcomes have been indicated against the courses mentioned in the table below.

Course Type	Course Code	Course Title	Course Outcomes
Core	COMM-650	Research Methodology	On completion of the course, the students will be well versed with research methods and will acquire a proficiency in using different tools and techniques of research.
Core	COMM-651	Research & Publication Ethics	On completion of the course, the students will develop a sense of ethics to be practised while doing research and while going for research publications.
Elective	COMM-660	Communication Theory & Concept	On completion of the course, the students will acquire an in-depth and analytical understanding of different communication theories and concepts.

Elective	COMM-661	Communication for Development & Social Change	On completion of the course, the students will have a clear understanding as to why and how the mass media and communication could be used for development and social change.
Elective	COMM-662	Digital Communication: Theory & Practice	On completion of the course, the students will develop an understanding of digital communication and its relations to the society and culture.
Elective	COMM-663	Environmental Communication	On completion of the course, the students will develop an understanding of the nuances of environment communication and its relevance in today's context.
Elective	COMM-664	New Trends in Journalism	On completion of the course, the students will have an in-depth understanding of the new trends and practices of journalism.
Elective	COMM-665	Film Studies	On completion of the course, the students will develop a good understanding of the vast world of Indian and World Cinema and its implications for our society and culture.

CURRICULUM OF ACADEMIC PROGRAMMES



School of Design

BDes (Bachelor of Design)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

Our undergraduate program is aimed at equipping students with skills:

- **PO1:** To apply critical and analytical skills and methods to the identification, evaluation and resolution of problems
- **PO2:** To engage confidently in self-directed study and research
- **PO3:** To communicate ideas effectively in written, graphic and oral formats
- **PO4:** To operate effectively in multicultural and diverse environments
- **PO5:** To use appropriate technologies
- **PO6:** To recognize and understand the ethical responsibilities of individuals and organizations in society

PROGRAM SPECIFIC OUTCOMES:

Our curriculum across four years will help students gain:

- **PSO1:** The ability to solve design problems, including the skills of problem identification, research and information gathering, analysis, generation of alternative solutions, prototyping and user testing, and evaluation of outcomes.
- **PSO2:** The ability to describe and respond to clients and contexts that design solutions must address, including recognition of the physical, cognitive, cultural, and social human factors that shape design decisions.
- **PSO3:** The ability to create and develop visual form in response to design problems, including understanding principles of visual organization/composition and application.
- **PSO4:** An understanding of tools, technologies, and materials, including their roles in creating, producing, and using visual forms. This includes both traditional and digital media.
- **PSO5:** Functional knowledge of design history, theory, and criticism, including understanding the similarities, differences, and relationships among the various design specializations.
- **PSO6:** By applying a broad knowledge of design across a range of disciplines with in-depth knowledge in at least one area of study
- **PSO7:** Through the application of project-based learning, incorporating critical, analytical and methodological skills relevant to the identification and resolution of problems in practical and creative ways
- **PSO8:** By applying appropriate methods of research and investigation in addressing problems
- **PSO9:** By demonstrating skills and use of technologies to enable the production of designed outcomes appropriate to the relevant discipline
- **PSO10:** An understanding of basic business practices, including the ability to organize design projects and to work productively as a member of teams.
- **PSO11:** Experiences that encourage familiarity with a broad variety of design work in various specializations and media.
- **PSO12:** Understanding field realities by engaging with exposure and projects in the real world.

COURSE OUTCOMES:

FIRST YEAR		
Course Code	Course title	Course outcome
DUC 101	Design Sketching	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Fundamentals of sketching • Understanding of freehand drawing techniques • Basic understanding of sketching tools • Understanding of one, two Point Perspective, Shading rendering <p>Anatomy drawing</p>
SDF 103	Form Studies I: Colour & Composition	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Understand Elements & Principles of Design • Understand Colour Theory • Understand Gestalt Theory • Translation of the abstract into 2D Form
SDF 104	Introduction to Materials & Workshop Skills	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Exploring the use of materials. • Understand material properties. • Materials explored will include Plaster of Paris, Wood, Metal Sheet and Polystyrene & Acrylic. • Use of Hand tools. <p>Transform material properties into function.</p>
SDF 114	Creative Thinking	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Understand the role of creativity and innovation in your own work and in other disciplines. • Understand the importance of diverse ideas, and to convey that understanding to others <p>.</p>
SDS 101	Man, Society & Design	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Understanding Culture, Anthropology & Functionalism • Genes, their evolution & population genetics; Biology in the present – living people • Ethnographic research; Language & Communication; Process of cultural Change <p>Design elements in anthropological studies; anatomy</p>

SDF 115	Representation in Design II: Sketching, Photography & Computer	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Emphasis on addition and creation of detail while drawing
	Graphics	<ul style="list-style-type: none"> • Generate more complex perspective views including 1, 2-point ones in freehand drawing. • Rendering Techniques • Use of Pens.
SDF 108	Form Studies II: 3D Geometry & Form in Space	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Change 2D into 3D forms • introduced to the concept of geometric and organic volumes. • Properties of basic solids like cube, cone, pyramid, cylinder and prism • Platonic and Archimedean solids
SDF 106	Design Concerns	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • A broad overview of design & creative approaches to problem solving • Ability to inter-relate concepts
SDF 116	History of Design	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Understand the history of design as a distinct discipline • History of design in the West • History of design in the Indian context
	Art Appreciation	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Appreciation entails valuing, positive or negative. • Art Appreciation allows one to construct meaning and articulate thoughts about feelings and perceptions. • This course attempts to map philosophical terrains of 'art appreciation'.

SECOND YEAR

SDG 202	Introduction to Typography	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Fundamental of typographic principles Elements of typography like terminology & measurement, history and evolution of type, printing technologies.
SDG 203	Advanced Photography	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • The aim is to build skills as well as sensitivity to photography • In Depth photography skill • Communication of ideas and context
SDS 201	Film Appreciation	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Aimed at exploring the value of film viewing in context of Design • Understand the way that content, form, and contexts work together to create meaning in film
SDG 201	Illustration I	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Understand the basic approach to drawing and composition as a means of story-telling or information giving. • Effectively communicate an idea, explain a concept or tell a story through pictures .
SDG 204	Design Project I: Publication Design & Printing	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Understand the process of printing. • Fundamentals of page layout • Explore Prints and posters • Development of skills and advanced knowledge of publishing software, with emphasis on the maintenance of visual continuity in documents for publication
SDP 201	Form Derivation I	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Introduction to principles of form and aesthetics • Principles of two-dimensional form and three-dimensional form • Generating new form and application in product design

THIRD YEAR

SDP 205	Design Project I: Simple Product Design	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Understand form derivation, ergonomics and material studies in the context of tangible products • Designing simple products that meets user needs.
SDG 207	Digital 3D Modelling	The student at the Completion of the course will be able to: <ul style="list-style-type: none"> • Understand 3D Software • Learn 3D modelling, texturing, lighting, camera, rendering. • Basic animation- keyframe animation & Rendering
SDP 209	Design Project II: Interaction Design	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Basic Concepts in Human Computer Interaction. • Basic Knowledge about principles and method of Interaction design • Aims at imparting knowledge and furthering research into the domain of designing interactive experiences in media, products and computer design applications
SDP 210	Design Exposure Visit	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Develop sensitivity to design in our environment • Develop sensitivity to socio-cultural contexts of design • Field learnings and experiences in design
SDS 202	Policy & Politics	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Introducing the students to basic concepts that form part of an everyday political life of a human.
SDG 205	Moving Graphics & Storyboarding	The student at the completion of the course will be able to: <ul style="list-style-type: none"> • Understanding storyboarding and planning • Basics of after Effects/Premiere keyframe concepts and principles. • Understand Motion Graphics .

SDP 206	Form Derivation II	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Introduction to advanced principles of form and aesthetics • Principles of form families and house styles <p>Generating new form refining existing forms</p>
SDG 301	Digital Illustration	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Create illustrations in a digital environment and learn rendering skills.
		<ul style="list-style-type: none"> • Learn use of computers as a medium and as an additional tool for illustrators. • How to translate hand drawn items into digital products
SDG 303/SDP 304	Design Project III: Space Design	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Understand physical spaces and the importance of designing them to fit human comfort and wellness. • Importance of space ergonomics and sustainability in space. • Understand layouts, materials and budgets while working with space.
SDG 304/SDP 303	Self-Study	<ul style="list-style-type: none"> • Help students look at folk art or an informal economic activity in a holistic context and understand how representation is an important mirror of society and culture.
SDS 301	Semantics & Semiology	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Understand natural human language and its evolution. • Importance of language and its understanding in context of product and graphic design. • Look at word and their meanings beyond surface level and understand language in context.
SDP 302	Advanced Prototyping	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Understand methods and ways of prototyping for creating products. • Understand materials and their usage in prototyping and deciding how best they can be used to simulate a real-life product with them. • Create a prototype that either looks, feels or functions like the original product

SDG 307	Packaging Design	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> ● Understanding of what goes in packaging design. ● Understand the importance of packaging innovation on the lines of creating environmentally friendly and sustainable packaging. ● Ability to create packaging prototypes along with the visual component utilizing graphic design inputs.
SDS 303	Portfolio Building	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> ● Learn to present their work effectively and efficiently to prospective clients and employers. ● Learn to organize and present their work, brand themselves and present their work across media. ● Create their own portfolio.
SDG 308	Design Project IV: Identity Design	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> ● Develop understanding of Brands & Brand Identity Design. ● Understand how to approach and develop branding and collaterals
SDS 302	SS/Media and Hegemonies	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> ● Understanding Of Scriptwriting and Video. ● Creating A Screenplay. ● Write a screenplay for and create and edit a short film.
SDP 307	Complex Product Design	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> ● Design technically complex products with sound demonstration of design skills as well as dealing with technical complexity ● Integrate knowledge of manufacturing systems into product design ● Understand market and customer requirements and translate them into a comprehensive design brief
FOURTH YEAR		

SDG 401/SDP 401	Internship (Summer Vacation)	The student at the completion of the course will be able to: <ul style="list-style-type: none"> ● Learn about the industry and its culture. ● Understand teamwork and working with different units of an institution. ● Real time exposure to working in a design studio
SDG 403/SDP 403	Design Project V : Social Design	The student at the completion of the course will be able to: <ol style="list-style-type: none"> 1. Understand the importance of participation of each stakeholder in design. Create a project based on in-depth analysis via participation of local populace in a rural community
SDS 402	Design Management & Entrepreneurship	<ul style="list-style-type: none"> ● The student at the completion of the course will be able to: ● Understand aspects of the business of design. ● Gauge what makes a design profitable. Understand strategies of production and scaling. ● Recognize types of intellectual property and its application and importance in design.
SDS 401	Design for Social Change	The student at the completion of the course will be able to: <ul style="list-style-type: none"> ● Develop an understanding of methods used in community based participatory research. ● Understand the importance of Participation at each step of the design process. ● Understanding Of Toolkit of PRA and Participatory Design
SDG 402	Copy-Writing	<ul style="list-style-type: none"> ● Understand the importance of copy in executing good design communication ● Support design work with the use of effective copy
SDG 402	Technical Studies: Electricals & Electronics	The student at the completion of the course will be able to: <ul style="list-style-type: none"> ● To Make Students Understand Critical Non-Ideal Effects in Electronic Devices and Systems and How to Address Such Effects ● Enabling Them to Design and Construct Physical electronic Circuits That Operate as Desired.
SDG 404/SDP 404	Design Thesis	The student at the completion of the course will be able to: <ul style="list-style-type: none"> ● Plan and execute a design project that deals with systems Plan and design modular solutions that can be customized

SDS 404	Colloquium	<p>The student at the completion of the course will be able to:</p> <ul style="list-style-type: none"> • Present their Project in a professional manner as is expected in the industry <p>Should be able to communicate the salient points of their design process</p>
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Course Outcomes of new courses introduced as per NEP:

Course Code:	DNC101	Course Title:	Design Sketching
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Fundamentals of sketching • Understanding of freehand drawing techniques • Basic understanding of sketching tools • Understanding of one, two Point Perspective, Shading rendering • Anatomy drawing 			

Course Code:	DNC102	Course Title:	Analytical Drawing
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Use of Tools- Straight Edge Ruler and set Square • Understand 2D and 3D forms using freehand construction • Principles of geometric construction • Aim is to encourage students to observe and evolve geometric patterns and both micro and macro levels. 			

Course Code:	DNC103	Course Title:	Colour & Composition
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Understand Elements & Principles of Design • Understand Color Theory • Understand Gestalt Theory • Translation of the abstract into 2D Form 			

Course Code:	DNG104	Course Title:	Material & Workshop Skills
Course Outcomes:			

The student at the completion of the course will be able to:

- Exploring the use of materials.
- Understand material properties.
- Materials explored will include Plaster of Paris, Wood, Metal Sheet and Polystyrene & Acrylic.
- Use of Hand tools.
- Transform material properties into function.

Course Code:	DNS105	Course Title:	Creative Thinking
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Course Outcomes:

The student at the completion of the course will be able to:

- Understand the role of creativity and innovation in your own work and in other disciplines.
- Understand the importance of diverse ideas, and to convey that understanding to others.

Course Code:	DNC151	Course Title:	Design Sketching II
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Course Outcomes:

The student at the completion of the course will be able to:

- Emphasis on addition and creation of detail while drawing
- Generate more complex perspective views including 1, 2 point ones in freehand drawing.
- Rendering Techniques.
- Use of Pens.

Course Code:	DNG154	Course Title:	Introduction to Photography & Computer Graphics
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Course Outcomes:

The student at the completion of the course will be able to:

- Basic Knowledge of photography, camera Lens, focal length, exposure (shutter speed, aperture, ISO), depth of field.
- Fundamental of software, basic knowledge of software like- adobe photoshop, adobe indesign, adobe Illustrator.
- Understand software tools

Course Code:	DNC153	Course Title:	Geometry & Form in Space
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Course Outcomes:

The student at the completion of the course will be able to:

- Change 2D into 3D forms
- introduced to the concept of geometric and organic volumes.
- Properties of basic solids like cube, cone, pyramid, cylinder and prism
- Platonic and Archimedean solids

Course Code:	DNC152	Course Title:	Design Concerns
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • A broad overview of design & creative approaches to problem solving • Ability to inter-relate concepts 			

Course Code:	DNS155	Course Title:	History of Design
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Understand the history of design as a distinct discipline • History of design in the West • History of design in the Indian context 			

Course Code:	DNC201	Course Title:	Introduction to Typography
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Fundamental of typographic principles • Elements of typography like terminology & measurement, history and evolution of type, printing technologies. 			

Course Code:	DNG206	Course Title:	Advanced Photography
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • The aim is to build skills as well as sensitivity to photography • In Depth photography skill • Communication of ideas and context 			

Course Code:	DNS207	Course Title:	Film Appreciation
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Aimed at exploring the value of film viewing in context of Design • Understand the way that content, form, and contexts work together to create meaning in film 			

Course Code:	DNE202	Course Title:	Illustration
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Understand the basic approach to drawing and composition as a means of story-telling or information giving. • Effectively communicate an idea, explain a concept or tell a story through pictures . 			

Course Code:	DNE204	Course Title:	Publication Design & Printing
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Understand the process of printing. • Fundamentals of page layout • Explore Prints and posters • Development of skills and advanced knowledge of publishing software, with emphasis on the maintenance of visual continuity in documents for publication 			

Course Code:	DNE203	Course Title:	Form Derivation I
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Introduction to principles of form and aesthetics • Principles of two dimensional form and three dimensional form • Generating new form and application in product design 			

Course Code:	DNE205	Course Title:	Simple Product Design
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Understand form derivation, ergonomics and material studies in the context of tangible products • Designing simple products that meets user needs. 			

Course Code:	DNC251	Course Title:	Digital 3D Modeling
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Understand 3D Software • Learn 3D modeling, texturing, lighting, camera, rendering. • Basic animation- keyframe animation & rendering 			

Course Code:	DNC252/DNG255	Course Title:	Interaction Design A/B
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Basic Concepts in Human Computer Interaction. • Basic Knowledge about principles and method of Interaction design • Aims at imparting knowledge and furthering research into the domain of designing interactive experiences in media, products and computer design applications. 			

Course Code:	DNS256	Course Title:	Design Exposure Visit
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Develop sensitivity to design in our environment • Develop sensitivity to socio-cultural contexts of design • Field learnings and experiences in design 			

Course Code:	DNE253	Course Title:	Moving Graphics & Storyboarding
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Understanding storyboarding and planning • Basics of after Effects/Premiere keyframe concepts and principles. • Understand Motion Graphics . 			

Course Code:	DNE254	Course Title:	Form Derivation II
Course Outcomes:			
The student at the completion of the course will be able to:			
<ul style="list-style-type: none"> • Introduction to advanced principles of form and aesthetics • Principles of form families and house styles • Generating new form refining existing forms 			

Course Code:	DNC301	Course Title:	Digital Illustration
Course Outcomes : Reinforcing Illustration Skills in digital medium.			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Create illustrations in a digital environment and learn rendering skills. 2. Learn use of computers as a medium and as an additional tool for illustrators. 3. How to translate hand drawn items into digital products 			

Course Code:	DNC302/DNG305	Course Title:	Space Design A/B
Course Outcomes: efficient and economic space design understanding			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Understand physical spaces and the importance of designing them to fit human comfort and wellness. 2. Importance of space ergonomics and sustainability in space. 3. Understand layouts, materials and budgets while working with space. 			

Course Code:	DNP306	Course Title:	Self Study
Course Outcomes : help students look at folk art or an informal economic activity in a holistic context and understand how representation is an important mirror of society and culture.			

Course Code:	DNE303	Course Title:	Design for Immersive Media
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Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Basic understanding of AR / VR and transmedia technologies 2. Understanding of hardware and software components of immersive media 3. Deliver basic designs for immersive environments 			

Course Code:	DNE304	Course Title:	Advanced Prototyping
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Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Understand methods and ways of prototyping for creating products. 2. Understand materials and their usage in prototyping and deciding how best they can be used to simulate a real life product with them. 3. Create a prototype that either looks, feels or functions like the original product. 			

Course Code:	DNC351	Course Title:	Packaging Design
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Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Understanding of what goes in packaging design. 2. Understand the importance of packaging innovation on the lines of creating environmentally friendly and sustainable packaging. 3. Ability to create packaging prototypes along with the visual component utilizing graphic design inputs. 			

Course Code:	DNP356	Course Title:	Portfolio Building
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Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Learn to present their work effectively and efficiently to prospective clients and employers. 2. Learn to organize and present their work, brand themselves and present their work across media. 3. Create their own portfolio. 			

Course Code:	DNC352/DNG355	Course Title:	Identity Design A/B
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Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Develop understanding of Brands & Brand Identity Design. 2. Understand how to approach and develop branding and collaterals. 			

Course Code:	DNE353	Course Title:	Introduction to Film & Script Writing
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Course Outcomes
The student at the completion of the course will be able to:
<ol style="list-style-type: none"> 1. Understanding Of Scriptwriting And Video. 2. Creating A Screenplay. 3. Write a screenplay for and create and edit a short film.

Course Code:	DNE354	Course Title:	Complex Product Design
Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Design technically complex products with sound demonstration of design skills as well as dealing with technical complexity 2. Integrate knowledge of manufacturing systems into product design 3. Understand market and customer requirements and translate them into a comprehensive design brief 			

Course Code:	DNP406	Course Title:	Internship
Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Learn about the industry and its culture. 2. Understand teamwork and working with different units of an institution. 3. Real time exposure to working in a design studio. 			

Course Code:	DNC402/DNG405	Course Title:	Social Design A/B
Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Understand the importance of participation of each stakeholder in design. 2. Create a project based on in-depth analysis via participation of local populace in a rural community. 			

Course Code:	DNC401	Course Title:	Design Management & Entrepreneurship
Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Understand aspects of the business of design. 2. Gauge what makes a design profitable. Understand strategies of production and scaling. 3. Recognize types of intellectual property and its application and importance in design. 			

Course Code:	DNE403	Course Title:	Copy-Writing
Course Outcomes			
The student at the completion of the course will be able to:			
<ol style="list-style-type: none"> 1. Understand the importance of copy in executing good design communication 			

2. Support design work with the use of effective copy

Course Code:	DNE404	Course Title:	Electricals & Electronics
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Course Outcomes

The student at the completion of the course will be able to:

1. To Make Students Understand Critical Non-Ideal Effects In Electronic Devices and Systems And How To Address Such Effects
2. Enabling Them To Design And Construct Physical electronic Circuits That Operate As Desired.

Course Code:	DNP452	Course Title:	Design Dissertation
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Course Outcomes

The student at the completion of the course will be able to:

- Plan and execute a design project that deals with systems
- Plan and design modular solutions that can be customized

Course Code:	DNC451	Course Title:	Colloquium
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Course Outcomes

The student at the completion of the course will be able to:

- Present their Project in a professional manner as is expected in the industry
- Should be able to communicate the salient points of their design process

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Biological Sciences BSc (with research Biological Sciences)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES (PO)

- **Critical Thinking:** To understand the major concepts in biological sciences. Understand the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life.
- **Effective Communication:** To development of various communication skills such as reading, listening, speaking, etc., which will help in expressing ideas and views clearly and effectively.
- **Social Interaction:** To develop scientific outlook not only with respect to biological science subject but also in all aspects related to life.
- **Effective Citizenship:** To imbibe moral and social values in personal and social life leading to highly cultured and civilized personality.
- **Ethics:** To follow the ethical principles and responsibilities to serve the society.
- **Environment and Sustainability:** To understand the issues of environmental contexts and sustainable development.
- **Self-directed and Lifelong learning:** To be capable of self-paced and self-directed learning

PROGRAMME SPECIFIC OUTCOMES (PSO):

After completing a degree in the School of Biological Sciences, graduates will be able to:

- Develop understanding of the basic principles of biological sciences
- Demonstrate proficiency in common lab and field techniques for biological sciences
- Integrate statistics, physical sciences and technology to answer biological questions and problems
- Students will be able to communicate scientific ideas effectively in both oral and written formats.
- Students will be able to think critically and evaluate, design, conduct and quantitatively assess innovative research in a biological discipline.
- Develop and communicate biological ideas and concepts relevant in everyday life for the benefit of society.
- Students will have acquired the skills and knowledge needed for employment or advanced graduate or professional study in discipline related areas.

COURSE OUTCOMES:

First Semester			
Course Type	Course Code	Course Title	Course Outcome (CO)
Core	BS01C1	Chemistry	<p>Students will understand and apply the fundamental principles of chemistry to biological molecules.</p> <p>Students will be able to identify the type of metabolic reaction and draw reaction mechanisms for key metabolic processes</p> <p>Students will learn to recognize stereochemistry of a biomolecule and give a rational explanation of its biological reactivity based on stereochemistry.</p> <p>The students will gain an insight into thermodynamics and basic principles of thermochemistry and successfully extend the concepts learnt in this course to biological systems</p>
Core	BS01C2	Light & Life	<p>Students will understand and appreciate the dual nature of light.</p> <p>Students will comprehend the impact of light on biodiversity.</p> <p>Students will gain knowledge about the various photoreceptors in plants and animals and will appreciate and understand the mechanism of photosynthesis.</p> <p>Students will understand bioluminescence, photoperiodism and biological rhythms.</p> <p>Students will gain knowledge about the ecological and physiological responses to light.</p>
Ability Enhancement Compulsory Course	BS01AE1	Environmental Sciences	<p>Create awareness among the students about the environment.</p> <p>Understand natural processes that sustain life and encourage active participation in solving current environmental problems and preventing the future ones.</p> <p>Adopt sustainability as a practice in life, society and industry.</p>
Generic Elective	BS01GE1	Biostatistics	<p>Students will be acquainted with the concept of statistics and its application in biological sciences.</p> <p>It will introduce students to statistical methods in order to understand the underlying principles, as well as practical guidelines of “how to do it” and “how to interpret it” statistical data particularly for biosystems.</p>

Second Semester			
Course Type	Course Code	Course Title	Course Outcome (CO)
Core	BS02C3	Biophysics	<p>Develop a basic understanding about the principles and concepts of Biophysics</p> <p>Develop quantitative approaches to solve biological problems involving principles of physics</p> <p>Understand the spectroscopic principles and their applications in biomolecules analysis</p> <p>Understand the fundamental principles involved in the structure and function of biological membrane</p>

Core	BS02C4	Biodiversity	Impart knowledge of biodiversity and understand characteristic features of different plant and animal life forms. Understand recent advances in technology used in mapping and conservation of biodiversity
			<ul style="list-style-type: none"> • Learn basic concepts of bioremediation and its applications in environmental remediation
Ability Enhancement Compulsory Course	BS02GE2	Macromolecules	<ul style="list-style-type: none"> • Gain knowledge on the importance, role and functions of biological macromolecules. • Acquire knowledge in the quantitative and qualitative estimation of biomolecule
Generic Elective	BS02AE2	English Communications	<ul style="list-style-type: none"> • Develop the communication and vocabulary skills in the students. • Acquire sufficient knowledge for professional communication

Third Semester			
Course Type	Course Code	Course Title	Course Outcome (CO)
Core	BS03C5	Protein and Enzymes	<p>Acquire basic knowledge about the functional diversity of proteins and different levels of structural organization of proteins</p> <p>Learn the relationship between protein structure and function and the protein purification techniques</p> <p>Acquire insight into enzyme kinetics, inhibition, regulation and mechanism of action, and applications of enzymes</p>
Core	BS03C6	Cell Biology	<ul style="list-style-type: none"> • Understand cell and its biology to get an insight into the origin of cells, cell diversity, cellular structure, survival and function. • Students will learn the basic difference between prokaryotic and eukaryotic cells, acquire knowledge of cell components and their functions, and cell cycle and division • Learn the role of receptors and ligands in cell signalling.
Core	BS03C7	Ecology	<ul style="list-style-type: none"> • Students will be able to comprehend the principles and applications of ecology and ecosystem. • Aware about the importance of ecosystem in general and the effects of changes in ecosystem. • Understand the principles and applications of ecology and ecosystem. • Learn the techniques used for the quantitative and qualitative estimation of biotic and abiotic components of an ecosystem. • Gain knowledge about the density, frequency and diversity of species in an ecosystem and key factors responsible for changes in natural ecosystem.
Generic Elective	BS03GE3	Environment and Public Health	<ul style="list-style-type: none"> • Learn major causes of environment and human health hazards • Get familiar with various public health management strategies. • Made aware about the increased pollution levels in the environment and its effect on human health. • Gain knowledge about social and economic factors for different types of diseases.
Skill Enhancement Course	BS03SEC1	Biochemical Techniques	<ul style="list-style-type: none"> • Acquire knowledge about the principles and applications of spectrophotometric and chromatography techniques. • Learn about the principles and applications of electrophoresis and centrifugation techniques. • Hands on experience to develop their laboratory skills expected of any biochemist working in a research lab.

Fourth Semester			
Course Type	Course Code	Course Title	Course Outcome (CO)
Core	BS04C8	System Physiology	<ul style="list-style-type: none"> • Understand the unique role of various organs and organ systems in performing various vital functions. • Understand the role of physiology in adapting to various environments. • Appreciate the importance of homeostasis in different animals. • Learn to apply critical thinking and integrate scientific knowledge to understand the basic physiological principles which led to diverse evolutionary adaptations.
Core	BS04C9	Molecular Biology	<ul style="list-style-type: none"> • Acquire basic knowledge about the structure of DNA and RNA about organization of genome in various life forms. • Acquire basic knowledge about the process of replication, transcription, and translation in prokaryotes and eukaryotes. • Learn about the various ways in which the DNA can be damaged leading to mutations and lesions and different ways to repair DNA damage. • Learn about the various ways in which these biological processes are regulated and the significance of regulation in maintaining life forms
Core	BS04C10	Metabolism and Integration	<ul style="list-style-type: none"> • Understand the metabolic pathways operating in cell. • Understanding of the diversity of metabolic regulation and how this is achieved in different cell types. • Learn about and correlate the specific symptoms in clinical case presentations to metabolic disorders. • Learn how to perform and analyse various biochemical assays that will enable them to understand the concepts of clinical biochemistry
Generic Elective	BS04GE4	Will be updated soon	
Skill Enhancement Course	BS04SEC2	Will be updated soon	

Fifth Semester			
Course Type	Course Code	Course Title	Course Outcome (CO)
Core	BS05C11	Growth and Reproduction	<ul style="list-style-type: none"> • Learn the path of development of plants from juvenile to senescent stages with the accompanying genetical, cellular, physiological and morphological changes. • Understand the role of pollinators and get hands on experience of observing patterns on pollen grains, pollen germination, embryo and endosperm dissection, and collect seeds with different dispersal mechanisms. • Understand the reproductive system in animals and human beings so as to relate with the control of population and environmental threats in the current scenario. • Apply experimental approaches to understand these developmental events in the laboratory

Core	BS05C12	Genetics	<ul style="list-style-type: none"> • Understand the concept of genotype and phenotype, describe the basic principles of Mendelian genetics and appreciate the various factors that confer genotypic and phenotypic variability. • Understand the inter relationship between environment (Nurture) versus inheritance (Nature) in determining the conversion of genotype to phenotype. • Understand resistance patterns and to create linkage and genetic maps. • Able to describe population structure by genetic variation, pedigree analysis and develop broad and balanced knowledge and understanding of key biological concepts, principles and theories related to evolution, genetic change and speciation.
Discipline Specific Elective	BS04DSE1	Will be updated soon	
Discipline Specific Elective	BS04DSE2	Will be updated soon	

Sixth Semester

Course Type	Course Code	Course Title	Course Outcome (CO)
Core	BS05C13	Defense Mechanisms	<ul style="list-style-type: none"> • Get an overview of the immune system and learn about the various cells, organs and tissues of the immune system. • Understand the basic mechanisms, differences and functional interplay of innate and adaptive immunity, and importance of immune system in health and disease. • Learn various pre-existing structural and induced defences in plants and how pathogens can cause disease in plants. • Understand the genetic basis of plant-pathogen interaction and learn about the importance of genetic engineering in control of plant pathogens
Core	BS05C14	Evolutionary Biology	<ul style="list-style-type: none"> • Learn the origins and development of evolutionary thought. • Understand how biodiversity is generated by repeated speciation's and lost over time due to mass extinctions. • Learn how novelty in organisms arises, how organisms adapt to their environment and about our origins from our primate ancestors.
Discipline Specific Elective	BS04DSE3	Will be updated soon	
Discipline Specific Elective	BS04DSE4	Will be updated soon	

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Social Sciences

Department of Psychology

BA (Psychology Honours)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

PO 1: Students will demonstrate conceptual knowledge in core areas of Psychology.

PO 2: Students will effectively apply their learnings to practical psychological issues. (to evaluate psychological developments and evolve alternative solutions).

PO 3: Students will demonstrate logical ability to evolve alternative solutions from dynamic psychosocial and cultural perspective.

PO 4: Students will demonstrate desirable qualities to be employable in the relevant market.

PO 5: Students will show sensitivity towards ethical, moral and social issues arising in their professional career.

PO 6: Students will exhibit commitment, teambuilding, leadership and networking skills.

PO 7: Students will exhibit lifelong learning skills essential to excel in professional context.

PROGRAM SPECIFIC OUTCOMES:

PSO1. Communicate basic and advanced psychology concepts, research designs, counselling skills, psychotherapies effectively and professionally.

PSO2. Applied psychology theories and application of these concepts to enhance the specific skills to solve day to day problems of clients while working in counselling settings.

PSO3. Identify, analyse, and synthesize scholarly literature related to the field of psychology.

PSO4: Development of research aptitude among students

PSO5: Understand the regional psychological problems of Uttarakhand like effect of migration, natural calamities and religious beliefs

PSO5: Application of psychological interventions in real life situation

COURSE OUTCOMES:

SEMESTER-I

C-PSY-111:BasicPsychologicalProcesses

Objective: To introduce students to the basic concepts of the field of psychology with an emphasis on applications of psychology in everyday life.

Course Outcomes

C-PSY 111 - CO1. Understand the basic principles, methodology and fields of Psychology.

C-PSY 111 - CO2. Apply the understanding and applications of human psychological processes like memory, learning, motivation and other higher mental processes.

C-PSY 111 - CO3. Use experimental knowledge and research methods including critical analysis and its application, analysis and interpretation of data for assessment of human behavior.

C-PSY 111 - CO4. Analyse the nature and understanding of cognitive abilities of human beings like memory and implementation in everyday life.

C-PSY-112:STATISTICALMETHODSFORPSYCHOLOGICALRESEARCH-I

Objective: To familiarize students with the use of statistical methods in psychological research and the techniques of descriptive statistics for quantitative research.

Course Outcomes

C-PSY-112-CO1: Discuss statistical methods for the social and behavioural sciences.

C-PSY-112-CO2: Apply Various Statistical tools utilized in descriptive statistics of quantitative research.

C-PSY-112-CO3: Use the concepts of central tendency and dispersion, and be able to compute related statistics.

C-PSY-112-CO4: Calculate descriptive and inferential statistics, and test hypotheses using the suitable inferential distributions and formulae.

SEMESTERII

C-PSY-221:BIOPSYCHOLOGY

Objectives:

To explore the biological basis of experience and behaviour.

To develop an understanding of the influence of behaviour, cognition, and the environment on bodily system.

To develop an appreciation of the neurobiological basis of psychological function and dysfunction.

Course Outcomes:

C-PSY-222-CO1: Understand the characteristics of individual differences and develop capacity to critically appraise popular psychology theories of personality.

C-PSY-222-CO2: Understand and evaluate major theoretical perspectives on personality and Intelligence C-

PSY-222-CO3: Discuss Indian perspective of Psychology and evaluate its contribution.

C-PSY-222-CO4: Understand Self determination theory and apply its principles for self-enhancement.

C-PSY-222: PSYCHOLOGY OF INDIVIDUAL DIFFERENCES

Objective: To develop an understanding of the concept of individual differences with the goal to promote self-reflection and understanding of self and others.

Course Outcomes

PSYC103-CO1: Understand the characteristics of individual differences and develop capacity to critically appraise popular psychology theories of personality.

PSYC103-CO2: Understand and evaluate major theoretical perspectives on personality and Intelligence

PSYC103-CO3: Discuss Indian perspective of Psychology and evaluate its contribution.

PSYC103-CO4: Understand Self-determination theory and apply its principles for self-enhancement.

SEMESTER-III

C-PSY-331: DEVELOPMENT OF PSYCHOLOGICAL THOUGHT

Objectives:

- ✓ This course provides a basic introduction to the development of the discipline both from the Indian as well as western perspective.
- ✓ Review the development of psychological thought and introduce the issues and debates in contemporary psychology.

Course Outcomes

C-PSY-331 CO1: Understand the historical background of Psychology and contribution of early schools of Psychology.

C-PSY-331 CO2: analyze Behavioral, Neo-Behavioural and Cognitive movement in psychology. C-

PSY-331 CO3: Analyze Freudian, Neo-Freudian and Humanistic revolution in Psychology.

C-PSY-331 CO4: Understand and apply the contemporary developments in Psychology.

C-PSY-332: PSYCHOLOGICAL RESEARCH

Objective: To educate students with the process and the methods of quantitative and qualitative psychological research traditions.

Course Outcomes

C-PSY-332-CO 1: Discuss different methodological approaches and paradigms that have been used to study psychological processes.

C-PSY-332-CO 2: Understand and evaluate the process and methods of quantitative and qualitative psychological research.

C-PSY-332-CO 3: Explain types of variables and characteristics of a psychological test.

C-PSY-332-CO 4: Understand and apply various methods of data collection in psychological research.

C-PSY-333: SOCIAL PSYCHOLOGY

Objectives:

Develop an understanding of the individual in relation to the social world
Introduce students to the realm of social influence, as to how individuals think, feel and behave in social situations.

Course Outcomes

C-PSY-333-CO1: Understand the nature and scope of Social psychology.

C-PSY-333-CO2: Discuss the levels of social behaviour and understand the influences of societal variables on human behaviour.

C-PSY-333-CO3: Identify the characteristics that influence Social cognitions (i.e., attitude, prejudice) and Social Interactions (i.e., altruism, aggression, Interpersonal attraction).

C-PSY-333-CO4: Critically evaluate the contemporary areas of development in Social Psychology (i.e., applied psychological science, cross-cultural research, social cognition, and also the evolutionary approach).

SEMESTER-IV

C-PSY-441: Psychopathology

Objectives

The paper aims at providing an overview of the concept of abnormality and the symptoms and etiology of various psychological disorders. This will sensitize them to information on psychopathology and dispel myths regarding it.

Course Outcomes

C-PSY-441-CO1: Understand the concept of Abnormality by applying the knowledge of assessment, diagnosis, classification system

C-PSY-441-CO2: Explain various Theoretical approaches on abnormal behavior as Biological, familial, cultural, behavioral, cognitive and psychodynamic

C-PSY-441-CO3: Describe the etiology of anxiety disorders, conversion disorders and Dissociative disorder.

C-PSY-441-CO4: Identify and explain the etiology and dynamics of various Developmental disorders, Substance related disorders and eating disorders.

C-PSY-442: STATISTICAL METHODS FOR PSYCHOLOGICAL RESEARCH-II

Objective:

To educate students with the techniques of inferential statistics and hypothesis testing.

Course Outcomes

C-PSY-442-CO1: Understand the concept of inferential statistics and hypothesis testing.

C-PSY-442-CO2: Apply techniques for testing difference between correlated and uncorrelated means.

C-PSY-442-CO3: Understand and apply the techniques for analysis of variance.

C-PSY-442-CO4: Understand the various applications of Chi-square.

C-PSY-443: ORGANIZATIONAL BEHAVIOUR

Objectives:

To develop an awareness of the concepts related to organizational behavior.
Help the students develop connectivity between concepts and practices of organizations.

Course Outcomes

C-PSY-443- CO1: Understand the historical and theoretical foundation of Organisational Behaviour and Industrial Psychology.

C-PSY-443- CO2: Understand and evaluate the contemporary developments and challenges in Industry setting especially in Indian context.

C-PSY-443- CO3: Understand individual level processes like employee attitudes and their conceptual development.

C-PSY-443-CO4: Analyze various theories and importance of work motivation, job satisfaction and leadership at the workplace.

SEMESTER-V**C-PSY-551: PSYCHOTHERAPEUTIC INTERVENTION****Objective:**

To introduce the etiological understanding and therapeutic interventions for the various psychological disorders.
Help students develop an understanding of how to deal with moderate to severe psychopathology.

Course Outcomes

C-PSY-551 CO1: Develop etiological understanding of therapeutic interventions for the various psychological disorders.

C-PSY-551 CO2: Understand techniques for dealing with moderate to severe psychopathology

C-PSY-551 CO3: Apply various individual and group Psychotherapeutic devices and be aware about the ethical issues of the field.

C-PSY-551 CO4: Analyze current trends in the clinical psychology.

C-PSY-552: DEVELOPMENTAL PSYCHOLOGY

Objectives: To equip the learner with an understanding of the concept and process of human development across the life span
To impart an understanding of the various domains of human development
To inculcate sensitivity to socio-cultural context of human development

Course Outcomes

C-PSY-552-CO1: Understand the concepts and theories of human development.

C-PSY-552-CO2: Explain domains of Human Development and by providing an overview of various western and Indian perspectives related to physical, emotional, cognitive and vocal development throughout the entire lifespan.

C-PSY-552-CO3: Analyze various stages of Life Span Development i.e Prenatal development, Birth and Infancy, Childhood, Adolescence and Adulthood.

C-PSY-552-CO4: Evaluate the influence of social and cultural factors on human development.

SEMESTER-VI**C-PSY-661: PROJECT/DISSERTATION/INTERNSHIP**

Objectives: Students should be enabled to design and conduct an original and ethical research. They should be able to write a dissertation in the APA format. The research done can either be empirical/data based (quantitative, qualitative, or mixed-methods) or it can be in the form of a critical review of research and theory.

Reference: Latest APA manual for dissertation.

Evaluation: Viva jointly by one internal and one external examiner.

C-PSY-662: COUNSELING PSYCHOLOGY

Objectives:

To develop an understanding of basic concepts, processes, and techniques of Counseling. To acquaint the learner with the challenges of Counseling.

Course Outcomes

C-PSY-662 -CO1: Understand the meaning, goals and process of counseling.

C-PSY-662 -CO2: Analyze various techniques and approaches of counseling used in psychology.

C-PSY-662 - CO3: Evaluate various contemporary trends and developments in the field of counseling along with Indian yogic and meditative techniques.

C-PSY-662 -CO4: Apply Counseling skills as an intervention in varied clinical setting.

ELECTIVE: DISCIPLINE SPECIFIC DSE

Any 4 from the following list (2 in Semester V and 2 in Semester VI):

DS-PSY-554: POSITIVE PSYCHOLOGY

Objective: To introduce the basic concepts of the growing approach of positive psychology and understand its applications in various domains.

Course Outcomes

DS-PSY-554-CO1: Understand the concepts of Positive psychology with Indian and Western perspectives and identify the difference between Character Strengths and virtues.

DS-PSY-554-CO2: Discuss various affective and cognitive components of positive mental state.

DS-PSY-554-CO3: Understand and relate the application of positive psychology in various real life settings

DS-PSY-554-CO4: Develop the skills and competence to apply positive psychology principles in a range of environments to increase individual and collective wellbeing.

DS-PSY-555: HUMAN RESOURCE MANAGEMENT

Objective: To help students understand the various processes and issues inherent in organizations related to human resources.

Course Outcomes

DS-PSY-555 CO1: Understand of the concept of human resource management and to understand its relevance in organizations.

DS-PSY-555 CO2: Analyse the strategic issues and strategies required to select and develop human resources.

DS-PSY-555 CO3: Appraise the concept and model of Organisational change and development.

DS-PSY-555 CO4: Evaluate the impact of globalisation and other contemporary issues in HRM

DS-PSY-556:HEALTHPSYCHOLOGY

Objective: To understand the relationship between psychological factors and physical health and learn how to enhance well-being.

Course Outcomes

DS-PSY-556 CO1: Understand the biological, behavioural, cognitive and social determinants of health, and risk factors for health.

DS-PSY-556 CO2: Analyse characteristics and theories of health behaviour and its implication

DS-PSY-556 CO3: Understand and apply individual, group and community-based approaches to health enhancing behaviours.

DS-PSY-556 CO4: Evaluate the importance of positive psychology concepts for health

DS-PSY-557:COMMUNITYPSYCHOLOGY

Objective: To learn the link between individuals and communities and deal with social issues more effectively with people's participation.

Course Outcomes

DS-PSY-557-CO1: Understanding of human development and well-being within individual's community framework.

DS-PSY-557-CO2: Understand and identify core values aiding health and human development in community setting.

DS-PSY-557-CO3: Evaluate and participate in the development of effective intervention, prevention and health promotion strategies and programs for individuals, small groups, and communities.

DS-PSY-557-CO4: Apply community psychology knowledge to make interventions across diverse groups and organizations through community-based experience.

DS-PSY-663:CULTURALANDINDIGENOUSPSYCHOLOGY

Objective: To understand the role of culture in understanding behaviour and exploring psychological insights in the Indian thought traditions.

Course Outcomes:

DS-PSY-663-CO1: Understand and relate the concepts relating to culture, cultural identity, cultural influence and cultural processes.

DS-PSY-663-CO2: Understand and evaluate the concept of 'Self' and others in different cultures.

DS-PSY-663-CO3: Analyze and evaluate the effect of cultural change, cultural competence and cultural transition on self and identity.

DS-PSY-663-CO4: Understand and evaluate the Indian perspective to psychological processes

DS-PSY-664:APPLIEDSOCIALPSYCHOLOGY

Objective:To help student understand social problems and gain knowledge about intervention strategies.

Course Outcomes (CO):

DS-PSY-664-CO1: Understand the nature, scope and methods of Applied Social psychology.

DS-PSY-664-CO2: Discuss the levels of social behavior and understand the influences of societal variables on human behavior.

DS-PSY-664-CO3: Investigate various social problems by applying the theories and concepts of applied social psychology.

DS-PSY-664-CO4: Critically examine a variety of intervention techniques dealing with issues and problems in interpersonal and societal issues

DS-PSY-665:PSYCHOLOGICALPERSPECTIVESINEDUCATION

Objectives:

To understand of the interface between education and psychology

To appreciate the various issues and challenges that emerge with reference to the application of psychological ideas and theories in the discipline of education

- ✓ To enable learner to deal with various problems and issues related to student diversity in a classroom

Course Outcomes

DS-PSY-665-CO1.Develop an understanding of the nature and fundamentals of educational psychology with several prominent theories of learning.

DS-PSY-665-CO2.Understand and apply techniques and issues pertaining to classroom management and assessment.

DS-PSY-665-CO3. Critically evaluate contemporary issues and debates in educational psychology.

DS-PSY-665-CO4. Explore the challenges in dealing with classroom diversity and importance of inclusive education.

DS-PSY-666PSYCHOLOGYOF DISABILITY

Objectives:

✓ The objective of the course is to provide students with an overview of the disability from the psychological perspective.

✓ Students will understand knowledge about disability as a social, cultural, historical and political phenomenon.

✓ Drawing from the four units students will be exposed to varying disability definitions, cultural meanings and representations,

✓ What does it mean to be “disabled”? How has this meaning changed over time in India? What factors affect a person’s experience of disability? Why should people in psychology learn about these matters?

Course Outcomes

DS-PSY-666 CO1: Develop understanding of the disability from the psychological perspective.

DS-PSY-666 CO2: Analysing disability as a social, cultural, historical and political phenomenon.

DS-PSY-666 CO3: Critically appraising various disability definitions, theories, cultural meanings and representations,

DS-PSY-666 CO4: Designing interventions for disability and understanding contemporary debates and issues around disability.

DS-PSY-667: PSYCHOLOGY OF PEACE

Objectives:

To explore concepts of peace and conflict from a psychological perspective

Create awareness about national and international peace and conflict process and how psychology can play an important role.

Course Outcomes

DS-PSY-667 CO1: Develop understanding of peace and related concepts from the psychological perspective.

DS-PSY-667 CO2: Analysing psychoanalytical, social-psychological and psychocultural perspectives of peace.

DS-PSY-667 CO3: Critically appraising structures and processes for peace.

DS-PSY-667 CO4: Applying psychological concepts related to peace to contemporary challenges to peace.

ELECTIVE: GENERIC (GE)

GE-PSY-115A: GENERAL PSYCHOLOGY

Objective: Provide an overview of the basic concepts in psychology to help in better communication and enhance adjustment in life and work.

Course Outcomes

GE-PSY 115 A - CO1. Understand the basic principles, methodology and scope of Psychology.

GE-PSY 115 A - CO2. Apply the understanding and applications of human psychological processes like personality, intelligence and emotional intelligence.

GE-PSY 115 A - CO3. Understanding cognitive, moral and psycho-social development models..

GE-PSY 115 A - CO4. Analysing the applications of psychology.

GE-PSY-115B: PSYCHOLOGY FOR HEALTH AND WELL-BEING

Objective: To understand the spectrum of health and illness for better health management.

Course Outcomes

GE-PSY-115 B CO1: Understand the models of illness, health and well-being.

GE-PSY-115 B CO2: Analyse sources of stress and their impact.

GE-PSY-115 B CO3: Apply strategies for stress management and health management.

GE-PSY-115 B CO4: Understanding the concepts of human strength and its application.

GE-PSY-115C:PSYCHOLOGYATWORK

Objectives:

To understand the meaning and theoretical foundations of I/O Psychology
To develop an understanding of
how the various theories and methods of I/O Psychology apply to the real work settings

Course Outcomes

- GE-PSY-115- CO1:** Understand the historical and theoretical foundation of Industrial Psychology.
- GE-PSY-115- CO2:** Understand and evaluate the contemporary developments and challenges in Industry setting especially in Indian context.
- GE-PSY-115- CO3:** Analyze various theories and importance of work motivation, communication and leadership at the workplace.
- GE-PSY-115-CO4:** Apply the knowledge of employee attitudes to real life problems in industry

GE-PSY-115D:INTER-GROUPRELATIONS

Objective: To understand the significance of healthy inter-group relations for the society and learn the strategies of resolving intergroup conflicts.

Course Outcomes:

- GE-PSY-115 D-CO1: Understand and analyse the nature of inter-group relations.
- GE-PSY-115 D -CO2: Understand the concepts of social categorization, conflict, social identity and cognitive biases and stereotypes.
- GE-PSY-115 D -CO3: Relate the concepts to Indian context to understand the impact of cultural on inter-group relations.
- GE-PSY-115 D -CO4: Analyse psychological theories relating to conflict and suggest ways to promote cooperation.

GE-PSY-115E:FOUNDATIONSOFPERSONALITY

Objective:

To help students understand the notion of personality, its types, the determinants of influencing personality.

Course Outcomes

- GE-PSY-115 E-CO1: Understand and appraise the concept and types of theories of personality.
- GE-PSY-115 E -CO2: Understand and evaluate the Psychoanalytic perspective to personality
- GE-PSY-115 E -CO3: Understand and evaluate the concept of self .
- GE-PSY-115 E -CO4: Understand the perspectives of Behaviourism and Social learning models and apply them to lead to personality change

GE-PSY-115F:EMOTIONALINTELLIGENCE

Objective: To understand the concept of emotional intelligence and learn ways of developing it.

Course Outcomes (CO)

GE-PSY-115 F CO 1: Understand the concept and contemporary models of emotional intelligence and evaluate its importance.

GE-PSY-115 F CO 2: Understand emotional awareness and compare the emotional expression in self and others

GE-PSY-115 F CO 3: Understand the relation of emotions, thought and behaviour and apply techniques to manage emotions

GE-PSY-115 F CO 4: Understand the application of emotional intelligence in real world scenarios

ABILITY ENHANCEMENT ELECTIVE COURSE (AECC) (SKILL BASED) (ANY 2 OF THE FOLLOWING: UNSEMI I AND UNSEMI V):

AE-PSY-335: APPLICATION OF EMOTIONAL INTELLIGENCE

Objective: To understand the concept of emotional intelligence and learn ways of developing it.

Course Outcomes (CO)

AE-PSY-335 CO 1: Identify and understand different emotions in oneself and others and the concept of emotional intelligence.

AE-PSY-335 CO 2: Develop skills to manage and control emotions in oneself and others and measure Emotional Quotient.

AE-PSY-335 CO 3: Develop emotional competencies in oneself.

AE-PSY-335 CO 4: Understand the application of emotional intelligence in real world scenarios

AE-PSY-336: EDUCATIONAL PSYCHOLOGY

Objective: To understand the applications of psychology in the area of education.

Course Outcomes

AE-PSY-336-CO1. Develop an understanding of the nature and fundamentals of educational psychology with several prominent theories of learning.

AE-PSY-336-CO2. Understand and apply techniques and issues pertaining to effective classroom management and assessment.

AE-PSY-336-CO3. Critically evaluate the impact of human diversity on education.

AE-PSY-336-CO4. Explore the challenges in dealing with exceptionality and importance of inclusive education.

AE-PSY-337: EFFECTIVE DECISION MAKING

Objective: Students will learn various strategies which will enable them to make good decisions in life.

Course Outcomes (CO)

AE-PSY-337 CO 1: Understand the models of decision making and evaluate its importance.

AE-PSY-337 CO 2: Apply decision making models for optimizing decisions relating to self and career.

AE-PSY-337 CO 3: Apply decision making models for conflict management and negotiation in interpersonal context.

AE-PSY-337 CO 4: Understand the application of decision making in workplace.

AE-PSY-445: STRESS MANAGEMENT

Objective: In every day life we experience stress related to various situations. Students will learn how they can make adjustments and manage to cope with stress more effectively.

Course Outcomes

AE-PSY-445 CO 1: Understand and evaluate the nature and symptoms of stress.

AE-PSY-445 CO 2: Identify the sources of stress in individual and environment

AE-PSY-445 CO 3: Relate the impact of stress on health

AE-PSY-445 CO 4: Understand and apply the various techniques of stress management

AE-PSY-446: SELECTION & TRAINING

Objectives:

To give an overview of the core HR practices in organizations

To impart basic psychological skills relevant for a practitioner in an organizational context.

Course Outcomes (CO)

AE-PSY-446 CO 1: Understand the concept, importance and techniques of job analysis.

AE-PSY-446 CO 2: Understand the process and techniques of employee selection.

AE-PSY-446 CO 3: Apply various methods and techniques of performance appraisal.

AE-PSY-446 CO 4: Create a training module utilizing various methods and techniques.

AE-PSY-447: PERSONAL GROWTH AND DEVELOPMENT

Objective: To facilitate the process of self-discovery and the development of emotional, cognitive and interpersonal competencies for personal growth and effectiveness using the experiential learning paradigm.

Course Outcomes (CO)

AE-PSY-447-CO1: Develop and exhibit an appropriate sense of self.

AE-PSY-447-CO2: Inculcate the characteristics of responsible and confident social being.

AE-PSY-447-CO3: Nurture themselves as well balanced personalities with emotional intelligence and human values.

AE-PSY-447-CO4: Develop into competent global professionals and lifelong learners

AE-PSY-448:PSYCHOLOGICALSKILLSINORGANIZATIONS

Objectives:

To gain understanding of key human relations skills demanded at the workplace

To develop self-

understanding, strengthen interpersonal relationships, manage stress, effective communication skills and perform as a focused leader in today's tough business environment

Course Outcomes (CO)

AE-PSY-448 CO 1: Understand of key human relations skills demanded at the workplace.

AE-PSY-448 CO 2: Develop self-understanding, strengthen interpersonal relationships, and effective communication skills

AE-PSY-448 CO 3: Apply techniques for stress management and social awareness.

AE-PSY-448 CO 4: Develop skills to build team and become a competent leader

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Social Sciences

Department of Psychology

MA (Psychology)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES (POs)

- **PO1:** Developing a comprehensive understanding of psychology as a subject and profession and acquiring theoretical and practical knowledge, required professional skills, cultural-sensitive and expertise in the field of counselling psychology.
- **PO2:** Develop an understanding about the integration of theory and practice in various field of psychological profession.
- **PO3:** Develop a holistic approach for better understanding of psychological problems, interventions/psychotherapies, social problems, issues of individual, group & overall social development and required counseling services.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PO1. Communicate basic and advanced psychology concepts, research designs, counselling skills, psychotherapies effectively and professionally.

PO2. Applied psychology theories and application of these concepts to enhance the specific skills to solve day to day problems of clients while working in counselling settings.

PO3. Identify, analyse, and synthesize scholarly literature related to the field of psychology.

PO4: Development of research aptitude among students

PO5: Understand the regional psychological problems of Uttarakhand like effect of migration, natural calamities and religious beliefs

PO5: Application of psychological interventions in real life situation

COURSE OUTCOMES:

Course code	Title	Course Outcome (After completing the course, the students will be able to)
Semester I		
PSY-101	Introduction to Psychology	<p>CO1. Understand the basic principles, methodology and fields of Psychology.</p> <p>CO2. Understand various perspective of psychology- Structuralism, Functionalism, Behaviourism, Psychoanalytic, Gestalt, Humanism, Cognitive, Evolutionary</p> <p>CO3. Increasing knowledge on well-being, Mindfulness, Gratitude, Resilience, Forgiveness and Mind-body connection and applying day to day life.</p> <p>CO4. Analyse the nature and understanding of eastern psychology, Indian Approach of Bhagavad Gita, Buddhism, Sufism and implementation in everyday life.</p> <p>CO5. Applications of yoga and its impact on our attitudes, thinking and behavior. Philosophy of Patanjali on mind and its nature, functions and states</p>
PSY-102	Biological Basis of Behaviour	<p>CO1: understanding of human nervous system and its parts and function.</p> <p>CO2: learning about various parts of brain and its functioning</p> <p>CO3: application of seeing living brain by advanced neuroimaging techniques</p> <p>CO4: understanding about hormonal influence on body and endocrine communication</p> <p>CO5: increased critical understanding about nature and nurture controversy. Impact of genes for shaping human life.</p>
PSY-103	Psychopathology	<p>CO1: Basic understanding about psychopathology through DSM 5 and ICD 11</p> <p>CO2: In depth knowledge about various disorders under mood and anxiety disorders</p> <p>CO3: Conceptual understanding of major clinical disorders like schizophrenia and other psychotic disorders</p> <p>CO4: Understanding of somatoform disorders and personality disorders</p> <p>CO5: understanding of sexual dysfunctions and paraphilias</p>

PSY-104	Research methodology	CO1: understanding of research and its basic concepts including ethical issues CO2: discussion on various steps in psychological research. Identification of research problem and formulation of various types of hypothesis CO3: knowledge about various variables and sampling method CO4: applications of quantitative and qualitative research methods CO5: understanding of various experimental designs
PSY-105	Cognitive Psychology -I	CO1: emergence of cognitive psychology and its research methods and areas CO2: understanding of various approaches of perception CO3: understanding of concepts related to perception like subliminal perception, pattern recognition and extra sensory perception CO4: applications of learning theories in various aspects of life and in psychotherapies CO5: understanding of the process of memory and forgetting & including various theories of memory and forgetting
PSY-106	Practical	CO1. Define and apply the scientific method to psychology. CO2. Know the research methods used in psychology and apply their knowledge in the assessment of various psychological Phenomena (i.e. Learning, Memory, Perception) CO3. Demonstrate knowledge of the major theoretical approaches and findings in psychology. CO4. Demonstrate the experimental aspects of Memory and Perception.

Course code	Title	Course Outcome (After completing the course, the students will be able to)
Semester II		
PSY-201	Experimental Design and Statistics	CO1: better understanding about experimental Research Design CO2: application of repeated measures design and quasi experimental design CO3: understanding of frequency distribution,

		<p>measures of variability and correlation</p> <p>CO4: application of various hypothesis-testing methods. Understanding of Type 1 and type 2 errors</p> <p>CO5: understanding of nonparametric tests including Chi square test, median test.</p>
PSY-202	Cognitive Psychology -II	<p>CO1: understanding of theoretical perspective on thought processes, concept formations and types of reasoning</p> <p>CO2: understanding of components and theories of language, metacognition and problem solving approaches</p> <p>CO3: exploration of various Intelligence theories and creativity</p> <p>CO4: understanding of various theories of motivation including biological and social motives</p> <p>CO5: understanding of various emotions theories</p>
PSY-203 A	Clinical Psychology	<p>CO1: discussion on characteristics of clinical psychology, professional activities and training in clinical psychology</p> <p>CO2: understanding of various perspective of clinical psychology</p> <p>CO3: application of clinical interview, hands on practice in counselling setting</p> <p>CO4: hands on practice in clinical assessment and report writing</p> <p>CO5: application of various model of health intervention in the field of clinical psychology</p>
PSY-204A	Health Psychology	<p>CO1: discussion on various health belief system and various approaches of health psychology</p> <p>CO2: understanding of issues related to eating, obesity and alcohol</p> <p>CO3: understanding of biological and psychosocial issues related to tobacco and smoking. Discussion on cancer, hypertension, diabetes, coronary heart disease and HIV AIDS</p> <p>CO4: application of various stress management techniques: problem focused and emotion focused</p> <p>CO5: understanding of immunization, screening and treatment adherence with various Health Promotion approaches</p>

PSY-205 B	Industrial Psychology and Organisational Behaviour	<p>CO1: discussion on history, meaning, nature and areas of Industrial Psychology</p> <p>CO2: application of various techniques related to accidents, safety and fatigue</p> <p>CO3: understanding of organisational psychology, its scope and research methods</p> <p>CO4: understanding of various communication models, networks and interpersonal Communications.</p> <p>CO5: applications of the principles for decision making</p>
PSY-206 B	Human Resource Management	<p>CO1: discussion on Human Resource Management and its nature, scope and history</p> <p>CO2: understanding of Human Resource Planning and recruitment processes</p> <p>CO3: application of stress and coping strategies at workplace by using problem focused and emotion focused techniques</p> <p>CO4: use of personal training and management development through various methods and approaches</p> <p>CO5: discussion on performance appraisal and career development</p>
PSY-207 C	Basic Foundations of Sports Psychology	<p>CO1: discussion on history of sports psychology and its scope in current scenario</p> <p>CO2: understanding the role of performance in Sports</p> <p>CO3: discussion on various perspectives related to motivation in sports</p> <p>CO4: development of understanding related to personality, youth sport and team processes</p> <p>CO5: understanding of trait theories of personality in the context of sport. Application of social learning theory to sport</p>
PSY-208 C	Clinical Sports Psychology	<p>CO1: understanding of clinical sports psychology and its assessment and classification</p> <p>CO2: discussion on anxiety and aggression in sports by understanding various theories of aggression</p> <p>CO3: practical application of stress and coping strategies in sports.</p> <p>CO4: practical application of various meditation for managing stress</p>

		CO5: management of injuries during sports activities and issues related to women mental health
PSY-209 D	Introduction to Yoga Psychology	CO1: discussion on origin of various yogic practices and its history and yogic traditions CO2: application of yogic science in modern context. CO3: understanding of various yoga schools in contemporary context CO4: discussion on Patanjali Yog Sutra and its relevance in modern context CO5: exploration of research-based evidences on yoga and meditation
PSY-210 D	Physiological and Ethical Aspects of Yoga	CO1: understanding of asana and meditation and its psycho-physiological mechanism CO2: applications of various Pranayam and its psycho physiological mechanisms CO3: understanding of advanced level yoga asanas and Pranayama for specific needs CO4: practice of ethical aspects of yoga like ahimsa, astey, aparigraha, brahmachary CO5: understanding of various niyamas practices for transcendencea
PSY-211	Practical	CO1. Define and apply the scientific method to psychology. CO2. Know the research methods used in psychology and apply their knowledge in the assessment of various psychological Phenomena (i.e. Learning, Memory, Perception) CO3. Demonstrate knowledge of the major theoretical approaches and findings in psychology. CO4. Demonstrate the experimental aspects of Memory and Perception.

Course code	Title	Course Outcome (After completing the course, the students will be able to)
Semester III		
PSY-301	Social Psychology (Core)	CO1: understand the nature, origin and development of social psychology with the help of research methods in social

		<p>psychology</p> <p>CO2: discussion on social perception and attribution theories including traditional theoretical perspective of social psychology</p> <p>CO3: understanding the psychology behind attitude and social change, compliance and peer pressure</p> <p>CO4: understand the group dynamics, leadership style with the help of various theories</p> <p>CO5: application of applied social psychology by understanding socialization, acculturation, poverty, gender issues and social violence</p>
PSY-302	Personality: Theories and Assessment (Core)	<p>CO1: understand the Dynamics of personality, traits and temperament with the help of various Western and Indian approaches.</p> <p>CO2: discussion on Sigmund Freud's psychoanalytic theory and comparison with psychodynamic theories</p> <p>CO3: understand humanistic theories including allport theory of personality, need theory of Murray, Rogers and Maslow theories</p> <p>CO4: discussion on trait and field theories of personality</p> <p>CO5: application of personality assessment, psychometric methods and projective methods</p>
PSY-303 A	Counselling Psychology	<p>CO1: understand nature, roles and characteristics of counselling psychology</p> <p>CO2: learn values and attitude of counsellor and counselling micro skills</p> <p>CO3: hands on practice for stages in counselling process</p> <p>CO4: understand counselling in Indian context, legal issue, licensing and certification as a counsellor</p> <p>CO5: apply various counselling skills for various types of counselling like marriage counselling, family counselling, STI counselling</p>
PSY-304 A	Behaviour Modification	<p>CO1: understand basic concepts of a modification and relaxation techniques</p> <p>CO2: application of reinforcement technique for behaviour modification</p>

		<p>CO3: use of extinction, generalization and discrimination for managing behaviour</p> <p>CO4: understand the process of chaining, punishment 88 and avoidance conditioning</p> <p>CO5: understand behavioral medicine for mental disorders including anxiety and depression</p>
PSY-305 B	Industrial Relations	<p>CO1: understand concept, scope and objective of Industrial Relations</p> <p>CO2: discussion on the concept of industrial unions and function of trade unions including code of conduct</p> <p>CO3: understand collective bargaining and its objectives</p> <p>CO4: understand industrial disputes including Strike, Lockout and demonstration</p> <p>CO5: discussion on industrial democracy, workers participation and grievance handling</p>
PSY-306 B	Organisational Development and Change	<p>CO1: understand organisational change, analysis the environment.</p> <p>CO2: discussion on types of change in organisation</p> <p>CO3: application of steps assembling, setting up of change teams, removing roadblocks</p> <p>CO4: use of new technology in the field of human resources</p> <p>CO5: understand organisational development and its evolution. Indian experiences of organisational development in public and private Enterprises</p>
PSY-307 C	Applied Social Psychology in Sports	<p>CO1: understand the importance of applied social psychology in sports and multidimensional model of coach leadership</p> <p>CO2: discussion on group dynamics and motivational climate in the context of cost leadership</p> <p>CO3: application of social and cognitive processes in sports</p> <p>CO4: learn about social support and its influences on athletes</p> <p>CO5: apply emotion theories in sports activities</p>
PSY-308 C	Psychology of Training and Skill Acquisition	<p>CO1: understand training for competition by the theory of self efficacy and attention training for competition</p> <p>CO2: understand the social factors</p>

		<p>responsible for sports performance</p> <p>CO3: discussion on skill acquisition and abilities</p> <p>CO4: application of improved concentration is skills in team</p> <p>CO5: development of skills for sport psychologist including arousal Regulation and goal setting</p>
PSY-309 D	Psychological and Spiritual Aspects of Yoga	<p>CO1: understand dharna and dhyana by various meditation techniques</p> <p>CO2: application of yogic activities for enhancing mental health</p> <p>CO3: discussion on the transformation with the help of kriya yoga</p> <p>CO4: application of yogic transformation bi regression technique.</p> <p>CO5: application of yoga for improving cognition, memory, learning and creativity</p>
PSY-310 D	Philosophical and Historical Foundations of Indian Psychology	<p>CO1: understand the nature of Indian philosophy with the historical background</p> <p>CO2: discussion on Buddhist psychology and its essential components including mindfulness meditation</p> <p>CO3: understand the psychological concepts in Bhagavad Gita</p> <p>CO4: application of Sri Aurobindo's concept of consciousness</p> <p>CO5: critical evaluation of Indian psychology and its future challenges</p>
PSY-311 A	Field studies	<p>CO1: understand real problems in the field</p> <p>CO2: discussion on various challenges in field study</p> <p>CO3: application of psychological theories for psychological assessment in the field</p> <p>CO4: critical evaluation of data gathered through field study</p>
PSY-311 B	Internship	<p>CO1: understand the psychological assessment and intervention under senior psychologist or psychiatrist</p> <p>CO2: discussion on the challenges in in real situations</p> <p>CO3: application of psychological interventions during the internship</p> <p>CO4: supervision during the the Internship by senior for experienced psychologist</p>

Course code	Title	Course Outcome (After completing the course, the students will be able to)
Semester IV		
PSY-401	Applied Psychometry	CO1: understand psychological measurement and it's nature endoscope CO2: learn the process of test construction and item analysis CO3: use of reliability and validity in test construction CO4: application of norms and the process of standardization CO5: understand psychological scaling method
PSY-402	Psychotherapies	CO1: understand the meaning, Nature and scope of psychotherapies CO2: discussion on psychoanalytic therapies including Adlerian and transactional analysis CO3: application of of humanistic therapies like client centred therapy, existential therapy and Gestalt therapy CO4: use of behaviour therapy and its techniques CO5: application of cognitive behavioral therapy, REBT, yoga and meditation
PSY-403 A	Cognitive Behavioural Therapy	CO1: understand the basic principles of cooperative therapy and misconceptions about it CO2: identification of negative automatic thoughts, underlying assumptions and Rules and core believes CO3: application of case conceptualization and cognitive behavioral techniques, assignments and role play CO4: application of CBT for managing stress, anxiety, depression, anger and rage CO5: application of CBT for traumatic injuries, chronic pain and forgiveness
PSY-404 A	Clinical Case studies	CO1: understanding various panic disorders CO2: discussion on major depressive disorder, bipolar disorder, somatic disorder and anxiety disorder CO3: understand alcohol abuse disorder and sexual dysfunction CO4: discussion on schizophrenia and various personality disorders CO5: application of various therapies to

		manage psychological disorders
PSY-405 B	Training and Development in Organizations	CO1: understand training and development in organisation CO2: discussion on training need identification CO3: understand how to conduct training programs and planning and budgeting CO4: application of audio visual in computer-based learning and training CO5: understand evaluation of training program
PSY-406 B	Contemporary Challenges in HRM	CO1: understand contemporary challenges in Human Resource Management CO2: discussion on managing diversity in organisation CO3: understand corporate social responsibility CO4: use of competency mapping in Human Resource Management CO5: management of attrition in organisations
PSY-407 C	Exercise Psychology	CO1: understand the effect of physical activity for preventing chronic diseases CO2: discussion on various theoretical models of motives CO3: application of cognitive behavioral strategies CO4: use of behaviour change intervention CO5: discussion on negative and harmful effects of being active
PSY-408 C	Counselling Skills for Sports Psychologists	CO1: understanding of counselling process in sports setting CO2: discussion on Sports injuries CO3: application of counselling intervention for substance abuse problems CO4: discussion on anxiety management techniques through interventions by counselling process
PSY-409 D	Spiritual Psychology	CO1: understand the applied perspective of spirituality CO2: discussion on spirituality and its believes and motivation CO3: understand the research methods in spiritual psychology CO4: critical evaluation of spirituality and religion

PSY-410 D	The self and the structure of the personality	CO1: understand the nature of self and the structure of personality CO2: critical evaluation of the the concepts like reincarnation, Karma and samskara CO3: discussion on various types of knowledge used in Indian tradition CO4: application of Indian concepts of self in Real world
PSY-411	Dissertation	CO1: understand use of research methodology and statistics in psychological research CO2: discussion on synopsis CO3: conduction of research CO4: critical evaluation of findings CO5: Publication in reputed research journal

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Social Sciences

Psychology

PhD (Psychology)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

A candidate completed the Ph.D. programme will be able to:

- PO1:** Analyse the problems from a psychological perspective.
- PO2:** Formulate relevant questions, plan and implement research and scientific development.
- PO3:** Assess the appropriateness and application of various methods and processes within research and scientific development.
- PO4:** Demonstrate professional skills in writing through organizing, thinking critically, and communicating ideas and information in documents, presentations, and publications.

PROGRAM SPECIFIC OUTCOMES:

- PSO1:** Effectively and professionally communicate topics from fundamental to advanced psychology related to research methods, counselling techniques, and psychotherapies.
- PSO2.** Applied psychology theories and their implementation in counselling contexts are meant to improve the specific abilities needed to address clients' day-to-day issues.
- PSO3:** Locate, evaluate, and synthesise academic writing on the subject of psychology.
- PSO4:** Student development of research aptitude, research writing skills and practice of ethical values
- PSO5:** developing psychological aptitude in the various fields of psychology

COURSE OUTCOMES:

PSYRC1	Research Methodology	CO1: understanding of research and its basic concepts including ethical issues CO2: discussion on various steps in psychological research. Identification of research problem and formulation of various types of hypothesis CO3: knowledge about various variables and sampling method CO4: applications of quantitative and qualitative research methods CO5: understanding of various experimental designs
PSYRC2	Research and Publication Ethics (RPE)	CO1: To understand the philosophy of science and ethics, research integrity and publication ethics. CO2: To identify research misconduct and predatory publications. CO3: To understand indexing and citation databases, open access publications, research metrics (citations, hindex, impact Factor, etc.). CO4: To understand the usage of plagiarism tools.

PSYRE1	Statistics in Psychology	<p>CO1: better understanding about experimental Research Design</p> <p>CO2: application of repeated measures design and quasi experimental design</p> <p>CO3: understanding of frequency distribution, measures of variability and correlation</p> <p>CO4: application of various hypothesis-testing methods. Understanding of Type 1 and type 2 errors</p> <p>CO5: understanding of nonparametric tests including Chi square test, median test.</p>
PSYRE2	Psychopathology	<p>CO1: Basic understanding about psychopathology through DSM 5 and ICD 11</p> <p>CO2: In depth knowledge about various disorders under mood and anxiety disorders</p> <p>CO3: Conceptual understanding of major clinical disorders like schizophrenia and other psychotic disorders</p> <p>CO4: Understanding of somatoform disorders and personality disorders</p> <p>CO5: understanding of sexual dysfunctions and paraphilias</p>
PSYRE3	Positive Psychology	<p>CO1: Students will learn the distinction between the emerging Positive Psychology principles and other theoretical principles of psychology.</p> <p>CO2: Students will develop an understanding of resiliency factors and how to use them.</p> <p>CO3: Students will develop an understanding of the dimensions of happiness/subjective well-being and</p>
		<p>their application to their lives.</p> <p>CO4: Students will be expected to demonstrate applications of core concepts of Positive Psychology and resiliency factors. Students will acquire skills to implement strengths-based concepts in their lives.</p> <p>CO5: Students will become familiar with research that supports the principles, strategies, and skills of Positive Psychology.</p>
PSYRE4	Community Psychology	<p>CO1: Provide an understanding of what community psychology is and how it compares to other subdisciplines of psychology and other social sciences.</p> <p>CO2: Develop students' knowledge of community psychology's history and theories.</p> <p>CO3: Link theories to practices through exemplary research and interventions.</p> <p>CO4: Critically analyze the role of psychologists within social settings.</p> <p>CO5: Promote a sense of social responsibility</p>

PSYRE5	Health Psychology	<p>CO1: discussion on various health belief system and various approaches of health psychology</p> <p>CO2: understanding of issues related to eating, obesity and alcohol</p> <p>CO3: understanding of biological and psychosocial issues related to tobacco and smoking. Discussion on cancer, hypertension, diabetes, coronary heart disease and HIV AIDS</p> <p>CO4: application of various stress management techniques: problem focused and emotion focused</p> <p>CO5: understanding of immunization, screening and treatment adherence with various Health Promotion approaches</p>
PSYRE6	Research Writing And Presentation	<p>CO1: Demonstrate writing and referencing skills to communicate to scientific and general audiences.</p> <p>CO2: Critically read and interpret scientific journal articles in the fields of biology, biotechnology and neuroscience.</p> <p>CO3: Prepare and deliver oral presentations on scientific research.</p> <p>CO4: Prepare a scientific poster and present findings at a poster symposium.</p> <p>CO5: Effectively use library resources</p>

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Social Sciences

MA (Social Work)

DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES (POs):

1. To develop a comprehensive understanding of social work as a profession, with a focus on acquiring theoretical and practical knowledge, as well as the necessary professional skills, cultural sensitivity, and expertise in this field.
2. To gain an understanding of the integration of theory and practice within various aspects of the social work profession.
3. To cultivate a holistic approach in order to better comprehend social problems, individual and group issues, and overall social development, along with the necessary services required.
4. To strive for a comprehensive understanding of social work as a profession, encompassing the acquisition of theoretical and practical knowledge, essential professional skills, cultural sensitivity, and expertise in this field.
5. To work towards an understanding of how theory and practice come together within the diverse fields of the social work profession and to develop a holistic perspective for enhanced insight into social issues, individual and group challenges, and the broader scope of social development, including the required services.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

- At the end of the programme, the students are expected to develop as Social Work professionals equipped with required interdisciplinary knowledge, attitude, skills and temperament to engage with different segments of communities, to emerge as social entrepreneurs, work as development workers and pursue careers in diverse sectors. All the while they will work as catalysts towards bringing out a positive social change.
- The students are expected to address contemporary social problems and advance careers in diverse areas such as social justice, human rights, marginalized sections of the society (women, child, aged, ST/SC and OBC), social welfare programmes, poverty alleviation, employment generation, self-entrepreneurship, hospital setting, labour welfare, CSR, correctional and mental health setting, welfare of the person with disabilities, environment protection, family and marriage counselling etc.

COURSE OUTCOMES (COs):

FIRST SEMESTER: Upon completion of the course, the students are expected to develop a critical understanding of the following:

Course Type	Course Code	Course Title	Course Outcomes
Core	MSW-501	Nature and Development of Social Work	<ul style="list-style-type: none"> ▪ To understand the context of emergence of social work as a subject and as a profession. ▪ To understand the nature of social work practice in different settings. ▪ To understand and differentiate social work from other seemingly related terms. ▪ To comprehend the dynamic scope of social work.
Core	MSW-502	Man & Society	<ul style="list-style-type: none"> ▪ To understand basic sociological concepts and social formations. ▪ To develop skills to analyse and understand Indian society. ▪ To learn to apply sociological insight and approaches in social work practice.
Core	MSW-503	Dynamics of Personality and Human Behavior	<ul style="list-style-type: none"> ▪ To understand the nature and development of human behaviour in socio-cultural context. ▪ To develop a critical perspective of the theories of human behaviour and personality. ▪ To learn to apply concepts and theories of psychology in social work practice.

Core	MSW-504	Social Disorganization and Contemporary Social Problems	<ul style="list-style-type: none"> ▪ To develop the knowledge about the social problems and its consequences. ▪ To understand the nature of crime and its prevention strategies. ▪ To develop understanding of the concept of social defense.
Core	MSW-505	Concurrent Field Work-I*	<ul style="list-style-type: none"> ▪ To develop an understanding about theory and practice in social work field. ▪ To learn to apply methods, principles, ethics and skills of social work into practice. ▪ To develop critical understanding about the social issues and required interventions.

SECOND SEMESTER: Upon completion of the course, the students are expected to develop a critical understanding of the following:

Core	MSW-521	Social Case Work and Group Work	<ul style="list-style-type: none"> ▪ To understand social casework as a method of social work practice. ▪ To develop capacity to understand and accept the uniqueness of individuals and work towards strengthening personality of clients by fostering skills of self-help. ▪ To develop self-awareness and skills in working with individual clients as well as family systems. ▪ To develop understanding of group work as a method of professional social work ▪ To gain insight into various dimensions of group processes and group work practice ▪ To develop competencies for working with groups in diverse settings.
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Core	MSW-522	Community Organization and Social Action	<ul style="list-style-type: none"> ▪ To understand and analyse community as a dynamic entity. ▪ To comprehend the concept, context and strategies of community work. ▪ To develop commitment to the cause of the people on the margins. ▪ Understand the concepts relevant for application of social action and social movement in responding to the critical social reality.
Core	MSW-523	Social Welfare Services & Social Welfare Administration	<ul style="list-style-type: none"> ▪ To develop understanding of social welfare administration as a method of social work profession. ▪ To understand various components of social welfare administration. ▪ To acquire competence in the administration of social welfare and development services.
Core	MSW-524	Social research, Statistics and Computer Application	<ul style="list-style-type: none"> ▪ To understand the role of qualitative methods of research in social work theory building and practice enhancement. ▪ To understand the nature and application of alternative research paradigms in a practice profession like social work. ▪ To develop skills in conceptualizing, designing and executing qualitative research studies.
Core	MSW-525	Concurrent Field Work-II	<ul style="list-style-type: none"> ▪ To develop an understanding about theory and practice in

			<p>social work field.</p> <ul style="list-style-type: none"> ▪ To learn to apply methods, principles, ethics and skills of social work into practice. ▪ To develop critical understanding about the social issues and required interventions.
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THIRD SEMESTER

Core	MSW-601	Social Policy, Planning and Development	<ul style="list-style-type: none"> ▪ Building an insight to social policy and social planning. ▪ Understanding the concept of welfare state and social justice as prime focus of social legislations ▪ Familiarizing with laws pertaining to vulnerable groups.
Core	MSW-602	Communication and Social Work	<ul style="list-style-type: none"> ▪ Understand the concept of communication and its different dimensions. ▪ Understand the methods and techniques of communication used in social work practices.
Core	MSW-603	Human Rights and Social Work Practice	<ul style="list-style-type: none"> ▪ To understand the context of Human Rights and the emergence of rights based perspective in social work practice. ▪ To apply human rights framework for understanding issues and concerns affecting society. ▪ To develop knowledge and skills required in working for a just society.
Elective	MSW-604	Social Ecology, Environment and	<ul style="list-style-type: none"> ▪ To develop critical understanding of

		Management	<p>environmental policies, legislations and programmes.</p> <ul style="list-style-type: none"> ▪ To understand the strategies and approaches of environment management ▪ To develop skills of social work intervention in the protection and promotion of the environment.
Elective	MSW-605	Development of Youth and Welfare of Aged	<ul style="list-style-type: none"> ▪ Develop the knowledge about the needs and challenges of youth. ▪ Develop theoretical and practical understanding of gerontological issues. ▪ Gain insight into the emerging needs and problems of older persons vis-à-vis services /programmes for the Youth and Elderly. ▪ Develop critical understanding of the policies and programmes for older persons at the national and international levels.
Elective	MSW-606	HIV –AIDS and Social Work Practice	<ul style="list-style-type: none"> ▪ Understand HIV/AIDS pandemic as a health and development issue. ▪ Understand the social dimension of HIV/AIDS and learn to deal with its consequences in the best interest of People Living with HIV/AIDS (PLHA). ▪ Learn different prevention strategies for general population as well as people at higher risk of HIV infection. ▪ Learn social work profession's

			response to HIV/AIDS and PLHA.
Elective	MSW-607	Culture & Society in Uttarakhand	<ul style="list-style-type: none"> ▪ Different aspects of Himalayan culture. ▪ Understand distinct ethos of Uttarakhand culture. ▪ Understand relationship between culture and ecology. ▪ Obtain insights into indigenous systems, local rituals and little traditions.
Core	MSW-608	Block Placement (45 Days)/ Internship	<ul style="list-style-type: none"> ▪ To develop an understanding about theory and practice in social work field. ▪ To learn to apply methods, principles, ethics and skills acquired in the classroom to a professional context in social work practice. ▪ To develop critical understanding about the social issues and required interventions. ▪ Refine career goals as a result of the experience gained during internship.

FOURTH SEMESTER

Core	MSW-621	Human Resource Management & Social Work	<ul style="list-style-type: none"> ▪ To understand the nature and function of organization. ▪ To develop the knowledge of human resource and role of social work in staffing, training and planning process.
Core	MSW-622	Counseling and Social Work	<ul style="list-style-type: none"> ▪ To understand the nature and goals of counselling as a

		Practice	<p>helping process</p> <ul style="list-style-type: none"> ▪ To understand the theoretical base underlying counselling practice ▪ To Learn to apply counselling skills while working with clients in various settings ▪ To develop attitudes and inculcate values that enhances investment of self in the counselor's role.
Specialization	MSW-623	Rural Community Management	<ul style="list-style-type: none"> ▪ To understand social structure, social relations and institutions in rural communities. ▪ To develop sensitivity, commitment, and skills to influence critical issues in rural communities. ▪ To understand the policies, programmes and approaches of rural community development.
Specialization	MSW-624	Industrial Relation & Personnel Management	<ul style="list-style-type: none"> ▪ To develop a critical understanding of the concept and importance of Industrial Relation and Personal Management.
Specialization	MSW-625	Medical & Psychiatric Social Work	<ul style="list-style-type: none"> ▪ To understand the changing concept of health as an aspect of social development. ▪ To develop a critical perspective of healthcare services and programmes in the context of health scenario in the country.

			<ul style="list-style-type: none"> ▪ To gain understanding of relevance, domains and nature of social work intervention in different health settings.
Specialization	MSW-626	Correctional Social Work	<ul style="list-style-type: none"> ▪ To develop understanding of the concept and philosophy of correctional services. ▪ To develop practice skills in prevention, correction and rehabilitation work in correctional fields. ▪ To understand the philosophy, approaches and relevance of community-based programmes in correctional social work.
Elective	MSW-627	Social Work and Disaster Management	<ul style="list-style-type: none"> ▪ To develop understanding of disasters and disaster management, ▪ To acquire a critical perspective of the policy framework, institutional structures and programmes for disaster management in India, ▪ To understand the process and techniques of empowering communities in disaster preparedness and mitigation, ▪ To learn the nature and scope of psychosocial care in disaster management.
Elective	MSW-628	Migration Studies	<ul style="list-style-type: none"> ▪ Understand the dynamic concept of Migration, ▪ Relationship between migration and poverty,

			<ul style="list-style-type: none"> ▪ Migration as a major issue in Uttarakhand, ▪ Understand the link between migration and development, ▪ Develop a critical understanding of Uttarakhand government's policies towards migration and mitigation.
Elective	MSW-629	Gender and Development	<ul style="list-style-type: none"> ▪ To understand the social construction of gender, ▪ To develop gender perspectives in analyzing social realities, ▪ To understand gender and development approaches and strategies with specific reference to India.
Elective	MSW-630	Family and Child Welfare	<ul style="list-style-type: none"> ▪ To understand families as social systems and factors affecting family functioning, ▪ To comprehend the significance of child development and rights of children, ▪ To acquaint with the policies, programmes and services related to family and children, ▪ To develop skills of working with family systems and children.
Core	MSW-631	Project Work & VIVA VOCE	<ul style="list-style-type: none"> ▪ To develop a critical investigation and evaluation of a chosen research topic relevant to social issues and problems.

			<ul style="list-style-type: none">▪ Appropriately apply qualitative and/or quantitative evaluation processes to original data.▪ Appropriate apply various interventions and theories in relevant research topic.
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CURRICULUM OF ACADEMIC PROGRAMMES



School Of Social Sciences

MA (Anthropology)

DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

PO 1: To inculcate and spread the anthropological knowledge.

PO 2: To have comprehensive understanding of past, present and could predict about future directions of mankind.

PO 3: To produce the best human resource and make them a responsible citizen of Global village.

PO 4: To make them understand the nuances of conducting population-based fieldwork independently and collecting useful qualitative and quantitative data pertaining to their research work.

PO 5: To make them aware of ethical principles and right to privacy and data protection etc.

PROGRAM SPECIFIC OUTCOMES:

PSO 1: Students would have a reasonable level of theoretical and practical knowledge of advanced, electives they have opted for during the course in anthropology.

PSO 2: Student of anthropology would be able to relate all the core and elective courses with the overall understanding of the population and their relation with the socio-cultural environment of communities.

PSO 3: They should achieve efficiency in detecting the major socio-cultural problems of society/populations and would be able to give their research-based feedback.

PSO 4: Students should finally understand the importance of anthropological research in policy making and become an agent to improve the human life.

COURSE OUTCOMES:

First Semester

Course type	Course code	Course Title	Course outcome
Core	ANTH - 101	Social Anthropology	ANTH-101 CO1: Explain how socio-cultural Anthropology has developed as a discipline covering the different aspects of human life. ANTH-101 CO2: Explore some basic concepts in the analysis of socio-cultural systems. ANTH 101 CO3: Gain an in-depth understanding of the social institutions of marriage, family, kinship, ANTH-101 CO4: Understand the nature and functioning of religious, political, and economic institutions.
CORE	ANTH-102	Biological Anthropology	ANTH-102 CO1. Understand the meaning and scope of biological anthropology.

			<p>ANTH-102 CO2. Basic understanding of the human anatomy.</p> <p>ANTH-102 CO3. Familiar with the variation in primates and their behavior.</p> <p>.</p> <p>ANTH-102 CO4. Familiar with the basic principles of human evolution.</p>
CORE	ANTH-103	Indian Anthropology	<p>ANTH-103 CO1: Understand the Indian anthropology and its development and approaches in national character studies.</p> <p>.</p> <p>ANTH-103 CO2: Understanding of the traditional social institutions of Indian society in the context of continuity and change.</p> <p>ANTH-103 CO3: Understand the</p>
			<p>impacts of Culture-Contact, urbanization, and industrialization on Tribal and rural population.</p> <p>ANTH-103 CO4: Understand about the future directions of Anthropology viz- Anthropology of tourism, census, designing and fashion, visual anthropology, medical anthropology and importance of museums etc.</p>

CORE	ANTH- 104	Developmental Anthropology	<p>ANTH-104 CO1.Understand the basic concept of development and anthropological insights on development.</p> <p>ANTH-104 CO2. Understand the contribution of Anthropology to development, and its limitations.</p> <p>ANTH-104 CO3. Understanding the recent trends on development efforts in India.</p> <p>ANTH- 104 CO4. Understanding and analysing the indices and measurement of development; human development index etc.</p>
CORE	ANTH 105	Anthropometry (Practical)	<p>ANTH-105 CO1:This module will provide an understanding of human evolution and population variation.</p> <p>ANTH-105 CO2:This will focus on practical training in the applied areas of health sciences.</p> <p>ANTH-105 CO3: Understand the somatometry, somatoscopy, and craniometry.</p> <p>ANTH-105 CO4: Understanding about the different somatometric, somatoscopic, and craniometric indexes.</p>

Second Semester:-

Course type	Course code	Course title	Course outcome
CORE	ANTH-201	Prehistoric Anthropology	<p>ANTH-201 CO1: Understand basic concepts and terminology used in Prehistoric Archaeology.</p> <p>ANTH- 201 CO2:Understand the chronological and</p>

			<p>cultural determinants of Indian and European prehistory.</p> <p>ANTH-201 CO3: Understand the evolution of Indian settlements and other complex cultures and geological characteristics of India.</p> <p>ANTH-201 CO4:</p>
			<p>Knowledge about the new trends in archaeological anthropology.</p>
CORE	ANTH-202	Human Genetics	<p>ANTH-202 CO1: Basic understanding of human genetics.</p> <p>ANTH-202 CO2: Understand the genetic variations and used to assess genetic traits/diseases.</p> <p>ANTH-202 CO3: Understand the use of inheritance patterns and underlying genetic diseases.</p> <p>ANTH-202 CO4: Understand the structure and function of the human genome.</p>

CORE	ANTH-203	Applied Anthropology	<p>ANTH-203 CO1:Understand about the applied and action anthropology and various other fields in which anthropological knowledge can be applied.</p> <p>ANTH-203 CO2:Understanding the application</p>
			<p>of Anthropological knowledge for the welfare and development of vulnerable groups.</p> <p>ANTH-203 CO3:Understand the problem of tribal, backward class, and minority communities and their constitutional safeguards and remedies.</p> <p>ANTH-203 CO4:Understanding anthropology and public policy, assessment and community development, role of NGOs, environment and community health, social and economic sustainability, and cultural resource management.</p>

CORE	ANTH-204	Paleoanthropology	<p>ANTH-204 CO 1: Understand different chronological methods.</p> <p>ANTH-204 CO 2: Understand the methods of studying human evolution.</p> <p>ANTH- 204 CO 3: Characteristic of primates, comparative anatomy of man and apes.</p>
			<p>ANTH-204 CO 4: Familiar with the characteristics and distribution of early hominids.</p>
CORE	ANTH-205	Prehistoric Tools	<p>ANTH-205 CO 1: Understand the tools and typology.</p> <p>ANTH-205 CO 2: Identify the material culture and its comparative study.</p> <p>ANTH-205 CO 3: Understand the technological change during prehistoric period.</p>
CORE	ANTH-301(A)	Anthropological Theory & Thoughts	<p>ANTH-301(A) CO 1: Understand the theories and apply them in the context of contemporary social, economic, and political realities.</p>

			<p>ANTH-301(A) CO 2: Able to examine contemporary theoretical debates about and within anthropology.</p> <p>ANTH-301(A) CO 3: Critically analyze the process of Globalization and its effects on cultures around the world.</p>
			<p>ANTH-301(A) CO 4: Articulate an anthropological perspective on current issues and concerns.</p>

CORE	ANTH-302(A)	Tribal India	<p>ANTH-302(A) CO 1:Understand the concept and understand the nature and problems of the tribes.</p> <p>ANTH- 302(A) CO 2:Understand the contemporary issues and challenges faced by the tribal's in India due to displacement, marginalization, globalization.</p> <p>ANTH-302(A) CO 3:Analyse critically and plans the policies formulated for the welfare of tribes in India.</p> <p>ANTH-302(A) CO 4:Understand the ethnographic profiles of Uttarakhand tribes.</p>
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CORE	ANTH-303(A)	Material Culture and Museology (Practical)	<p>ANTH-303(A) CO 1: Understand different aspects of material culture in simple societies and cultural groups.</p> <p>ANTH-303(A) CO 2: Learned about different museums and specimens' preservation techniques.</p>
CORE	ANTH-301(B)	Human Growth and Development	<p>ANTH-301(B) CO 1: Understand the growth, maturation, and development.</p> <p>ANTH-301(B) CO 2: Understand the basic principles of human growth and development.</p> <p>ANTH-301(B) CO 3: Comprehend the significance of growth studies.</p> <p>ANTH-301(B) CO 4: Understand different methods studying human growth and development and nutritional status.</p>
CORE	ANTH-302(B)	Human Evolution and Variation	<p>ANTH-302(B) CO 1: Understand theories related to human evolution and variation.</p> <p>ANTH-302(B) CO 2: Understand the history of physical anthropology.</p> <p>ANTH-302(B) CO</p>

			<p>3: Understand about the relationship between non-human and human primates.</p> <p>ANTH-302(B) CO 4: Understanding about the measurements of human body.</p>
CORE	ANTH-303(B)	<p>Osteology, Serology and Dermatoglyphics.</p> <p>(Practical)</p>	<p>ANTH-303(B) CO 1: Understanding about the blood groups.</p> <p>ANTH-303(B) CO 2: Identification of blood groups.</p> <p>ANTH-303(B) CO 3: Understand the palm and fingerprints identification of forensic importance.</p>
ELECTIVE	ANTH-304	<p>Medical Anthropology</p>	<p>ANTH-304 CO 1: Understand the basic concepts of medical anthropology.</p> <p>ANTH-304 CO 2: Understand the cause of disease and illness in the society.</p> <p>ANTH-304 CO 3: Understand the traditional medical systems and the role of medical practitioners in society.</p> <p>ANTH-304 CO</p>

			4:Understand the healthcare system and health-affecting factors in society.
ELECTIVE	ANTH-305	Ecological Anthropology	ANTH-305 CO 1:Understanding of contemporary ecological issues and how they are shaped by social and cultural factors. ANTH-305 CO 2:Understanding of the important indigenous and alternative models of ecology for sustainable development and climate change. ANTH-305 CO 3: Understand the relationship between ecology and state formation.
ELECTIVE	ANTH-306	Anthropology in Disaster Management	ANTH-306 CO 1:Understand the concepts of disaster, different approaches and management strategies. ANTH-306 CO 2:Understanding the disaster affected areas to study human conditions and their problems for disaster

			<p>management.</p> <p>ANTH-306 CO 3: Understand disaster preparedness through the use of various warning systems.</p> <p>ANTH-306 CO 4: Understand and analyze the health, social, economic, and psychological impact of various disasters.</p>
ELECTIVE	ANTH-307	Anthropology in Indigenous Knowledge System	<p>ANTH-307 CO 1: Understanding the indigenous knowledge, Knowledge transfer, dissemination, and conservation.</p> <p>ANTH-307 CO 2: Understanding about the Indigenous knowledge of food, health and medicines.</p> <p>ANTH-307 CO 3: Understand the indigenous knowledge of community, caste and culture.</p> <p>ANTH-307 CO 4: Understand traditional and scientific basis of indigenous knowledge for human subsistence</p>

			and economy.
CORE	ANTH-401	Research Methods and Techniques	<p>ANTH-401 CO 1: Understand how to prepare questionnaire and schedule to collect information on a specific topic</p> <p>ANTH-401 CO 2: Understanding of how to draw the genealogical chart and also organize and take notes in a focus group discussion.</p> <p>ANTH-401 CO 3: Understand how to collect a life history and other data from the informant and analyse that to understand a given problem.</p> <p>ANTH-401 CO 4: Understanding of methods to undertake field-based research and prepare a report.</p>
CORE	ANTH-402	Dissertation and Seminar	<p>ANTH-402 CO 1: Understand the anthropological fieldworks.</p> <p>ANTH-402 CO 2: Understanding the use of various techniques of data collection.</p> <p>ANTH-402 CO 3: Understand how</p>

			<p>to analyze, interpret, and present the data.</p> <p>ANTH-402 CO 4: Writing the dissertation and prepared a report.</p>
ELECTIVE	ANTH-403(A)	Communication and Visual Anthropology	<p>ANTH-403(A) CO 1: Understand the theories of communication and various communication models.</p> <p>ANTH-403(A) CO 2: Understanding the visual anthropology and its scope.</p> <p>ANTH-403(A) CO 3: Understand about the theories of representation in visual media.</p> <p>ANTH-403(A) CO 4: Understand ethnographic films and photography.</p>
ELECTIVE	ANTH-404(A)	Linguistic Anthropology	<p>ANTH-404(A) CO 1: Understand uniqueness of human language, genetic basis of languages.</p> <p>ANTH-404(A) CO 2: Understanding the nature of language and ethnolinguistic groups.</p> <p>ANTH-404(A) CO 3: Understand the structural analysis</p>

			and linguistic features. AN TH-404(A) CO 4: Understanding of India as a linguistic area, linguistic features of Central and Western Pahari language.
ELECTIVE	AN TH-405(A)	Psychological Anthropology	AN TH-405(A) CO 1: Understand the cultural, evolutionary, and psychological key concepts of mind, body, and culture. AN TH-405(A) CO 2: Understanding human behavior and how it influenced by culture and other factors. AN TH-405(A) CO 3: Understand how identity, ethnicity, violence, and aggression are channelized and operate in society. AN TH-405(A) CO 4: Understanding motivate, learning, and un-learning and how they could be used for modification.
ELECTIVE	AN TH-406(A)	Anthropology in Gender and Society.	AN TH-406(A) CO 1: Understand the social construction of gender categories both historically and in

			<p>the present.</p> <p>ANTH-406(A) CO 2: Grasp on various theoretical perspectives which attempt to explain the ways in which society has organized "masculine" and "feminine" as the basis for social inequalities.</p> <p>ANTH-406(A) CO 3: Understanding of own experiences and media reports on gender issues in a theoretically and empirically.</p> <p>ANTH-406(A) CO 4: Understanding of the intersection of gender with ethnicity, caste, class, and disability.</p>
ELECTIVE	ANTH-403(B)	Forensic Anthropology	<p>ANTH-403(B) CO 1: Understand the scope and concepts of forensic anthropology.</p> <p>ANTH-403(B) CO 2: Understand the relevant methods used in forensic anthropology.</p> <p>ANTH-403(B) CO 3: Understand applications of forensic anthropology.</p> <p>ANTH-403(B) CO</p>

			4: Understanding the importance and significance of dermatoglyphics in criminal identification.
ELECTIVE	ANTH-404(B)	Human Cytogenetics	ANTH-404(B) CO 1: Understanding methods and techniques used in genetic data generation. ANTH-404(B) CO 2: Understand about genetics and the principles of human cytogenetics. ANTH-404(B) CO 3: Understand pattern and factors influencing inheritance. ANTH-404(B) CO 4: Understanding about the admixture in population structure, genetic engineering and counseling.
ELECTIVE	ANTH-405(B)	Human Population Study	ANTH-405(B) CO 1: Understand the effect of environment and eco-system on population structure. ANTH-405(B) CO 2: Understanding the population profile of India and its trends. ANTH-405(B) CO 3: Understand factors and

			consequences of human migrations. ANTH-405(B) CO 4: Understanding of occupational hazards on population process and population ethics.
ELECTIVE	ANTH-406(B)	Nutritional Anthropology	ANTH-406(B) CO 1: Understand the human diet and nutrition from an explicitly anthropological perspective. ANTH-406(B) CO 2: Understanding nutrition with special reference to evolutionary perspective. ANTH-406(B) CO 3: Understand the macro and micro components of nutrition and their interaction with immunity, and infection. ANTH-406(B) CO 4: Understand the bio-cultural perspective of nutrition and variations in contemporary food habits.

CURRICULUM OF ACADEMIC PROGRAMMES



School of Physical Sciences

MSc (Physics Integrated)



DOON UNIVERSITY

KEDARPUR, P.O.-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

The student should be able to acquire:

- 1.** A fundamental/systematic or coherent understanding of the academic field of Physics, its different learning areas and applications in basic Physics like Materials science, Nuclear and Particle Physics, Condensed matter Physics, Atomic and Molecular Physics, Mathematical Physics, Analytical dynamics, Bio Physics, and its linkages with related disciplinary areas/subjects like Chemistry, Mathematics, Environmental sciences, Computer science, Information Technology;
- 2.** Procedural knowledge that creates different types of professionals related to the disciplinary/subject area of Physics, including professionals engaged in research and development, teaching and government/public service;
 - Demonstrate the ability to use skills in Physics and its related areas of technology for formulating and tackling Physics-related problems.
 - Recognize the importance of mathematical modeling simulation and computing, and the role of approximation and mathematical approaches to describing the physical world.
 - Plan and execute Physics-related experiments or investigations, analyze and interpret data/information collected using appropriate methods, including the use of appropriate software such as programming languages and purpose-written packages.
 - Demonstrate relevant generic skills and global competencies such as
 - 1.** Problem-solving skills that are required to solve different types of Physics-related problems with well-defined solutions, and tackle open-ended problems that belong to the disciplinary area boundaries;
 - 2.** Investigative skills, including skills of independent investigation of Physics-related issues and problems, communication skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information.

PROGRAM SPECIFIC OUTCOMES:

- 1.** To understand the importance of experimental research and theoretical simulation.
- 2.** To teach the concepts of research and encourage the students for development in its advanced areas.
- 3.** To develop aptitude for further progress in technological and social terms within an academic and professional context.
- 4.** The capacity to device, design and conduct research that has real academic weight, is targeted and shows integrity.
- 5.** Build a solid foundation in physical sciences and other disciplines requiring quantitative techniques and enhancing their career prospects through success in competitive examinations.
- 6.** Satisfying standards associated with national and international peer-reviewed publications.
- 7.** Investigate and apply physical sciences solution in variety of contexts related to technology, business and industry.

First Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-101	Mathematical Physics I	<ol style="list-style-type: none"> 1. Determine limit, continuity and differentiability of various functions, expand functions in Taylor's series, binomial series. 2. Solve first order differential equations and second order differential equations with constant coefficients, and partial derivatives. 3. Explain the concepts of scalar and vector product of two and three vectors, explain the concepts of gradient, divergence and curl of physical quantities and determine their values. 4. Use of divergence and curl theorem's, determine line, surface and volume integrals. 5. Explain the concept of Dirac delta function and its properties
Core	PHC-102	Mechanics	<ol style="list-style-type: none"> 1. Students would have grasped the fundamentals of different types of frames of references and transformation laws. 2. Learned conservation laws of energy and linear and angular momentum and apply them to solve problems. 3. Learned the basics of potentials and fields, central forces and Kepler's laws. 4. Students develop understanding about Fundamental ideas of special theory of relativity such as length contraction and time dilation and mass-energy invariance. 5. Students develop ability to perform experiments and develop understanding about gravity, angular momentum, Moment of Inertia

			and elastic property. 6. Experimental demonstration of above discussed topics will help them to develop understanding of basic physics in their daily life.
Generic Elective	PHM-152	Mechanics, heats and oscillations	On successful completion of the course students will be able to 1. Learn about dimensional analysis. 2. Plot various functions. 3. Learn conservation laws of energy and linear and angular momentum and apply them to solve problems. 4. Develop understanding about gravity, angular momentum, Moment of Inertia and elastic property. First and second laws of thermodynamics, perfect gas law, properties of real gases, and the general energy equation for closed systems. 5. Learn the fundamentals of harmonic oscillator model, including damped and forced oscillators and grasp the significance of terms like quality factor and damping coefficient
Ability Enhancement Compulsory Course	EES-110	Environmental Science	

Second Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-151	Electricity and Magnetism	1. Explain and determine electric field and potential due various charge configuration. Explain gauss's law and use it to determine electric field.

			<p>2. Describe the concepts of Laplace's and Poisson's equations and Uniqueness theorem.</p> <p>3. Explain the concept of Capacitor's and use the method of images and determine potential due to various charge distributions.</p> <p>4. Explain the concept of magnetic fields, and determine field due to solenoid and toroid. Classified matter based on their magnetic properties.</p> <p>5. Explain the concept of electromagnetic induction, and its application in various electric instruments, describe various electric circuit and determine their reactance and impedance. Explain the concept and use of ballistic galvanometer. 6. Experimental demonstration of above discussed topics will help them to develop understanding of basic physics in their daily life.</p>
Core	PHC-152	Waves and Optics	<p>1. Describe examples of oscillating systems, describe superposition principle and its application in explaining beats and concepts of phase and group velocities.</p> <p>2. Explain Lissajous's Figure's and their use in determining frequency ratio of two signals.</p> <p>3. Explain wave motions, its components, its type, and able to write wave equation.</p> <p>4. Explain electromagnetic waves, principle of interference, diffraction and difference between them.</p>
Generic Elective	PHM-151	Introduction to Electromagnetic Theory	<p>Student should be able to</p> <ol style="list-style-type: none"> 1. Handle problems that are more complicated (electric field and potential due various charge configuration). 2. Understand and describe the concepts of Laplace's and Poisson's equations and Uniqueness theorem. 3. Explain the concept of Capacitor's and use the

			<p>method of images and determine potential due to various charge distributions</p> <ol style="list-style-type: none"> 4. Explain the concept of magnetic fields, and determine field due to solenoid and toroid. 5. Explain the concept of electromagnetic induction, and its applications. 6. Learn here mathematics will help them in their future courses like fluid dynamics that use similar mathematics.
Ability Enhancement Compulsory Course	Eng-151	(English/MIL Communication)	

Third Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-201	Mathematical Physics–II	<ol style="list-style-type: none"> 1. Fourier analysis of periodic functions and their applications in physical problems such as vibrating strings etc. 2. About the special functions, such as the Hermite polynomial, the Legendre polynomial, the Laguerre polynomial and Bessel functions and their differential equations and their applications in various physical problems such as in quantum mechanics which they will learn in future courses in detail. 3. About the beta, gamma and the error functions and their applications in doing integrations. 4. Acquire knowledge of methods to solve partial differential equations with the examples of important partial differential equations in Physics. 5. In the laboratory course, learn the basics of the Scilab software, their utility, advantages and disadvantages.

Core	PHC-202	Thermal Physics	<p>1. Become familiar with various thermodynamic process and work done in each of these process.</p> <p>2. Have a clear understanding about reversible and irreversible process and also working of a carnot engine, and knowledge of calculating change in entropy for various process.</p> <p>3. Realize the importance of thermos-dynamical functions and applications of maxwell's relations.</p> <p>4. Perform energy analysis of refrigeration and heat pump thermodynamic cycles.</p> <p>5. Become familiar with kinetic theory of gasses (behaviour of real gas).</p>
Core	PHC-203	Analog Systems and Applications	<p>1. Understand the n- and p- type semiconductors, mobility, drift velocity, fabrication of P-N junctions; forward and reverse biased junctions, unipolar junctions, Zener diode.</p> <p>2. Application of PN junctions in LED's, photodetectors, solarcells, rectifiers and voltage regulators.</p> <p>3. Bipolar npn and pnp junctions, transistors.</p> <p>4. Hybrid parameters.</p> <p>5. Biasing and equivalent circuits, coupled amplifiers and feedback in amplifiers and oscillators.</p> <p>6. Understand the operational amplifies and their applications as adder, differentiator, integrator etc. 7. To apply the concepts of theory in performing the experiments in the laboratory related to PN junction, transistors, Zener Diode and operational amplifiers.</p>
Generic Elective (GE)	PHG-203	Digital, Analog and Instrumentation	<p>After successful completion of the course, the student should be able to:</p> <ol style="list-style-type: none"> 1. Learn the difference between analog and digital systems. 2. Learn about digital circuits, logic gates,

			<p>Boolean algebra and various operation of digital systems</p> <ol style="list-style-type: none"> 3. Explain about semiconductor devices like PN junctions, transistors and amplifiers. 4. Understand about operational amplifiers and oscillators. 5. Describe about CRO and its working, various power supplies and, timer IC's.
Ability Enhancement Elective Course	PHS201/ PHS202	Electrical Circuit Network Skills/ Computational Physics Skills	<p>Students would achieve the ability to:</p> <ol style="list-style-type: none"> 1. Explain and apply the basic principles of electricity, electrical circuits and electrical drawings. 2. Understand the physics of generators, transformers, electric motors. 3. Learn about electrical wiring with assured electrical protection devices. 4. Understand the physics of solid state devices and their applications.

Fourth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-251	Mathematical Physics-III	<ol style="list-style-type: none"> 1. Demonstrate competence with the basic ideas of linear algebra including concepts of linear systems. 2. Use the method of Laplace transforms to solve initial-value problems for linear differential equations with coefficient. 3. Learn about the Fourier transform, the inverse Fourier transform, their properties and their applications in physical problems. They are also expected to learn the Laplace transform, the inverse Laplace transforms, their properties and their applications in solving physical problems. 4. In the laboratory course, the students should apply their C++/Scilab programming language to solve the following problems: (i) Solution

			<p>first- and second- order ordinary differential equations with appropriate boundary conditions, (ii) Evaluation of the Gaussian integrals, Evaluation of the Fourier coefficients of a given periodic function</p>
Core	PHC-252	Elements Modern Physics	<p>After the successful completion of the course the student is expected to be conversant with the following:</p> <ol style="list-style-type: none"> 1. Know main aspects of the inadequacies of classical mechanics and understand historical development of quantum mechanics and ability to discuss and interpret experiments that reveal the dual nature of matter. 2. Understand the theory of quantum measurements, wave packets and uncertainty principle of radioactive decays like alpha, beta, gamma decay. Neutrinos and its properties and role in theory of beta decay. 3. Understand fission and fusion well as nuclear processes to produce nuclear energy in nuclear reactor and stellar energy in stars. 4. Understand various interactions of electromagnetic radiation with matter. Electron positron pair creation
Core	PHC-253	Digital Systems and Applications	<p>After the successful completion of the course the student is expected to be conversant with the following:</p> <ol style="list-style-type: none"> 1. Basic working of an oscilloscope including its different components and to employ the same to study different wave forms and to measure voltage, current, frequency and phase. 2. Have a better idea of different components including both active and passive components to gain an insight into circuits using discrete components and also to learn about integrated circuits. 3. To learn about analog systems and digital

			<p>systems and their differences, fundamental logic gates, combinational as well as sequential and number systems.</p> <ol style="list-style-type: none"> Understand and solve Boolean functions, simplification and construction of digital n circuits by employing Boolean algebra. Sequential systems by choosing Flip Flop as a building block- construct multivibrators, counters to provide a basic idea about memory including RAM, ROM and also about memory organization. Experimentally, can construct the logic and combinational gates
Generic Elective	PHG-252	Elements of Modern Physics (Genetic Elective)	<p>Upon successful completion of this course, it is intended that a student will be able to:</p> <ol style="list-style-type: none"> Calculate the Wave amplitude and wave functions. Understand the concept of alpha decay and beta decay. Estimating semi-empirical mass formula and binding energy by liquid drop model.
Ability Enhancement Elective Course	PHS-252	Basic Instrumentation Skills	<p>Students would achieve the ability to:</p> <ol style="list-style-type: none"> To analyze and fit the experimental data. To estimate different kind of errors coming in data. To explain principle, theory and application of various sensors and transducers. To explain the basic principle and importance of the different AC and DC measurement techniques. To explain the concepts of signal conditioning and noise analysis.

Fifth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-301	Quantum	On successful completion of the course students

		Mechanics and Applications	<p>will be able to understand</p> <ol style="list-style-type: none"> 1. How to apply principles of quantum mechanics to calculate observables on known wave functions 2. How to solve time-dependent and time-independent Schrödinger equation for simple potentials 3. The structure and dynamics of atoms and simple molecules. 4. The interaction between atoms, molecules and electromagnetic fields. 5. Quantum mechanics formulation for Hydrogen atom.
Core	PHC-302	Electromagnetic Theory	<p>After successful completion of course, students should be able to</p> <ol style="list-style-type: none"> 1. Solve the problems of electrostatics and magnetism. 2. Should be able to learn and use the Maxwell's equations in possible applications. 3. Should understand properties of radiation and its interaction with the matter and the special theoretical effects. 4. Should understand the concept of polarization of electromagnetic waves.
Elective: Discipline Specific	PHD-306	Classical Dynamics	<p>Students would achieve the ability to:</p> <ol style="list-style-type: none"> 1. Define generalised coordinates, generalised velocities, generalised force and write Lagrangian for mechanical system in terms of generalised coordinates. 2. Gain the knowledge of Lagrangian and the Hamiltonian formulations of classical dynamics and their applications in appropriate physical problems. 3. Recapitulate and learn the special theory of relativity-postulates of the special theory of relativity, Lorentz transformations on space-time and other four vectors. 4. Explain the retarded potentials and derive potentials due to a moving charge, Lienard

			Wiechert potentials etc.
Elective: Discipline Specific	PHD-307	Nuclear and Particle Physics	On successful completion of the course students will be able to understand about <ol style="list-style-type: none"> 1. The nuclear forces, size, shape, density and constituent of nucleus and all its properties. 2. Interaction of various types of radiation with matter which they observe in their daily life. 3. Detecting methods, and instruments for different types of charged and neutral particle. 4. Bosonic, Fermionic and Elementary particles, their interactions and various decays.

Sixth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-351	Solid State Physics	<ol style="list-style-type: none"> 1. A brief idea about crystalline and amorphous substances, about lattice, unit cell, miller indices, reciprocal lattice, concept of Brillouin zones and diffraction of X-rays by crystalline materials. 2. Understanding of lattice vibrations, phonons and learning of Einstein and Debye theory of specific heat of solids. 3. Better understanding of magnetism (dia, para, ferro) and theories related to that. 4. Secured an understanding about the dielectric and ferroelectric properties of materials. 5. Understanding above the band theory of solids and must be able to differentiate insulators, conductors and semiconductors. 6. Understand the basic idea about superconductors and their classifications. 7. To carry out experiments based on the theory that they have learned to measure the magnetic susceptibility, dielectric constant, trace hysteresis loop. They will also employ to

			four probe methods to measure electrical conductivity and the hall set up to determine the hall coefficient of a semiconductor.
Core	PHC-352	Statistical Mechanics	<p>Students would achieve the ability to:</p> <ol style="list-style-type: none"> 1. Find the connection between statistics and thermodynamics. 2. Differentiate between different ensemble theories used to explain the behavior of the systems. 3. Differentiate between classical statistics and quantum statistics. 4. Explain the statistical behavior of ideal Bose and Fermi systems. 5. Apply the statistical distribution in real life problems and understand their problems.
Elective: Discipline Specific	PHD-312	Advanced Mathematical Physics	<p>After successful completion of the course, the students will:</p> <ol style="list-style-type: none"> 1. Learn the basic properties of the linear vector space such as linear dependence and independence of vectors, change of basis, isomorphism and homomorphism, linear transformations and their representation by matrices. 2. Learn the basic properties of matrices, different types of matrices viz., Hermitian, skew Hermitian, orthogonal and unitary matrices. 3. Students will learn to find eigen values and eigen vectors. 4. Understand basic properties tensors, their symmetric and antisymmetric nature, the Cartesian tensors, the general tensors, contravariant, covariant and mixed tensors and their transformation properties under coordinate transformations, physical examples of tensors such as moment of inertia tensor, energy momentum tensor, stress tensor, strain tensor etc. 5. In the laboratory course, the students are

			expected to solve the related problems using the Scilab/C++ computer language.
Elective: Discipline Specific	PHD-313	Bio Physics	<p>After successful completion of the course, the students will be able to understand about</p> <ol style="list-style-type: none"> 1. Biological structure and molecular forces. 2. Important role of heat transfer, thermodynamics, statistical mechanics and diffusion in biological domain. 3. Fluid dynamics and motion of bodies in fluid media. 4. Bioenergetics, molecular motors and light absorption of biomolecules 5. Biophysical phenomenon such as diffusion, establishment of membrane potential, bio impedance, and the electrical response of cells and organelles to external fields.

Seventh Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-401	Mathematical Physics	<ol style="list-style-type: none"> 1. After this course students are capable to use the applications of these methods in basic physics problems. 2. Explain the concepts of differential equations and special functions.
Core	PHC-402	Classical Mechanics	<ol style="list-style-type: none"> 1. Students will be able to try findings solution of a time evolution of state of a system employing Lagrangian and Hamiltonian approaches. 2. The students will be able to apply the Variational principles to real physical problems
Core	PHC-403	Electromagnetic Theory	<ol style="list-style-type: none"> 1. Students should be able to solve the problems of electrostatics and magnetism. 2. They should be able to learn and use the maxwell's equations in possible applications.

Core	PHC-404	Quantum mechanics I	<ol style="list-style-type: none"> 1. The students will be able to grasp the concepts of spin and angular momentum, as well as their quantization and addition rules. 2. The students will be familiar with various approximation methods applied to atomic, nuclear and solid-state physics.
Core	PHC-405	Electronics	<ol style="list-style-type: none"> 1. The basics of digital circuits and the Boolean algebra involved. 2. Basics knowledge of microprocessors and microcontrollers .
Core	PHC-406	Lab I	<ol style="list-style-type: none"> 1. Students will gain the knowledge of CRO for various applications. 2. Students will be able to perform logical operations using microprocessor .

Eighth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-451	Thermodynamics and Statistical Mechanics	<ol style="list-style-type: none"> 1. Students shall be able to learn the basics of thermodynamics and the required mathematical tools. 2. A treatise to the derivation of such phenomenon is presented on the basis of statistical mechanical analysis employing classical and quantum mechanics-based approaches.
Core	PHC-452	Quantum Mechanics II	<ol style="list-style-type: none"> 1. The students will be familiar with various approximation methods applied to atomic, nuclear and solid-state physics
Core	PHC-453	Solid State Physics	<ol style="list-style-type: none"> 1. The students shall be able to learn the concepts of lattice and crystals, long range 2. forces, X-ray diffraction, Vibrational analysis and concepts of phonons. 3. The quantum mechanical treatment of solids particularly focusing upon the study of the energy (states) as a function of spatial configuration of atoms.

Core	PHC-454	Atomic and molecular Physics	<ol style="list-style-type: none"> 1 Students shall be able to understand the basics of atomic spectroscopy such as quantum mechanical hypothesis of atomic spectra, L-S and J-J coupling schemes, Zeeman effect, Stark effect, X-ray spectra etc. 2 Student will learn the quantum behavior of atoms in external electric and magnetic fields; and become familiar with the working principle of laser.
Core	PHC-455	Computational Physics	<ol style="list-style-type: none"> 1. Students shall be able to learn a computer programming language and basics of computational methods in interpolation, root finding, differentiation, integration, eigenvalue determination, FFT, solution of differential equation etc.
Core	PHP-456	Lab II	<ol style="list-style-type: none"> 1. Students will learn and calculate the Hall coefficient, Hall angle, carrier concentration of Ge through Hall effect experiment. 2. concentration of Ge through Hall effect experiment. 3. Design and learn the circuit designing in the experimental lab through these.

Ninth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-501	Advanced Solid State Physics	<ol style="list-style-type: none"> 1 To grow their understanding about the quantitative hypotheses of energy levels, band gap computation based upon different approaches, 2 Understand the defects in crystals
Core	PHC-502	Nuclear and Particle Physics	<ol style="list-style-type: none"> 1. Students shall be able to learn the basics theories and phenomenon of nuclear physics and particle physics involving relativistic quantum theory, mesons and strange particles, basic quantum numbers, weak and strong interactions.
Discipline Specific Elective (DSE)	PHD-501	Optoelectronics I	<ol style="list-style-type: none"> 1. Students will be able to study the matter-radiation interaction, basics of Lasers, and optical resonance, properties of electromagnetic waves in cavity, LED, LD, Quantum dots, DBR lasers, different displays etc.

Discipline Specific Elective (DSE)	PHD-502	Optoelectronic sII	1. Students will be able to understand the basics of optical fibers and light propagation through it, fiber attenuation, Fiber fabrication, waveguides and nonlinear optical effects, SHG phenomenon and its applications.
Discipline Specific Elective (DSE)	PHD-503	Optoelectronic s III	1. Students will be able to learn the basics of holographic photography and holograms, holographic interferometry, optical data processing, Quantization of Analog signals, Multiplexing and the devices involved, system design and Rise time budget calculations.
Discipline Specific Elective (DSE)	PHD-504	Nanotechnology	1. Concept of Quantum confinement, 1D,2D, and 3D nanosystems with examples. 2. Different synthesis techniques including PVD and CVD systems along with the growth models.
Discipline Specific Elective (DSE)	PHD-505	Atomistic modelling and modulation	1. To know about molecular mechanics force fields, bond stretching, angle bending, Van der Waals interactions, pair potentials. 2. To learn and apply ab-initio methods and density function theory to calculate the structural and other parameters of a system.
Discipline Specific Elective (DSE)	PHD-506	BioPhysics	1. Solve qualitative and quantitative problems, using appropriate statistical mechanics and computing techniques. 2. Understand the mechanical and magnetic properties of biomaterials with the concepts of physics.
Discipline Specific Elective (DSE)	PHD-507	Computational Structural Biology	1. Characterize the role of structural biology in concurrent biomedical research. 2. Describe the functionality, advantages, and limitations of standard computing strategies used in processing of 3D structural data.
Generic Elective (GE)	PHE-501	Research Methodology	1. Develop understanding on various kinds of research, objectives of doing research, research process, research designs and sampling. 2. Understanding of research ethics
Core	PHC-504	Lab III	1. Students will be able to learn the various mathematical operations using Boolean functions using ALU. 2. The students will learn the designing of circuit

			using 555timer.
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Tenth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHP-551	Project	<ol style="list-style-type: none"> 1. Students will be able to gain in depth knowledge of the area of research. 2. Learn experimental synthesis of various materials for certain applications. 3. Learn various mathematical/ computational tools for theoretical studies. 4. Understand and learn the working of various characterization tools.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Physical Sciences

MSc (Physics)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

The postgraduates in Physics should

1. To have a coherent understanding and knowledge of basic and advanced concepts of the academic field of Physics.
2. To develop experimental skills by working on advanced systems along with theoretical and mathematical approaches to describing the physical world.
3. To demonstrate ability to think and analyze rationally with modern and scientific outlook and identify ethical issues related to one's work, avoid unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiarism.
4. To develop communication skills and writing skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information in a concise manner to different groups.
5. To Develop the skills to analyze the data and communicate their research work to any reputed journal.
6. To develop a national as well as international perspective for their career in the chosen field of the academic and research activities.

PROGRAM SPECIFIC OUTCOMES:

1. To understand the importance of experimental research and theoretical simulation.
2. To teach the concepts of research and encourage the students for development in its advanced areas.
3. To develop aptitude for further progress in technological and social terms within an academic and professional context.
4. The capacity to device, design and conduct research that has real academic weight, is targeted and shows integrity.
5. Build a solid foundation in physical sciences and other disciplines requiring quantitative techniques and enhancing their career prospects through success in competitive examinations.
6. Satisfying standards associated with national and international peer-reviewed publications.
7. Investigate and apply physical sciences solution in variety of contexts related to technology, business and industry.
8. Develop communication skills and writing skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information in a concise manner to different groups.

COURSE OUTCOMES:

First Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-401	Mathematical Physics	<ol style="list-style-type: none">1. After this course students are capable to use the applications of these methods in basic physics problems.2. Explain the concepts of differential equations and special functions.
Core	PHC-402	Classical Mechanics	<ol style="list-style-type: none">1. Students will be able to try finding solution of a time evolution of state of a system employing Lagrangian and Hamiltonian approaches.2. The students will be able to apply the Variational principles to real physical problems
Core	PHC-403	Electromagnetic Theory	<ol style="list-style-type: none">1. Students should be able to solve the problems of electrostatics and magnetism.2. They should be able to learn and use the maxwell's equations in possible applications.
Core	PHC-404	Quantum mechanics I	<ol style="list-style-type: none">1. The students will be able to grasp the concepts of spin and angular momentum, as well as their quantization and addition rules.2. The students will be familiar with various approximation methods applied to atomic, nuclear and solid-state physics.
Core	PHC-405	Electronics	<ol style="list-style-type: none">1. The basics of digital circuits and the Boolean algebra involved.2. Basics knowledge of microprocessors and microcontrollers .
Core	PHC-406	Lab I	<ol style="list-style-type: none">1. Students will gain the knowledge of CRO for various applications.2. Students will be able to perform logical operations using microprocessor .

Second Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-451	Thermodynamics and Statistical Mechanics	<ol style="list-style-type: none"> 1. Students shall be able to learn the basics of thermodynamics and the required mathematical tools. 2. A treatise to the derivation of such phenomenon is presented on the basis of statistical mechanical analysis employing classical and quantum mechanics-based approaches.
Core	PHC-452	Quantum Mechanics II	<ol style="list-style-type: none"> 1. The students will be familiar with various approximation methods applied to atomic, nuclear and solid-state physics
Core	PHC-453	Solid State Physics	<ol style="list-style-type: none"> 1. The students shall be able to learn the concepts of lattice and crystals, long range 2. forces, X-ray diffraction, Vibrational analysis and concepts of phonons. 3. The quantum mechanical treatment of solids particularly focusing upon the study of the energy (states) as a function of spatial configuration of atoms.
Core	PHC-454	Atomic and molecular Physics	<ol style="list-style-type: none"> 1. Students shall be able to understand the basics of atomic spectroscopy such as quantum mechanical hypothesis of atomic spectra, L-S and J-J coupling schemes, Zeeman effect, Stark effect, X-ray spectra etc. 2. Student will learn the quantum behavior of atoms in external electric and magnetic fields; and become familiar with the working

			principle of laser.
Core	PHC-455	Computational Physics	1. Students shall be able to learn a computer programming language and basics of computational methods in interpolation, root finding, differentiation, integration, eigenvalue determination, FFT, solution of differential equation etc .
Core	PHP-456	Lab II	1. Students will learn and calculate the Hall coefficient, Hall angle, carrier concentration of Ge through Hall effect experiment. 2. Design and learn the circuit designing in the experimental lab through these.

Third Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHC-501	Advanced Solid State Physics	1. To grow their understanding about the quantitative hypotheses of energy levels, band gap computation based upon different approaches, 2. Understand the defects in crystals
Core	PHC-502	Nuclear and Particle Physics	1. Students shall be able to learn the basics theories and phenomenon of nuclear physics and particle physics involving relativistic quantum theory, mesons and strange particles, basic quantum numbers, weak and strong interactions .
Discipline Specific Elective (DSE)	PHD-501	Optoelectronics I	1. Students will be able to study the matter-radiation interaction, basics of Lasers, and optical resonance, properties of electromagnetic waves in cavity, LED, LD, Quantum dots, DBR lasers, different displays etc.
Discipline Specific Elective (DSE)	PHD-502	Optoelectronics II	1. Students will be able to understand the basics of optical fibers and light propagation through it, fiber attenuation, Fiber fabrication, waveguides and nonlinear optical effects, SHG phenomenon

			and its applications.
Discipline Specific Elective (DSE)	PHD-503	Optoelectronics III	1. Students will be able to learn the basics of holographic photography and holograms, holographic interferometry, optical data processing, Quantization of Analog signals, Multiplexing and the devices involved, system design and Rise time budget calculations.
Discipline Specific Elective (DSE)	PHD-504	Nanotechnology	1. Concept of Quantum confinement, 1D, 2D, and 3D nanosystems with examples. 2. Different synthesis techniques including PVD and CVD systems along with the growth models.
Discipline Specific Elective (DSE)	PHD-505	Atomistic modelling and modulation	1. To know about molecular mechanics force fields, bond stretching, angle bending, Van der Waals interactions, pair potentials. 2. To learn and apply ab-initio methods and density function theory to calculate the structural and other parameters of a system.
Discipline Specific Elective (DSE)	PHD-506	BioPhysics	1. Solve qualitative and quantitative problems, using appropriate statistical mechanics and computing techniques. 2. Understand the mechanical and magnetic properties of biomaterials with the concepts of physics.
Discipline Specific Elective (DSE)	PHD-507	Computational Structural Biology	1. Characterize the role of structural biology in concurrent biomedical research. 2. Describe the functionality, advantages, and limitations of standard computing strategies used in processing of 3D structural data.
Generic Elective (GE)	PHE-501	Research Methodology	1. Develop understanding on various kinds of research, objectives of doing research, research process, research designs and sampling. 2. Understanding of research ethics
Core	PHC-504	Lab III	1. Students will be able to learn the various mathematical operations using Boolean functions using ALU. 2. The students will learn the designing of circuit

			using 555timer.
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Fourth Semester

Course Type	Course Code	Course Title	Course Outcomes
Core	PHP-551	Project	<ol style="list-style-type: none"> 1. Students will be able to gain in depth knowledge of the area of research. 2. Learn experimental synthesis of various materials for certain applications. 3. Learn various mathematical/ computational tools for theoretical studies. 4. Understand and learn the working of various characterization tools.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Physical Sciences PhD (Physics)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

The program develops in the student the ability:

1. To inculcate the concepts of research and encourage the students for research and development in the advanced areas of research.
2. the capacity to devise, design and conduct research that has real academic weight, is targeted and shows integrity.
3. To understand the importance of experimental research and theoretical simulation.
4. To make original and significant contributions to scientific knowledge base in their area of research.
5. To develop further the progress made in technological and social terms within an academic and professional context.
6. To satisfy standards associated with national and international peer-reviewed publications.
7. To emphasize the importance of Physics as the most important discipline for sustaining the existing industries and establishing new ones to create job opportunities at all levels of employment.
8. To develop human resource with a solid foundation in theoretical and experimental aspects as a preparation for career in academia and industry.

PROGRAM SPECIFIC OUTCOMES:

The PhD in Physics should be able to:

1. Have a coherent understanding and knowledge of basic and advanced concepts in core physics, maths, chemistry and current physics research topics.
2. Have the knowledge of the concepts, techniques, and literature associated with the student's specific research subfield (e.g., theoretical condensed matter physics, etc.).
3. Develop experimental skills by working on advanced systems and an ability to design and conduct original experiments along with theoretical and mathematical approaches to describe the physical world.
4. Develop an ability to work collaboratively with their group and able to teach and mentor others effectively.
5. Demonstrate ability to think and analyze rationally with modern and scientific outlook and identify ethical issues related to one's work, avoid unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiarism.
6. Develop communication skills and writing skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information in a concise manner to different groups.
7. Develop an ability to involve in a productive research and academic career, including publications, proposal submission and conference presentations.
8. Develop a national as well as international perspective for their career in the chosen field of the academic and research activities.
9. Develop an ability to identify important scientific problems and to use modern experimental, and computational techniques to solve scientifically and societally relevant problems.

COURSE OUTCOMES:

First Semester

Course Type	Course Code	Course Title	Course Outcomes
Pre Ph.D.	PHS-701	Research Methodology	<ol style="list-style-type: none">1. Acquaint the students about the principles and types of researches.2. Examine the various methods of data collection, research tools and techniques of research.3. Develop understanding on various kinds of research, objectives of doing research, research process, research designs and sampling.4. Make the students aware about the theory construction Impart knowledge about programme evaluation and use of computer in research and evaluation.5. Ability to define problems and select the journals for publishing research work.
Pre Ph.D.	PHC-701	Advanced Solid State Physics	<p>Students shall be able</p> <ol style="list-style-type: none">1. To grow their understanding about the quantitative hypotheses of energy levels, band gap computation based upon different approaches,2. Understand the defects in crystals, magnetic properties, superconductivity and superfluidity.3. Explain the concept of energy bands and effect of the same on electrical properties.
Pre Ph.D.	PHC-702	Advanced Computational Physics	<ol style="list-style-type: none">1. Students shall be able to learn a computer programming language and basics of computational methods in interpolation, root finding, differentiation, integration, eigenvalue determination, FFT, solution of differential equation etc.2. They will apply the computational methods

			<p>in more applied computing case studies such as Monte Carlo methods, molecular dynamics, Ising model etc.</p> <p>3. An introduction to the parallel computation is covered in this course.</p>
Pre Ph.D.	PHC-703	Characterization of Materials	<p>1. The students will learn the theoretical principles of ERD, Neutron Diffraction, X-ray absorption, Electron diffraction, AFM, STM AES, ESCA, Raman spectroscopy UV vis etc.</p> <p>2. They will be given a project to learn one or more of such techniques in more details.</p> <p>3. The students will be able to relate the learned techniques in their Ph D work.</p>
Pre Ph.D.	PHC-704	Advanced Mathematical Physics	<p>1. The students will learn more details of partial differential equation, Group theory applied in crystallography and high energy physics, basics of tensors, basic statistics tools and Integral equations.</p>
Pre Ph.D.	PHC-705	Atomistic Modelling and Simulations	<p>1. The students will learn the basics of molecular modeling, density functional theory and Monte Carlo methods</p>
Pre Ph.D.	PHC-706	Nanotechnology	<p>After the successful completion of the course, the student will learn the following:</p> <p>1. Concept of Quantum confinement, 1D, 2D, and 3D nano-systems with examples.</p> <p>2. The students will be able to learn the properties of low-dimensional materials, the theoretical concepts involved and various physiochemical properties as depending upon the dimensionality.</p> <p>3. Different synthesis techniques including PVD and CVD systems along with the growth models.</p> <p>4. Characterization of nanostructured materials using X-ray diffraction, electron microscopy, Atomic Force Microscopy and Scanning Tunnelling Microscopy.</p> <p>5. Physical, electronic, magnetic, and optical properties of nanostructured materials.</p>

Pre Ph.D.	PHC-707	Research Review	<ol style="list-style-type: none"> 1. Identify and understand assumptions and arguments that exist in the national and international literature in the identified area of work/topic. 2. Evaluate and synthesize evidence in order to draw conclusions based on research gaps. 3. Ask meaningful questions and originate plausible research and technical gaps and the implications of the expected outcomes.
Pre Ph.D.	PHC-708	Applied Electrodynamics	<p>Student Should be able to explain</p> <ol style="list-style-type: none"> 1. Various conservation laws in electrodynamics, concepts of Maxwell's equations and electromagnetic waves. 2. Explain wave propagation in bounded medium, wave dispersion, group, and phase velocity. 3. Explain the concept of plasma and wave propagation in the magnetized and non-magnetized plasma.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Physical Sciences MSc (Integrated Chemistry)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

Programme Outcomes, Programme Specific Outcome and course outcomes of Chemistry Department

MSc (Integrated Chemistry)

PROGRAM OUTCOMES:

- PO1. To promote understanding of basic and advanced concepts in chemical sciences.
- PO2. To appreciate the achievements in chemistry and to know the role of chemistry in nature and society.
- PO3. To prepare the students for choosing careers in chemistry and related areas with strong scientific depth and temperament.
- PO4. To develop the skill in practical work, proper handling of equipment, along with collection and interpretation of scientific data.
- PO5. To develop the ability to apply the knowledge acquired in the classroom and laboratories to specific problems in theoretical and experimental Chemistry.

PROGRAM SPECIFIC OUTCOMES:

- Students will have a firm foundation in the fundamentals and application of current chemical and basic science including those in Physical, Organic, Inorganic, Analytical and Biochemistry.
- Students will be able to seek new knowledge, skills and manage relevant information from various sources.
- Students will be trained to work effectively and safely in the laboratory environment independently as well as in teams.
- Students will be able to design and carry out scientific experiments as well as accurately draw logical inferences from the results of such experiments.

FIRST SEMESTER

Course Type	Course Code	Course Title	Course Outcome: <i>After completing the course, the students will be able to understand:</i>
Core	CYC-101	Inorg. Chem. I: Atomic Structure & Chemical Bonding	[CO.1] Atomic structure of elements, and various related principles and rules [CO.2] Periodic properties of elements [CO.3] Different types of chemical bonds including ionic bond, covalent bond, metallic bond and weak chemical forces [CO.4] Redox reactions and applications of electrode potential
Core	CYL-101	Titrimetric Analysis Lab	[CO.1] To prepare solutions of different molarity/normality of titrants [CO.2] To carry out titrimetric analysis [CO.3] To carry out acid-base titrations [CO.3] To perform oxidation-reduction titrimetric experiments
Core	CYC-102	Phys. Chem. I: States of Matter & Ionic Equilibrium	[CO.1] Kinetic molecular model of a gas, Maxwell distribution and its use in evaluating molecular velocities, Behaviour of real gases, van der Waals equation of state and critical state of gases [CO.2] Physical properties of liquids; vapour pressure, surface tension and cleansing action of soaps and surfactants [CO.3] Nature of the solid state, elementary ideas of symmetry, symmetry elements and symmetry operations, defects in crystal structure X-ray diffraction and its application in crystal structure analysis [CO.4] Types of electrolytes, pH, buffers and buffer action and their applications in biochemical processes, acid base volumetric titrations
Core	CYL-102	Physicochemical Analysis Lab	[CO.1] To measure viscosity and surface tension of solutions using experimental techniques [CO.2] To prepare different pH buffers [CO.3] To determine different chemical properties of acids and bases.
*Generic Elective	CYG-101	<i>Generic Chem.:</i> Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	[CO.1] Atomic structure, quantum mechanics, Schrodinger equation and various related principles and rules [CO.2] Periodic properties of elements [CO.3] Different types of chemical bonds including ionic bond, covalent bond, VSEPR theory, hybridization, molecular orbital theory, metallic bond and weak chemical forces [CO.4] Fundamentals of organic chemistry including (i) physical effects and electronic displacements, (ii) structure, shape and reactivity of organic molecules and (iii) strengths of organic acids and bases [CO.5] Methods of preparation and chemical properties of alkanes, alkenes and alkynes [CO.6] Basic concepts of stereochemistry

*Generic Elective	GCL-101	Inorganic and Organic Chemical Analysis Lab	<p>[CO.1] To perform volumetric analysis using acid-base titrations and oxidation-reduction titrimetric experiments</p> <p>[CO.2] To detect extra elements (N, S, Cl, Br, I) in organic compounds</p> <p>[CO.3] To separate the mixtures of organic compounds using chromatography, and also to measure the R_f value.</p>
**AECC	EES-110	Environmental Science	[CO.1] Environmental science and its significance as well as relevance in context of human life

SECOND SEMESTER

Course Type	Course Code	Course Title	Course Outcome (After completing the course ,students will be able to understand:)
Core	CYC-151	Org. Chem. I: Basics and Hydrocarbons	<p>[CO.1] Nomenclature, shape, and geometry of molecules</p> <p>[CO.2] Various electronic effects that influence acidic or basic properties of molecules.</p> <p>[CO.3] Electronic properties of various organic intermediates, their generation and reactivity.</p> <p>[CO.4] Basic concepts of nucleophilic substitution, elimination and addition reactions.</p> <p>[CO.5] Formation of carbon-carbon single bonds, double bonds and triple bonds.</p> <p>[CO.6] Conformations of alkanes and cycloalkanes,</p> <p>[CO.7] Basic concepts of stereochemistry and aromaticity.</p>
Core	CYL-151	Organic Compounds Purification Lab	<p>[CO.1] To purify the organic compounds by crystallization technique</p> <p>[CO.2] To determine the melting points and boiling points of unknown organic compounds</p> <p>[CO.3] To separate the mixture of organic compounds using chromatography</p>
Core	CYC-152	Phys. Chem. II: Chemical Thermodynamics and its Applications	<p>[CO.1] The laws of thermodynamics</p> <p>[CO.2] Chemical potential of an ideal mixture</p> <p>[CO.3] Thermodynamic equilibrium and spontaneous reactions</p> <p>[CO.4] Colligative properties of solutions and their applications in determination of molar masses</p>
Core	CYL-152	Thermo chemistry Lab	<p>[CO.1] To experimentally determine the various thermodynamic and kinetic parameters of different chemical reactions</p>

*Generic Elective	CYG-151	Generic Chem.: Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I	[CO.1] Thermodynamics and its Laws, important principles and definitions of thermo chemistry [CO.2] Important concepts of chemical equilibrium and ionic equilibrium [CO.3] Methods of preparation and chemical properties of aromatic hydrocarbons, alkyl halides, aryl halides, alcohols, phenols, ethers, aldehydes and ketones
*Generic Elective	GCL-151	Basic Physical and Organic Chemistry Lab	[CO.1] To determine the heat capacity of calorimeter [CO.2] To determine the enthalpies of different types of chemical reactions (such as neutralization, ionization and hydration) [CO.3] To measure the pH of different solutions using pH-meter, and to prepare buffer solutions [CO.4] To purify organic compounds by crystallization and to determine their melting and boiling points. [CO.5] To prepare some organic compounds using simple one or two-step reactions.
**AECC	ENG-151	English	[CO.1] Reading, Writing and Speaking in English
			<i>*Generic Elective Course: The students are at liberty to choose this combination of theory and lab course or some other combination from the list of Generic Elective Courses (Table 1). **AECC: Ability Enhancement Compulsory Course</i>

THIRD SEMESTER

Course Type	Course Code	Course Title	Course Outcome (After completing the course, students will be able to understand:)
Core	CYC201	Inorg. Chem. II : <i>s</i> - and <i>p</i> -Block Elements	[CO.1] General principles of metallurgy [CO.2] Different concepts and classification of acids and bases [CO.3] Chemistry of compounds of <i>s</i> - and <i>p</i> -block elements [CO.4] Chemistry of noble gases and their compounds such as fluorides of xenon [CO.5] Synthesis, structural aspects and applications of inorganic polymers including silicones, siloxanes, borazines, silicates and phosphazenes, and polysulphates.
Core	CYL-201	Quantitative Inorganic Analysis and Synthesis Lab	[CO.1] To carry out quantitative estimations using iodo / iodimetric titrations [CO.2] To prepare or synthesize inorganic compounds such as cuprous chloride, manganese(III) phosphate, and Potash alum or chrome alum.
Core	CYC-202	Phys. Chem. III: Phase Equilibrium and Chemical Kinetics	[CO.1] Concept of phases and phase diagram of one component system and the application of phase diagram. [CO.2] Kinetics of reactions and experimental methods of determining rates of reactions. [CO.3] Types of catalysis and mechanisms of different catalysed reactions [CO.4] Types of adsorptions and the adsorption isotherms and their applications.
Core	CYL-202	Chemical Kinetics Lab	[CO.1] Plot phase diagram of a three-component system and its application [CO.2] Get familiar with the applications of

			<p>distribution law</p> <p>[CO.3] Apply different method to monitor and understand kinetics of chemical reactions</p> <p>[CO.4] Get familiar with the concept of adsorption and adsorption isotherm and their applications</p>
Core	CYC-203	Org. Chem. II: Oxygen Containing Functional Groups	<p>[CO.1] Methods of preparation and reactions of alkyl and aryl halides.</p> <p>[CO.2] Relative reactivity of alkyl, aryl, and vinyl halides towards nucleophilic substitution reactions.</p> <p>[CO.3] Methods of preparation and reactions of alcohols, phenols, ethers and epoxides.</p> <p>[CO.4] Structure, reactivity and preparation of carbonyl compounds.</p> <p>[CO.5] Preparation and reactions of carboxylic compounds, acid chlorides, anhydrides, esters and amides.</p>
Core	CYL-203	Basic Organic Synthesis Lab	<p>[CO.1] To identify the functional group (such as alcohols, phenols, carbonyl and carboxylic acid group) in organic compound by performing chemical tests</p> <p>[CO.2] To prepare and synthesize organic compounds by performing reactions (such as acetylation, benzylation, oxidation of ethanol/ isopropanol (iodoform reaction), bromination, nitration, selective reduction, hydrolysis, aldol condensation and benzil-benzilic acid rearrangement</p> <p>[CO.3] To experimentally generate the nucleophile from substituted thiophenol(s) and use it in nucleophilic substitution reaction</p>
*SEC	CYS-201	Skill Enhancement Course: Fuel Chemistry	<p>[CO.1] Renewable and non-renewable sources of energy, different types of fuels and their calorific values</p> <p>[CO.2] Uses of coal (fuel and nonfuel) in various industries, its composition, carbonization of coal.</p>

			<p>[CO.3] Coal gas, producer gas and water gas—composition and uses.</p> <p>[CO.4] Petroleum, petrochemical industry, different types of petroleum products and their applications.</p> <p>[CO.5] Lubricants and their classification, properties of lubricants (viscosity index, cloud point, pore point) and their determination.</p>
**GE	CYG–201	Generic Chem.: Chemistry of <i>s</i> - and <i>p</i> -Block Elements, States of Matter and Chemical Kinetics	<p>[CO.1] General principles of metallurgy, and methods of purification of metals</p> <p>[CO.2] Chemistry of <i>s</i> and <i>p</i> block elements and their compounds including hydrides of nitrogen, oxoacids of P, S and Cl and halides and oxohalides</p> <p>[CO.3] Kinetic theory of gases</p> <p>[Co.4] Surface tension and viscosity of liquids</p> <p>[CO.5] Chemical kinetics including the concepts of the reaction rates and the theories of reaction rates</p>
**GE	GCL–201:	Basic Physical and Inorganic Chemistry Lab	<p>[CO.1] To perform semi-micro qualitative analysis for identifying cations and anions</p> <p>[CO.2] To measure the surface tension and viscosity of liquids</p> <p>[CO.3] To study the kinetics of the chemical reactions</p>

**SEC (Skill Enhancement Course): The students are at liberty to choose this course or some other course from the list of SECs (Skill Enhancement Courses) given in Table 2 at succeeding pages.*

***Generic Elective Course: The students are at liberty to choose this combination of theory and lab course or some other combination from the list of Generic Elective (GE) Courses given in Table 1 at succeeding pages.*

FOURTH SEMESTER

Course Type	Course Code	Course Title	After completing the course, students will be able to understand:
Core	CYC-251	<i>Inorg. Chem. III:</i> Coordination Chemistry	<p>[CO.1] IUPAC nomenclature, isomerism, stereochemistry and various theories of coordination compounds.</p> <p>[CO.2] General properties of transition elements, stability of different oxidation states of elements, chemistry of Ti, V, Cr Mn, Fe and Co in various oxidation states</p> <p>[CO.3] Properties of Lanthanoids and Actinoids</p> <p>[CO.4] Chemistry of metal ions present in biological systems</p>
Core	CYL-251	Inorganic Preparation, Separation and Gravimetric Analysis Lab	<p>[CO.1] To carry out gravimetric analysis for quantitative estimation of different metals such as nickel, copper, iron and aluminium.</p> <p>[CO.2] To prepare and synthesize inorganic coordination compounds such as tetraamminecopper (II) sulphate, $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4 \cdot \text{H}_2\text{O}$, <i>cis</i> and <i>trans</i> Potassium dioxalatodiaquachromate (III), tetraamminecarbonato-cobalt (III) ion and potassium tris(oxalate)ferrate(III)</p> <p>[CO.3] To learn the principles involved in chromatographic separations of metal ions and to separate the metal ions using paper chromatographic technique.</p>
Core	CYC-252	<i>Org. Chem. III:</i> Heterocyclic Chemistry	<p>[CO.1] Various organic compounds having nitrogen containing functional groups.</p> <p>[CO.2] Reactivity and basicity of alkyl and aryl amines. The difference between nucleophilic and basic amines.</p> <p>[CO.3] Structure and reactions of polynuclear hydrocarbons such as naphthalene,</p>

			<p>phenanthrene and anthracene.</p> <p>[CO.4] Classification, nomenclature, and named synthesis of various heterocyclic compounds.</p> <p>[CO.5] Natural occurrence, classification, synthesis and medicinal properties of alkaloids and terpenes.</p>
Core	CYL-252	Organic Qualitative Analysis Lab	<p>[CO.1] To detect extra elements in organic compounds</p> <p>[CO.2] To identify the functional groups (such as nitro, amine and amide) in the organic compounds by performing the chemical tests.</p> <p>[CO.3] To carry out the qualitative analysis of unknown organic compounds</p> <p>[CO.4] To carry out the chemical reactions between amines and carbonyl compounds</p>
Core	CYC-253	<i>Phys. Chem. IV:</i> Electrochemistry	<p>[CO.1] Concept of conductivity in electrolytes and dilute solutions</p> <p>[CO.2] Ionic velocities and ion mobility and methods of their determination</p> <p>[CO.3] Different thermodynamic parameters for chemical reactions, comprehend the redox processes in electrochemical systems</p> <p>[CO.4] Applications of conductance measurement</p> <p>[CO.5] Laws of electrochemistry and their applications</p> <p>[CO.6] Chemical cells and applications of EMF measurements</p>
Core	CYL-253	Electrochemistry Lab	<p>[CO.1] To measure the conductance of the electrolytes using electroanalytical methods namely conductometry and potentiometry methods</p> <p>[CO.2] To handle the electroanalytical techniques and explore their applications</p>
*SEC	CYS-255	<i>Skill Enhancement Course:</i> Chemistry of Cosmetics and Perfumes	<p>[CO.1] Preparation and uses of (i) hair dye, (ii) hair spray, (iii) shampoo, (iv) suntan lotions, (v) face powder, (vi) lipsticks, (vii) talcum powder, (viii) nail enamel, (ix) creams, (x)</p>

			<p>antiperspirants and artificial flavours.</p> <p>[CO.2] Essential oils (such as eugenol, geraniol, sandalwood oil, eucalyptus, rose oil, 2-phenyl ethyl alcohol, jasmone, civetone, muscone and their importance in cosmetic industries.</p> <p>[CO.3] To perform experiments in the laboratory for preparing (i) talcum powder, (ii) shampoo, (iii) enamels, (iv) hair remover, (v) face cream, and (vi) nail polish and nail polish remover.</p>
**GE	CYG-252	<p><i>Generic Chem.:</i> Organometallics, Bioinorganic Chemistry, Polynuclear Hydrocarbons and UV, IR Spectroscopy</p>	<p>[CO.1] Chemistry of transition metals of 3d series</p> <p>[CO.2] Organometallic compounds and their classification, structural aspects of methyl lithium, Zeiss salt and ferrocene</p> <p>[CO.3] Preparation, structure, properties and bonding of mononuclear and polynuclear metal carbonyls of 3d series</p> <p>[CO.4] Bioinorganic chemistry, and metal ions in biological systems</p> <p>[CO.5] Fundamentals of UV-Vis and IR spectroscopy</p> <p>[CO.6] Use of UV-Vis and IR spectra in qualitative analysis and structural elucidation of organic compounds</p> <p>[CO.7] Methods of preparation and chemical properties of active methylene compounds and polynuclear and heteronuclear aromatic compounds</p>
**GE	GCL-252	<p>Inorganic and Organic Synthesis and Qualitative Analysis Lab</p>	<p>[CO.1] To separation of mixtures of inorganic ions using paper chromatographic techniques and measure the <i>R_f</i> value</p> <p>[CO.2] To prepare and synthesize inorganic coordination compounds [such as tetraamminecarbonatocobalt (III) nitrate, tetraamminecopper (II) sulphate and potassium trioxalatoferrate (III) trihydrate], and measure their conductivity.</p> <p>[CO.3] To carry out qualitative analysis of simple monofunctional organic compounds having only one functional group</p>

			[CO.4] To prepare and synthesize the simple organic compounds having only one functional group (such as -COOH, phenolic, aldehydic, ketonic, amide, nitro, amines)
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**SEC (Skill Enhancement Course): The students are at liberty to choose this course or some other course from the list of SECs (Skill Enhancement Courses).*

***Generic Elective Course: The students are at liberty to choose this combination of theory and lab course or some other combination from the list of Generic Elective (GE) Courses.*

FIFTH SEMESTER

Course Type	Course Code	Course Title	Course Outcome: After completing the course, students will be able to understand:
Core	CYC-301	Org. Chem. IV: Biomolecules	<p>[CO.1] Structures of genetic material DNA and RNA, the constituting nucleo bases, nucleotides and their synthesis.</p> <p>[CO.2] Structure and classification of amino acids. Synthesis of peptides and methods for analysing amino acids sequences.</p> <p>[CO.3] Classification and mechanism of enzymes. Factors influencing enzyme's activity, enzyme inhibitors and their importance.</p> <p>[CO.4] Classification and importance of fats, oil and lipids.</p> <p>[CO.5] Food metabolism, process of conversion of food into energy and use of energy in the synthesis of complex biomolecules.</p> <p>[CO.6] Structure, synthesis and medicinal importance of some pharmaceutical compounds.</p>
Core	CYL-301	Biochemistry Lab	<p>[CO.1] To carry out the experiments for the estimation of glycine by Sorenson's formalin method, and also to study the titration curve of glycine.</p> <p>[CO.2] To carry out the estimation of proteins using Lowry's method.</p> <p>[CO.3] To study the action of salivary amylase on starch, and the effect of temperature on such action</p> <p>[CO.4] To determine the saponification value of an oil or a fat.</p> <p>[CO.5] To determine the iodine number of an oil/ fat.</p> <p>[CO.6] To isolate and characterize the DNA from onion/ cauliflower/peas.</p>

Core	CYC-302	Phys. Chem.V: Quantum Chemistry & Spectroscopy	<p>[CO.1] Schrodinger equation for a particle in a box and quantum chemical description.</p> <p>[CO.2] Electronic and Hamiltonian operators for molecules.</p> <p>[CO.3] Quantum chemical description of angular momentum and term symbols for a one and many-electron systems.</p> <p>[CO.4] LCAO-MO treatment for H₂ molecule, Born-Oppenheimer approximation.</p> <p>[CO.5] Interaction of electromagnetic radiation with molecules and various types of spectra and their principles.</p> <p>[CO.6] Laws of photochemistry and concept of photochemical reactions and their role in biochemical processes.</p>
Core	CYL-302	Spectroscopic Analysis Lab	<p>[CO.1] Record and interpret UV-Vis Spectra of common chemicals</p> <p>[CO.2] Apply the electronic spectroscopy in studying the kinetics of the reactions</p>
*DSE	CYD-302	Polymer Chemistry	<p>CO.1] History, classification and nomenclature of polymers.</p> <p>[CO.2] Molecular forces and chemical bonding in polymers, and texture of polymers.</p> <p>[CO.3] Criteria for synthetic polymer formation and classification of polymerization processes, Relationships between functionality</p> <p>[CO.4] Mechanism and kinetics of step growth, radical chain growth, ionic chain and coordination polymerizations.</p> <p>[CO.5] Mechanism and kinetics of copolymerization and polymerization techniques.</p> <p>[CO.6] Crystallization and crystallinity of polymers</p> <p>[CO.7] Structure property relationships in polymers</p> <p>[CO.8] Determination of molecular weights and glass transition temperature of polymers</p> <p>[CO.9] Physical, thermal, flow & mechanical properties of polymers</p>
*DSE	DCL-302:	Polymer Chemistry Lab	[CO.1] To carry out various polymerization reactions such as free radical solution

			<p>polymerization, redox polymerization, and precipitation polymerization, and microscale emulsion polymerization</p> <p>[CO.2] To prepare and synthesize simple polymers such as nylon 66/6, polyester, urea-formaldehyde resin, novalac resin/resold resin and poly(methylacrylate).</p> <p>[CO.3] To characterize the polymers by determining the molecular weight using different methods such as viscometry, and end group analysis.</p> <p>[CO.4] To test the mechanical properties of polymers.</p> <p>[CO.5] To analyse the polymers using instrumental techniques</p>
*DSE	CYD-352	Research Methodology for Chemistry	<p>O.1] Printed sources of information for literature survey, digital sources of information for literature survey, and information technology and library resources</p> <p>[CO.2] Methods of scientific research and writing scientific papers, writing ethics, and avoiding plagiarism.</p> <p>[CO.3] Chemical safety and ethical handling of chemicals, safe storage and use of hazardous chemicals, procedure for working with substances that pose hazards, flammable or explosive hazards.</p> <p>[CO.4] Data analysis, the investigative approach, and analysis and presentation of data</p> <p>[CO.5] Basic fundamentals of electronic circuits and their components used in circuits of common instruments like spectrophotometers.</p>

**DSE: Discipline Specific Elective. This course is chosen by the students from the list of Discipline Specific Elective (DSE) Courses.*

SIXTH SEMESTER

Course Type	Course Code	Course Title	Course Outcome: <i>After completing the course, students will be able to understand:</i>
Core	CYC-351	<i>Inorg. Chem. IV:</i> Organometallic Chemistry	<p>[CO.1] Basic principles involved in analysis of cations and anions (including solubility products and common ion effect).</p> <p>[CO.2] Principles involved in separation of cations</p> <p>[CO.3] Interfering anions (fluoride, borate, etc)</p> <p>[CO.3] Organometallic compounds, their definition, their classification, 18 electron rule, EAN rule, hapticity of ligands</p> <p>[CO.4] Organometallic compounds (<i>viz.</i> Zeise salt, metal alkyls and ferrocene) and their properties</p> <p>[CO.5] Reaction kinetics and mechanism of substitution reactions in octahedral complexes and square planar complexes</p> <p>[CO.6] Applications of organometallic compounds as catalysts in different industrial processes</p>
Core	CYL-351	Inorganic Synthesis and Qualitative Analysis Lab	<p>[CO.1] To perform qualitative semimicro-analysis of mixtures containing inorganic anions and cations.</p> <p>[CO.2] To use spectrophotometric method for the measurement of 10 Dq.</p> <p>[CO.3] To verify the spectrochemical series.</p> <p>[CO.4] To carry out controlled synthesis of two copper oxalate hydrate complexes on the basis of kinetic versus thermodynamic factors.</p> <p>[CO.5] To prepare and synthesize acetylacetonato complexes of copper or iron</p>

			and find out their λ_{max} value experimentally. [CO.6] To prepare and synthesize the ammine complexes of metal (such as nickel) and perform its ligand exchange reactions by substitution method.
Core	CYC-352	Org. Chem. V: Carbohydrates, Dyes, Polymers and Basics of Organic Spectroscopy	[CO.1] Fundamentals of UV-Vis, IR and NMR spectroscopy. [CO.2] Use of UV-Vis, IR and NMR spectra in qualitative analysis and structural elucidation of organic compounds [CO.3] Nomenclature, classification and synthesis of carbohydrates. [CO.4] How to draw structures of carbohydrates in different projections and their inter-conversion. [CO.5] Classification, colour, constituents and synthesis of different dyes. [CO.5] Polymers, their classification, methods of their preparation and their uses.
Core	CYL-352	Organic Synthesis and Qualitative Analysis Lab	[CO.1] To extract organic compound(s) (such as caffeine) from natural sources (such as tea leaves). [CO.2] To prepare and synthesize simple polymers and dyes (such as sodium polyacrylate, urea formaldehyde, and methyl orange) [CO.3] To analyse the carbohydrates including aldoses and ketoses, reducing and non-reducing sugars. [CO.4] To perform qualitative analysis of organic compounds containing one or two functional groups. [CO.5] To apply IR spectroscopic and NMR spectroscopic techniques for identification of simple organic compounds with the help of their spectra.
*DSE	CYD-303	Inorganic Materials of	[CO.1] Inorganic materials (such as glass, ceramics and cements) of silicate industries

		Industrial Importance	<p>[CO.2] Types and manufacturing of common fertilizers</p> <p>[CO.3] Surface coating, its classification, paints and pigments, fillers, thinners, enamels, emulsifying agents.</p> <p>[CO.4] Dyes, wax polishing, water and oil paints, additives, metallic coatings (electrolytic and electroless), metal spraying and anodizing.</p> <p>[CO.5] Batteries, their components and working of different types of batteries</p> <p>[CO.6] Alloys and their classification of alloys, types of alloys, specific properties of elements in alloys, manufacturing of steel</p> <p>[CO.7] Principles and properties of catalysts, homogenous catalysis, heterogenous catalysis, and their industrial applications</p> <p>[CO.8] Chemical explosives, preparation and explosive properties of lead azide, PETN, cyclonite (RDX).</p> <p>[CO.9] Rocket propellants</p>
*DSE	DCL-303	Industrial Inorganic Materials Lab	<p>[CO.1] To analyse the inorganic materials or compounds (such as fertilizers, cement, alloys, pigments) of industrial importance</p> <p>[CO.2] To determine (i) free acidity in ammonium sulphate fertilizer, (ii) composition of dolomite with the help of complexometric titration.</p> <p>[CO.3] To estimate (i) calcium in calcium ammonium nitrate fertilizer, (ii) phosphoric acid in superphosphate fertilizer, (iii)</p> <p>[CO.4] To analyse cement and alloys or synthetic samples.</p> <p>[CO.5] To prepare the pigment (zinc oxide).</p>
*DSE	CYD-304	Novel Inorganic Solids	<p>[CO.1] Various methods of synthesis and modification of inorganic solids</p> <p>[CO.2] Inorganic solids (solid electrolytes, mixed inorganic pigments, molecular material, fullerides, molecular magnets, inorganic liquid crystals) of technological importance</p> <p>[CO.3] Nanomaterials, their classification, Au and Ag nanostructures, carbon nanotubes and inorganic nanowires, bio-inorganic</p>

			<p>nanomaterials, DNA and nanomaterials, and bionano composites.</p> <p>[CO.4] Composition, mechanical and fabricating characteristics and applications of various types of engineering materials (such as cast irons, plain carbon and alloy steels, copper, aluminum and their alloys like duralumin, brasses and bronzes cutting tool materials, super alloys thermoplastics, thermosets and composite materials.</p> <p>[CO.5] Composite materials, environmental effects on composites and applications</p> <p>[CO.6] Conducting polymers, their applications, ion exchange resins and their applications, ceramic and refractory materials and their applications.</p>
*DSE	DCL-304	Materials Chemistry Lab	<p>[CO.1] Different methods used for the determination of novel inorganic solids.</p> <p>[CO.2] To apply cation exchange method</p> <p>[CO.3] To determine total difference of solids.</p> <p>[CO.4] To carry out the synthesis of (i) hydrogel by co-precipitation method (ii) silver and gold metal nanoparticles.</p>
**DSE	DCL-310	UG Dissertation	To carry out research (experimental or computational work) and write the scientific report and article.

**DSE: Discipline Specific Elective courses. These are non-semester specific courses. This course is chosen by the students from the list of Discipline Specific Elective (DSE) Courses.*

***DSE: Discipline Specific Elective Course. UG Dissertation is a semester-specific course. It is offered only in the 6th semester. The students may opt it as an alternative of either (i) combination of CYD-303 and DCL-303 or (ii) combination of CYD-304 and DCL-304.*

Seventh Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYC-401:	Structure and Reactivity of Organic Molecules	<p>[CO.1] Conformations and reactivities of cyclohexane and its derivatives.</p> <p>[CO.2] Various models to predict stereochemical outcomes of nucleophilic additions to carbonyl compounds.</p> <p>[CO.3] Thermodynamics and kinetics aspects of a chemical reactions.</p> <p>[CO.4] Various methods for elucidation of reaction mechanism.</p> <p>[CO.5] Different types of catalysis in organic reactions.</p>
Core	CYC-402:	Thermodynamics and Interfaces	<p>[CO.1] Understand the concept of classical and statistical thermodynamics, Maxwell Boltzmann, Bose-Einstein, Fermi-Dirac statistics and different partition functions</p> <p>[CO.2] Surface and interfacial phenomenon and their thermodynamics</p> <p>[CO.3] BET Isotherm and its applications</p> <p>[CO.4] Thermodynamics of ionic systems and calculation of energy of interactions in ionic systems</p>
Core	CYC-403:	Solid State Chemistry	<p>[CO.1] Crystal structure and symmetry in the crystalline state</p> <p>[CO.2] Applications of XRD in determine crystal structure and phase of a solid material</p> <p>[CO.3] Hard sphere model, structures derived from HCP and CCP packing</p> <p>[CO.4] Bonding in solids and Band theory</p>

			[CO.5] Properties of solids
Core	CYC-404:	Structure and Properties of Metal Complexes	[CO.1] Stereochemistry and bonding in inorganic compounds of main group elements [CO.2] Metal-ligand bonding and molecular orbital theory [CO.3] Metal-ligand equilibria in solution [CO.4] Electronic spectra of coordination compounds [CO.5] Magnetic properties of transition metal complexes
Core	CYC-405:	Instrumental Methods of Analysis-I	[CO.1] Basic concepts of qualitative and quantitative analysis [CO.2] Principles and instrumentation of various separation techniques such as liquid chromatography, gas chromatography and electrophoresis [CO.3] Principles and instrumentation of molecular (UV-vs and infrared) spectroscopy, and atomic spectroscopy [CO.4] Principles and instrumentation of electroanalytical methods (such as voltammetry and potentiometry) [CO.5] Principles and instrumentation of thermal methods e.g., TGA, DSC and DTA
Core	CYL-406:	Inorganic Chemistry Lab-I	[CO.1] To perform the experiments in the laboratory for carrying out semi-micro qualitative analysis of inorganic ions [CO.2] To perform the experiments in the laboratory for carrying out gravimetric analysis and complexometric titrations to determine the metal content [CO.3] To perform the experiments in the laboratory for synthesizing inorganic coordination compounds
Core	CYL-407:	Organic Chemistry Lab-I	[CO.1] To perform the experiments in the laboratory for carrying out the separation of organic mixtures using thin layer chromatography [CO.2] To perform the experiments in the laboratory for carrying out organic chemical transformations such as Diels-Alder reaction, oxidation reactions and reduction reactions

			[CO.3] To perform the experiments in the laboratory for synthesizing organic compounds
Core	CYL-408:	Physical Chemistry Lab-I	[CO.1] To plot and analyse the phase diagram [CO.2] To carry out the electrochemical analysis and its application in understanding the thermodynamics of the given systems. [CO.3] To experimentally determine the rate of reaction of sugars using polarimeter [CO.4] The magnetic and electric properties of the materials

Eighth Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYC- 451:	<i>Pericyclic and Organic Photochemistry</i>	[CO.1] Classifications of pericyclic reactions, molecular orbital symmetry and frontier molecular orbital concepts. [CO.2] Different electrocyclic reactions with even numbers of electron participation. [CO.3] Various types of sigmatropic rearrangements in pericyclic reactions. [CO.4] Other different types of photochemical reactions in organic chemistry.
Core	CYC- 452:	<i>Reagents and Reactions in Organic Chemistry</i>	[CO.1] Various reagents in organic reactions and functional group transformations. [CO.2] Methods for C-C, C-N, C-O single bonds formation. [CO.3] Various models for stereochemical aspects of nucleophilic addition to carbonyl compounds. [CO.3] Methods for C-C, C-N, C-O multiple bonds formations.

Core	CYC- 453:	<i>Kinetics and Photochemistry</i>	<p>[CO.1] Chemical kinetics of simple and complex reactions</p> <p>[CO.2] Analysis techniques for fast reactions</p> <p>[CO.3] Kinetics of reactions in solution phase</p> <p>[CO.4] Different theoretical constructs for reaction rate</p> <p>[CO.5] Electrochemistry of ions in solution</p> <p>[CO.6] Electrode-electrolyte interface and different electrochemical processes</p> <p>[CO.7] Photochemical and photo physical processes</p> <p>[CO.8] Radiation chemistry and different dosimeters</p>
Core	CYC- 454:	<i>Inorganic Biochemistry and Reaction Mechanism</i>	<p>[CO.1] Reaction mechanism of transition metal complexes</p> <p>[CO.2] Electron transfer reactions</p> <p>[CO.3] Photochemistry of metal complexes</p> <p>[CO.4] Various aspects of inorganic biochemistry</p> <p>[CO.5] Chemical toxicity and metallothrapy</p>
Core	CYC-455:	<i>Instrumental Methods of Analysis- II</i>	<p>[CO.1] Principles, instrumentation and applications of vibrational, electron spin resonance (ESR), nuclear magnetic resonance (NMR) and Mossbauer spectroscopy</p> <p>[CO.2] Principles and instrumentation of mass spectrometry</p> <p>[CO.3] Principles and instrumentation of x-ray diffraction techniques</p> <p>[CO.4] Radiochemical methods</p>
Core	CYL-456:	<i>Inorganic Chemistry Lab-II</i>	<p>[CO.1] To perform the experiments in the laboratory for quantitative estimation of metal (e.g., nickel) using spectrophotometric methods</p> <p>[CO.2] To interpret and analyse the electronic spectra of complex inorganic ions</p> <p>[CO.3] To perform the experiments in the laboratory for synthesizing inorganic coordination compounds (metal complexes with ligands) and interpret their electronic spectra</p>
Core	CYL-457:	<i>Organic Chemistry Lab-II</i>	<p>[CO.1] To perform the experiments in the laboratory for carrying out organic chemical transformations such as Cannizzaro reaction and Fischer Indole synthesis</p> <p>[CO.2] To perform the experiments in the laboratory for synthesizing specific and important organic compounds</p>

Core	CYL-458:	<i>Physical Chemistry Lab-II</i>	[CO.1] To design and execute experiments to study the kinetics of various reactions and the factors effecting the rate of reactions. [CO.2] To use spectrophotometers for the quantitative applications.
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Ninth Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYL-501:	Inorganic Chemistry Lab-III	[CO.1] To perform the experiments in the laboratory for carrying out qualitative and/or quantitative analysis of metals using spectrophotometric methods, flame photometry and atomic absorption spectroscopy [CO.2] To perform the experiments in the laboratory for carrying out preparation of inorganic coordination compounds.
Core	CYL-502:	Organic Chemistry Lab-III	[CO.1] To perform the experiments in the laboratory for carrying out separation of binary mixtures of organic compounds using column chromatography [CO.2] To interpret and analyse the ^1H and ^{13}C NMR spectra to elucidate the structures of organic compounds [CO.3] To perform the experiments in the laboratory for carrying out organic chemical reactions (such as allylation, esterification and catalytic oxidation) and analyse the products using gas chromatography [CO.4] To perform the experiments in the laboratory for carrying out the synthesis of some peculiar organic compounds such as luminol, anthracene and 4-cyano-2-aminophenol [CO.5] To perform the experiments in the laboratory for determining the quantity of aspirin in the given solution [CO.5] To perform the experiments in the laboratory for estimating the quantity of glucose in the given solution

Core	CYL-503:	Physical Chemistry Lab-III	<p>[CO.1] To design and execute experiments to study the surface chemistry of surfactant, micelles and colloidal systems using different techniques.</p> <p>[CO.2] To measure refractive index and analyse the data for quantitative analysis.</p> <p>[CO.3] To carry out electrochemical analysis for quantitation.</p>
DSE	CME-503:	Green Chemistry	<p>[CO.1] Green chemistry, and its need, goals, limitations and principles</p> <p>[CO.2] Alternate routes for the green synthesis of some organic compounds</p> <p>[CO.3] Use of microwaves as the source of energy for carrying out the reactions in water</p> <p>[CO.4] Use of ultra sound for performing reactions in water</p> <p>[CO.5] Future trends in green chemistry</p>
DSE	COE-503:	Organic Structure Determination	<p>[CO.1] Fundamentals and applications of UV-Vis, infrared (IR) and 1D-NMR spectroscopic and mass spectroscopic techniques in the structure elucidation of organic compounds</p> <p>[CO.2] The principles and applications of 2D-NMR spectroscopic techniques in the structure elucidation</p>
DSE	COE-506:	Organic Synthesis Lab	<p>[CO.1] To perform experiments in the laboratory to carry out separation of mixture of organic compounds using liquid-liquid extraction</p> <p>[CO.2] To perform experiments in the laboratory to carry out multi-step organic synthesis</p> <p>[CO.3] To perform experiments in the laboratory to explore applications of co-enzymes in organic synthesis</p> <p>[CO.4] To perform experiments in the laboratory to carry out isolation of natural products and their characterization</p> <p>[CO.5] To perform experiments in the laboratory to generate nucleophiles and use them in nucleophilic substitution reactions of alkyl halides</p>

DSE	CPE-506:	Advanced Physical Chemistry Lab	<p>[CO.1] To design and execute experiments to study the kinetics of reactions under different experimental conditions.</p> <p>[CO.2] To work with sol and gel systems and their viscoelastic properties.</p> <p>[CO.3] To carry out electrochemical analysis for determining thermodynamic parameters.</p> <p>[CO.4] To record and analyse fluorescence spectra of nanomaterials.</p> <p>[CO.5] To record and analyse electronic spectra of nanomaterials and correlate it with structural properties of the same.</p>
DSE	COE-507:	Medicinal Chemistry	<p>[CO.1] Drugs, and intermolecular interactions</p> <p>[CO.2] Drug targets including proteins, enzymes and receptors, their structures and functions</p> <p>[CO.3] Concepts of pharmacokinetic and pharmacodynamics</p> <p>[CO.4] Enzymes as drug targets, receptors as drug targets, and nucleic acids as drug targets</p> <p>[CO.5] Drug discovery, design, and development</p>
			<p>[CO.6] Identification of the structure–activity relationships (SARs), and the pharmacophore in the drug design</p> <p>[CO.7] Ways to improve target interactions (pharmacodynamics) and improve pharmacokinetic properties.</p> <p>[CO.8] Preclinical trials and significance of patent on the drug</p>

**DSE: Discipline Specific Elective; These courses are chosen by the students from the list of Discipline Specific Elective (DSE) Course.*

Tenth Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYC– 551:	Thesis/Dissertation	To carry out research (experimental or computational) work and writing the report, article and thesis

OUTCOMES OF

GENERIC ELECTIVE(GE) COURSES

(To be offered to the students during Semester 1-4)

S.No.	Course Code	Course Title	<i>After completing the course, students will be able to understand:</i>
1(a)	CYG-101	Generic Chem.: Atomic Structure, Bonding, General Organic Chemistry, Aliphatic Hydrocarbons (Credits: 04)	<p>[CO.1] Atomic structure, quantum mechanics, Schrodinger equation and various related principles and rules</p> <p>[CO.2] Periodic properties of elements</p> <p>[CO.3] Different types of chemical bonds including ionic bond, covalent bond, VSEPR theory, hybridization, molecular orbital theory, metallic bond and weak chemical forces</p> <p>[CO.4] Fundamentals of organic chemistry including (i) physical effects and electronic displacements, (ii) structure, shape and reactivity of organic molecules and (iii) strengths of organic acids and bases</p> <p>[CO.5] Methods of preparation and chemical properties of alkanes, alkenes and alkynes</p> <p>[CO.6] Basic concepts of stereochemistry</p>
1(b)	GCL-101	Inorg. and Org. Chemical Analysis Lab (Credits: 02)	<p>[CO.1] To perform volumetric analysis using acid-base titrations and oxidation-reduction titrimetric experiments</p> <p>[CO.2] To detect extra elements (N, S, Cl, Br, I) in organic compounds</p> <p>[CO.3] To separate the mixtures of organic compounds using chromatography, and also to measure the R_f value.</p>
2(a)	CYG-151	Chemical Energetics, Equilibria & Functional Group Org. Chem. I (Credits: 04)	<p>[CO.1] Thermodynamics and its Laws, important principles and definitions of thermochemistry</p> <p>[CO.2] Important concepts of chemical equilibrium and ionic equilibrium</p> <p>[CO.3] Methods of preparation and chemical properties of aromatic</p>

			hydrocarbons, alkyl halides, aryl halides, alcohols, phenols, ethers, aldehydes and ketones
2(b)	GCL-151	Basic Physical and Organic Chemistry Lab (Credits: 02)	[CO.1] To determine the heat capacity of calorimeter [CO.2] To determine the enthalpies of different types of chemical reactions (such as neutralization, ionization and hydration) [CO.3] To measure the pH of different solutions using pH-meter, and to prepare buffer solutions [CO.4] To purify organic compounds by crystallization and to determine their melting and boiling points. [CO.5] To prepare some organic compounds using simple one or two-step reactions.
3(a)	CYG-201	s- and p-Block Elements, States of Matter & Chemical Kinetics (Credits: 04)	[CO.1] General principles of metallurgy, and methods of purification of metals [CO.2] Chemistry of s and p block elements and their compounds including hydrides of nitrogen, oxoacids of P, S and Cl and halides and oxohalides [CO.3] Kinetic theory of gases [Co.4] Surface tension and viscosity of liquids [CO.5] Chemical kinetics including the concepts of the reaction rates and the theories of reaction rates
3(b)	GCL-201	Basic Physical and Inorganic Chemistry Lab (Credits: 02)	[CO.1] To perform semi-micro qualitative analysis for identifying cations and anions [CO.2] To measure the surface tension and viscosity of liquids [CO.3] To study the kinetics of the chemical reactions
4(a)	CYG-252	Organometallics, Bioinorganic Chemistry, Polynuclear Hydrocarbons, and UV-IR Spectroscopy (Credits: 04)	[CO.1] Chemistry of transition metals of 3d series [CO.2] Definition and classification of organometallic compounds, structural aspects of methyl lithium, Zeiss salt and ferrocene [CO.3] Preparation, structure, properties and bonding of mononuclear and polynuclear metal carbonyls of 3d series

			<p>[CO.4] Bioinorganic chemistry, and metal ions in biological systems</p> <p>[CO.5] Fundamentals of UV-Vis and IR spectroscopy</p> <p>[CO.6] Use of UV-Vis and IR spectra in qualitative analysis and structural elucidation of organic compounds</p> <p>[CO.7] Methods of preparation and chemical properties of active methylene compounds and polynuclear and heteronuclear aromatic compounds</p>
4(b)	GCL-252	Inorg. & Org. Synthesis and Qualitative Analysis Lab (Credits: 02)	<p>[CO.1] To separation of mixtures of inorganic ions using paper chromatographic techniques and measure the R_f value</p> <p>[CO.2] To prepare and synthesize inorganic coordination compounds [such as tetraamminecarbonatocobalt (III) nitrate, tetraamminecopper (II) sulphate and potassium trioxalatoferrate (III) trihydrate], and measure their conductivity.</p> <p>[CO.3] To carry out qualitative analysis of simple monofunctional organic compounds having only one functional group</p> <p>[CO.4] To prepare and synthesize the simple organic compounds having only one functional group (such as -COOH, phenolic, aldehydic, ketonic, amide, nitro, amines)</p>
5(a)	CYG-202	Chemistry of <i>d</i> -block elements, Quantum Chemistry and Spectroscopy (Credits: 04)	<p>[CO.1] Properties of transition elements of 3d series as well as lanthanoids and actinoids</p> <p>[CO.2] Coordination chemistry with examples of the metals e.g., chromium, iron, cobalt, nickel and copper</p> <p>[CO.3] Crystal field theory and Jahn Teller distortion</p> <p>[CO.4] Postulates of quantum mechanics and quantum mechanical operators</p> <p>[CO.5] Electronic spectroscopy and photochemistry</p>
5(b)	GCL-202	Basic Spectroscopic Analysis Lab (Credits: 02)	[CO.1] To carry out quantitative analysis or estimation of ions of various metals (such as nickel, aluminium, magnesium, zinc,

			<p>sodium or potassium) using different techniques including gravimetric analysis, complexometric titrations, UV-Visible spectroscopy and flame photometry</p> <p>[CO.2] To record UV spectra of acetone, acetaldehyde, 2-propanol or acetic acid in water</p> <p>[CO.3] To calculate the energies of the electronic transitions in KMnO_4 and $\text{K}_2\text{Cr}_2\text{O}_7$ with help of values of λ_{max} in absorbance spectra.</p> <p>[CO.4] To study the pH-dependence of the UV-Vis spectrum of $\text{K}_2\text{Cr}_2\text{O}_7$.</p>
6(a)	CYG-203	Molecules of Life (Credits: 04)	<p>[CO.1] Classification, properties and structure of carbohydrates</p> <p>[CO.2] Amino acids, peptides and proteins</p> <p>[CO.3] Enzymes and their correlation with drug design</p> <p>[CO.4] Nucleic acids, genetic code, biological roles of DNA and RNA, replication, transcription and translation</p> <p>[CO.5] Lipids, their classification and biological importance</p> <p>[CO.6] Basic concepts of energy in biosystems</p>
6(b)	GCL-203	Basic Biochemistry Lab (Credits: 02)	<p>[CO.1] To carry out separation of amino acids using paper chromatography</p> <p>[CO-2] To carry out the experiments for the estimation of glycine by Sorenson's formalin method, and also to study the titration curve of glycine.</p> <p>[CO.3] To carry out the estimation of proteins using Lowry's method.</p> <p>[CO.4] To study the action of salivary amylase on starch, and the effect of temperature on such action</p> <p>[CO.5] To determine the saponification value of an oil or a fat.</p> <p>[CO.6] To determine the iodine number of an oil/ fat.</p> <p>[CO.7] To isolate and characterize the DNA from onion/cauliflower/peas.</p>

7(a)		Solutions, Phase Equilibrium, Conductance, Electrochemistry, and Functional Group Org. Chem.-II (Credits: 04)	[CO.1] The concepts of solutions, phase equilibrium, conductance and electrochemistry [CO.2] Methods of preparation and chemical properties of carboxylic acids, derivatives of carboxylic acids, amines and diazonium salts [CO.3] Methods of preparation and properties of amino acids, peptides and proteins [CO.4] Carbohydrates, their classification and properties
7(b)		Phase Equilibria, Electrochemistry and Qualitative Org. Analysis Lab (Credits: 02)	[CO.1] To construct the phase diagram of a binary system (simple eutectic) using cooling curves. [CO.2] To determine the critical solution temperature and composition of the phenol water system and study of the effect of impurities on it. [CO.3] To carry out the experiments in the laboratory to determine cell constant, equivalent conductance, degree of dissociation and dissociation constant of a weak acid. [CO.4] To perform the experiments in the laboratory to carry out conductometric titrations. [CO.5] To carry out the experiments for the estimation of glycine by Sorenson's formalin method, and also to study the titration curve of glycine. [CO.6] To carry out the estimation of proteins using Lowry's method. [CO.7] To study the action of salivary amylase on starch, and the effect of temperature on such action [CO.8] To determine the saponification value of an oil or a fat. [CO.9] To determine the iodine number of an oil/ fat. [CO.10] To isolate and characterize the DNA from onion/ cauliflower/

Theory and lab course will be offered in combination. Course 1(a) will be offered in combination with 1(b). Course 2(a) will be offered in combination with 2(b). Course 3(a) will be offered in combination with 3(b). Course 4(a) will be offered in combination with 4(b). Course 5(a) will be offered in combination with 5(b). Course 6(a) will be offered in combination with 6(b).

**OUTCOMES OF
SKILL ENHANCEMENT COURSES (SEC)**

S.No.	Course Code	Course Title	After completing the course, students will be able to understand:
1.	CYS-201	Fuel Chemistry (Credits: 02)	<p>[CO.1] Renewable and non-renewable sources of energy, different types of fuels and their calorific values</p> <p>[CO.2] Uses of coal (fuel and nonfuel) in various industries, its composition, carbonization of coal.</p> <p>[CO.3] Coal gas, producer gas and water gas—composition and uses.</p> <p>[CO.4] Petroleum, petrochemical industry, different types of petroleum products and their applications.</p> <p>[CO.5] Lubricants and their classification, properties of lubricants (viscosity index, cloud point, pore point) and their determination.</p>
2.	CYS-251	Pesticide Chemistry (Credits: 02)	<p>[CO.1] Pesticides (natural and synthetic) and their benefits and adverse effects.</p> <p>[CO.2] Changing concepts of pesticides and structure activity relationship.</p> <p>[CO.3] Synthesis and technical manufacturing of (i) DDT i.e., gammaxene (ii) malathion, carbofuran and carbaryl, chloranil, alachlor and butachlor.</p> <p>[CO.4] To perform experiments in the laboratory to calculate acidity/alkalinity in given sample of pesticide formulations as per BIS specifications.</p> <p>[CO.5] To perform experiments in the laboratory to synthesize and prepare simple organophosphates, phosphonates and thiophosphates</p>

3.	CYS-255	Chemistry of Cosmetics and Perfumes (Credits: 02)	<p>[CO.1] Preparation and uses of (i) hair dye, (ii) hair spray, (iii) shampoo, (iv) suntan lotions, (v) face powder, (vi) lipsticks, (vii) talcum powder, (viii) nail enamel, (ix) creams, (x) antiperspirants and artificial flavours.</p> <p>[CO.2] Essential oils (such as eugenol, geraniol, sandalwood oil, eucalyptus, rose oil, 2-phenyl ethyl alcohol, jasmone, civetone, muscone and their importance in cosmetic industries.</p> <p>[CO.3] To perform experiments in the laboratory for preparing (i) talcum powder, (ii) shampoo, (iii) enamels, (iv) hair remover, (v) face cream, and (vi) nail polish and nail polish remover.</p>
4.		IT Skills for Chemists (Credits: 02)	<p>[CO.1] Fundamentals of mathematical functions, uncertainty in experimental techniques, uncertainty in measurement, statistical treatment, algebraic operations on real scalar variables, differential calculus, and numerical integration.</p> <p>[CO.2] Computer programming</p> <p>[CO.3] Introductory writing activities using word processor and structure drawing (ChemSketch) software.</p> <p>[CO.4] Handling data using spreadsheet software (Excel), plotting graphs using a spreadsheet, spectral data etc.</p> <p>[CO.5] Statistical analysis</p>
5.		Chemical Technology and Society (Credits: 02)	[CO.1] Chemical technology including distillation, solvent extraction, solid-liquid leaching and liquid-liquid extraction, separation by absorption and

			<p>adsorption.</p> <p>[CO.2] Scope of different types of equipments including reactors, distillation columns, extruders, pumps, mills, emulgators.</p> <p>[CO.3] Scaling up operations in chemical industry and clean technology</p> <p>[CO.4] Societal and technological issues from a chemical perspective</p>
6.		<p>Cheminformatics (Credits: 04)</p>	<p>[CO.1] History, evolution, use, and prospects of chemoinformatics.</p> <p>[CO.2] Molecular modelling and structure elucidation.</p> <p>[CO.3] Representation of molecules and chemical reactions</p> <p>[CO.4] Different applications of cheminformatics</p>
7.		<p>Business Skills for Chemists (Credits: 02)</p>	<p>[CO.1] Basics key business concepts including business plans, market need, project management and routes to market.</p> <p>[CO.2] Current challenges and opportunities for the chemistry in industries.</p> <p>[CO.3] Role of chemistry in India and global economies.</p> <p>[CO.4] Financial aspects of business with case studies</p> <p>[CO.5] Concept of intellectual property including patents</p>
8.		<p>Intellectual Property Rights (IPR) (Credits: 02)</p>	<p>[CO.1] Introduction, historical perspective, types and importance of intellectual property.</p> <p>[CO.2] Difference between copyrights and patents.</p>

			<p>[CO.3] Trademarks and their types including collective marks, certification marks, service marks, trade names, etc.</p> <p>[CO.4] Patents</p> <p>[CO.5] Geographical Indications</p> <p>[CO.6] Industrial designs</p> <p>[CO.7] Trade secrets</p> <p>[CO.8] Different international agreements including (a) world trade organization (WTO) (b) Paris Convention</p> <p>[CO.9] WIPO and TRIPS, IPR and Plant Breeders Rights, IPR and Biodiversity</p> <p>[CO.10] IP Infringement issue and enforcement</p>
9.		<p>Analytical Clinical Biochemistry (Credits: 02)</p>	<p>[CO.1] Structures, properties and functions of carbohydrates, proteins, enzymes, lipoproteins and DNA</p> <p>[CO.2] Blood and urine analysis and to use the data and results as a diagnostic approach for correlating with biochemistry of disease</p> <p>[CO.3] To perform qualitative and quantitative analysis in the laboratory to identify and estimate (i) carbohydrates and (ii) lipids – qualitative.</p> <p>[CO.4] To determine (i) iodine number of oil, (ii) saponification number of oil, (iii) cholesterol using Liebermann- Burchard reaction</p> <p>[CO.5] To carry out qualitative analysis of proteins</p> <p>[CO.6] To isolate protein, and determine it using the Biuret reaction</p> <p>[CO.7] To determine the nucleic acids</p>
10.		<p>Pharmaceutical Chemistry (Credits: 02)</p>	<p>[CO.1] Drug discovery, design and development.</p> <p>[CO.2] Synthesis of the representative drugs of the important classes including analgesics agents, antipyretic agents, anti-inflammatory</p>

			<p>agents, antibiotics, antibacterial and antifungal agents, antiviral agents, central nervous system agents, cardiovascular, antilaprosy and HIV-AIDS related drugs.</p> <p>[CO.3] Difference between aerobic and anaerobic fermentation.</p> <p>[CO.4] Chemical routes involved in the production of (i) ethyl alcohol and citric acid, (ii) penicillin, cephalosporin, chloromycetin and streptomycin, (iii) lysine, glutamic acid, vitamin B2, vitamin B12 and Vitamin C.</p> <p>[CO.5] To prepare and synthesize aspirin in laboratory and analyse it</p> <p>[CO.6] To prepare and synthesize magnesium bisilicate (antacid) in the laboratory</p>
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**OUTCOMES
OF
DISCIPLINE SPECIFIC ELECTIVE COURSES
IN**

5th and/or 6th Semesters

S.No.	Course Code	Course Title	<i>After completing the course ,students will be able to understand:</i>
1(a)	CYD-302	Discipline Specific Elective: Polymer Chemistry (Credits: 04)	<p>[CO.1] History, classification and nomenclature of polymers.</p> <p>[CO.2] Molecular forces and chemical bonding in polymers, and texture of polymers.</p> <p>[CO.3] Criteria for synthetic polymer formation and classification of polymerization processes, Relationships between functionality</p> <p>[CO.4] Mechanism and kinetics of step growth, radical chain growth, ionic chain and coordination polymerizations.</p>

			<p>[CO.5] Mechanism and kinetics of copolymerization and polymerization techniques.</p> <p>[CO.6] Crystallization and crystallinity of polymers</p> <p>[CO.7] Structure property relationships in polymers</p> <p>[CO.8] Determination of molecular weights and glass transition temperature of polymers</p> <p>[CO.9] Physical, thermal, flow & mechanical properties of polymers</p>
1(b)	DCL-302	Polymer Chemistry Lab (Credits: 02)	<p>[CO.1] To carry out various polymerization reactions such as free radical solution polymerization, redox polymerization, and precipitation polymerization, and microscale emulsion polymerization</p> <p>[CO.2] To prepare and synthesize simple polymers such as nylon 66/6, polyester, urea-formaldehyde resin, novalac resin/resold resin and poly(methylacrylate).</p> <p>[CO.3] To characterize the polymers by determining the molecular weight using different methods such as viscometry, and end group analysis.</p> <p>[CO.4] To test the mechanical properties of polymers.</p> <p>[CO.5] To analyse the polymers using instrumental techniques</p>
2(a)	CYD-303	Discipline Specific Elective: Inorganic Materials of Industrial Importance (Credits: 04)	<p>[CO.1] Inorganic materials (such as glass, ceramics and cements) of silicate industries</p> <p>[CO.2] Types and manufacturing of common fertilizers</p> <p>[CO.3] Surface coating, its classification, paints and pigments, fillers, thinners, enamels, emulsifying agents.</p> <p>[CO.4] Dyes, wax polishing, water and oil paints, additives, metallic coatings (electrolytic and electroless), metal spraying and anodizing.</p> <p>[CO.5] Batteries, their components and working of different types of batteries</p>

			<p>[CO.6] Alloys and their classification of alloys, types of alloys, specific properties of elements in alloys, manufacturing of steel</p> <p>[CO.7] Principles and properties of catalysts, homogenous catalysis, heterogenous catalysis, and their industrial applications</p> <p>[CO.8] Chemical explosives, preparation and explosive properties of lead azide, PETN, cyclonite (RDX).</p> <p>[CO.9] Rocket propellants.</p>
2(b)	DCL-303	Industrial Inorganic Materials Lab (Credits: 02)	<p>[CO.1] To analyse the inorganic materials or compounds (such as fertilizers, cement, alloys, pigments) of industrial importance</p> <p>[CO.2] To determine (i) free acidity in ammonium sulphate fertilizer, (ii) composition of dolomite with the help of complexometric titration.</p> <p>[CO.3] To estimate (i) calcium in calcium ammonium nitrate fertilizer, (ii) phosphoric acid in superphosphate fertilizer, (iii)</p> <p>[CO.4] To analyse cement and alloys or synthetic samples.</p> <p>[CO.5] To prepare the pigment (zinc oxide).</p>
3(a)	CYD-304	Discipline Specific Elective: Novel Inorganic Solids (Credits: 04)	<p>[CO.1] Various methods of synthesis and modification of inorganic solids</p> <p>[CO.2] Inorganic solids (solid electrolytes, mixed inorganic pigments, molecular material, fullerides, molecular magnets, inorganic liquid crystals) of technological importance</p> <p>[CO.3] Nanomaterials, their classification, Au and Ag nanostructures, carbon nanotubes and inorganic nanowires, bio-inorganic nanomaterials, DNA and nanomaterials, and bionano composites. [CO.4] Composition, mechanical and fabricating</p>

			<p>characteristics and applications of various types of engineering materials (such as cast irons, plain carbon and alloy steels, copper, aluminum and their alloys like duralumin, brasses and bronzes cutting tool materials, super alloys thermoplastics, thermosets and composite materials.</p> <p>[CO.5] Composite materials, environmental effects on composites and applications</p> <p>[CO.6] Conducting polymers, their applications, ion exchange resins and their applications, ceramic and refractory materials and their applications.</p>
3(b)	DCL-304	Materials Chemistry Lab (Credits: 02)	<p>[CO.1] Different methods used for the determination of novel inorganic solids.</p> <p>[CO.2] To apply cation exchange method</p> <p>[CO.3] To determine total difference of solids.</p> <p>[CO.4] To carry out the synthesis of (i) hydrogel by co-precipitation method (ii) silver and gold metal nanoparticles.</p>
4(a)	CYD-305	Discipline Specific Elective: Applications of Computers in Chemistry (Credits: 04)	<p>[CO.1] Basics of computer applications such as constants, variables, bits, bytes, binary and ASCII formats, arithmetic expressions, hierarchy of operations, inbuilt functions.</p> <p>[CO.2] Elements of the basic language.</p> <p>[CO.3] Basic keywords and commands.</p> <p>[CO.4] Logical and relative operators, strings and graphics.</p> <p>[CO.5] Compiled versus interpreted languages, debugging.</p> <p>[CO.6] Simple programs, matrix addition and multiplication.</p> <p>[CO.7] statistical analysis.</p> <p>[CO.8] Numerical methods including roots of equations, differential calculus, integral calculus, simultaneous equations, interpolation,</p>

			extrapolation and curve fitting, [CO.9] Conceptual background of molecular modelling
4(b)	DCL-305	Computational Chemistry Lab (Credits: 02)	[CO.1] Roots of equations: (e.g., volume of van der Waals gas and comparison with ideal gas, pH of a weak acid). [CO.2] Numerical differentiation (e.g., change in pressure for small change in volume of a van der Waals gas, potentiometric titrations). [CO.3] Numerical integration (e.g. entropy/ enthalpy change from heat capacity data), probability distributions (gas kinetic theory) and mean values. [CO.4] Matrix operations and their application of Gauss-Siedel method in colourimetry. [CO.5] To use molecular visualization software, and carry out simple exercise.
5(a)	CYD-306	Discipline Specific Elective: Molecular Modelling and Drug Design (Credits: 04)	[CO.1] Concepts of molecular modelling, computer hardware and software, and the molecular modelling literature. [CO.2] Force fields including bond stretching, angle bending, non-bonded interactions, electrostatic interactions, van der Waals Interactions and H-bonding [CO.3] Energy minimization and computer Simulation [CO.4] Molecular dynamics & Monte Carlo simulation. [CO.5] Structure prediction and drug design, predicting protein structures by 'Threading', molecular docking, drug discovery – chemoinformatics – QSAR.
5(b)	DCL-306	Molecular Modelling Lab (Credits: 02)	[CO.1] To use various softwares including ChemSketch, ArgusLab (www.planaria-software.com),

			<p>TINKER 6.2 (dasher.wustl.edu/ffe), WebLab Viewer, Hyperchem.</p> <p>[CO.2] To compare the optimized C-C bond lengths and visualize the molecular orbitals.</p> <p>[CO.3] To carry out conformational analysis of simple unsaturated organic molecules and determine the enthalpy of isomerization of <i>cis</i> and <i>trans-isomers</i> of such compounds.</p> <p>[CO.4] To compare the shapes of the simple organic molecules, and show how the shapes affect the boiling points.</p> <p>[CO.5] To visualize the electron density and electrostatic potential maps for diatomic inorganic compounds.</p> <p>[CO.6] To build and minimize organic compounds</p> <p>[CO.7] To determine the heat of hydration of ethylene, and compute the resonance energy of benzene</p>
6(a)	CYD-351	<p>Discipline Specific Elective: Industrial Chemicals and Environment (Credits: 04)</p>	<p>[CO.1] Large scale production, uses, storage and hazards in handling of industrial gases and inorganic chemicals</p> <p>[CO.2] Preparation of metals and ultrapure metals for semiconductor technology</p> <p>[CO.3] Air pollutants and their impact on environment</p> <p>[CO.4] Water pollutants and their impact on environment</p> <p>[CO.5] Water purification methods and industrial waste management</p> <p>[CO.6] Coal, petrol and natural gas, nuclear fuels as sources of energy and related aspects of pollution</p> <p>[CO.7] Biocatalysis and its importance in green chemistry and chemical industry</p>
6(b)	DCL-351	<p>Environmental and Industrial Chemistry Lab (Credits: 02)</p>	<p>[CO.1] To analyse water or aqueous samples and determine (i) dissolved</p>

			<p>oxygen, (ii) dissolved CO₂, (ii) chemical oxygen demand (COD), biological oxygen demand (BOD), (iii) content of chloride, sulphate, carbonate (CO₃²⁻) and bicarbonate (HCO₃⁻) ions, (iv) salinity and total alkalinity of such water samples.</p> <p>[CO.2] To estimate SPM in air samples</p> <p>[CO.3] To determine percentage of available chlorine in bleaching powder.</p> <p>[CO.4] Some of the common bio-indicators of pollution.</p> <p>[CO.5] To prepare and synthesize borax/ boric acid.</p>
7	CYD-352	<p>Discipline Specific Elective: Research Methodology for Chemistry (Credits: 06)</p>	<p>[CO.1] Printed sources of information for literature survey, digital sources of information for literature survey, and information technology and library resources</p> <p>[CO.2] Methods of scientific research and writing scientific papers, writing ethics, and avoiding plagiarism.</p> <p>[CO.3] Chemical safety and ethical handling of chemicals, safe storage and use of hazardous chemicals, procedure for working with substances that pose hazards, flammable or explosive hazards.</p> <p>[CO.4] Data analysis, the investigative approach, and analysis and presentation of data</p> <p>[CO.5] Basic fundamentals of electronic circuits and their components used in circuits of common instruments like spectrophotometers.</p>

Theory and lab course will be offered in combination. Course 1(a) will be offered in combination with 1(b). Course 2(a) will be offered in combination with 2(b). Course 3(a) will be offered in combination with 3(b). Course 4(a) will be offered in combination with 4(b). Course 5(a) will be offered in combination with 5(b). Course 6(a) will be offered in combination with 6(b).

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Physical Sciences MSc (Chemistry)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES

PO1- To understand the Chemistry in the various subjects of the courses including recent advancement in chemistry.

PO2- To inculcate scientific knowledge about advanced writing, documentations, designing and computational skills along with enhanced communication skills.

PO3- To develop skills to design molecules and perform experiments in the laboratory.

PO4- To develop ethical values by the concepts of research through research and methodology course and encourage the students for research and development through dissertation project in the advanced areas of research and training programmes with life long learning.

PO5- To analyze and apply specialized knowledge of chemistry in problem related to industry and society.

PROGRAMME SPECIFIC OUTCOMES

PSO1- Programme designed with the aim of fulfilling the demands for trained human resources to give thrust to ever increasing chemical industry and related fields.

PSO2- Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems and good ethics in their profession and their obligation to society.

PSO3- Students will be able to demonstrate knowledge and skills in analyzing and identifying entrepreneur opportunities as well as to developing the skills to analyze the data and communicate their research work to any reputed journal.

PSO4- Ability to develop a national as well as international perspective for their career in the chosen field of the academic and research activities.

COURSE OUTCOMES

First Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYC-401:	Structure and Reactivity of Organic Molecules	[CO.1] Conformations and reactivities of cyclohexane and its derivatives. [CO.2] Various models to predict stereochemical outcomes of nucleophilic additions to carbonyl compounds. [CO.3] Thermodynamics and kinetics aspects of a chemical reactions. [CO.4] Various methods for elucidation of reaction mechanism. [CO.5] Different types of catalysis in organic reactions.
Core	CYC-402:	Thermodynamics and Interfaces	[CO.1] Understand the concept of classical and statistical thermodynamics, Maxwell Boltzmann, Bose-Einstein, Fermi-Dirac statistics and different partition functions [CO.2] Surface and interfacial phenomenon and their thermodynamics [CO.3] BET Isotherm and its applications [CO.4] Thermodynamics of ionic systems and calculation of energy of interactions in ionic systems
Core	CYC-403:	Solid State Chemistry	[CO.1] Crystal structure and symmetry in the crystalline state [CO.2] Applications of XRD in determine crystal structure and phase of a solid material [CO.3] Hard sphere model, structures derived from HCP and CCP packing [CO.4] Bonding in solids and Band theory

			[CO.5] Properties of solids
Core	CYC-404:	Structure and Properties of Metal Complexes	<p>[CO.1] Stereochemistry and bonding in inorganic compounds of main group elements</p> <p>[CO.2] Metal-ligand bonding and molecular orbital theory</p> <p>[CO.3] Metal-ligand equilibria in solution</p> <p>[CO.4] Electronic spectra of coordination compounds</p> <p>[CO.5] Magnetic properties of transition metal complexes</p>
Core	CYC-405:	Instrumental Methods of Analysis-I	<p>[CO.1] Basic concepts of qualitative and quantitative analysis</p> <p>[CO.2] Principles and instrumentation of various separation techniques such as liquid chromatography, gas chromatography and electrophoresis</p> <p>[CO.3] Principles and instrumentation of molecular (UV-vs and infrared) spectroscopy, and atomic spectroscopy</p> <p>[CO.4] Principles and instrumentation of electroanalytical methods (such as voltammetry and potentiometry)</p> <p>[CO.3] Principles and instrumentation of thermal methods e.g., TGA, DSC and DTA</p>
Core	CYL-406:	Inorganic Chemistry Lab-I	<p>[CO.1] To perform the experiments in the laboratory for carrying out semi-micro qualitative analysis of inorganic ions</p> <p>[CO.2] To perform the experiments in the laboratory for carrying out gravimetric analysis and complexometric titrations to determine the metal content</p> <p>[CO.3] To perform the experiments in the laboratory for synthesizing inorganic coordination compounds</p>
Core	CYL-407:	Organic Chemistry Lab-I	<p>[CO.1] To perform the experiments in the laboratory for carrying out the separation of organic mixtures using thin layer chromatography</p> <p>[CO.2] To perform the experiments in the laboratory for carrying out organic chemical transformations such as Diels-Alder reaction, oxidation reactions and reduction reactions</p>

			[CO.3] To perform the experiments in the laboratory for synthesizing organic compounds
Core	CYL-408:	Physical Chemistry Lab-I	[CO.1] To plot and analyse the phase diagram [CO.2] To carry out the electrochemical analysis and its application in understanding the thermodynamics of the given systems. [CO.3] To experimentally determine the rate of reaction of sugars using polarimeter [CO.4] The magnetic and electric properties of the materials

Second Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYC- 451:	<i>Pericyclic and Organic Photochemistry</i>	[CO.1] Classifications of pericyclic reactions, molecular orbital symmetry and frontier molecular orbital concepts. [CO.2] Different electrocyclic reactions with even numbers of electron participation. [CO.3] Various types of sigmatropic rearrangements in pericyclic reactions. [CO.4] Other different types of photochemical reactions in organic chemistry.
Core	CYC- 452:	<i>Reagents and Reactions in Organic Chemistry</i>	[CO.1] Various reagents in organic reactions and functional group transformations. [CO.2] Methods for C-C, C-N, C-O single bonds formation. [CO.3] Various models for stereochemical aspects of nucleophilic addition to carbonyl compounds. [CO.3] Methods for C-C, C-N, C-O multiple bonds formations.

Core	CYC- 453:	<i>Kinetics and Photochemistry</i>	<p>[CO.1] Chemical kinetics of simple and complex reactions</p> <p>[CO.2] Analysis techniques for fast reactions</p> <p>[CO.3] Kinetics of reactions in solution phase</p> <p>[CO.4] Different theoretical constructs for reaction rate</p> <p>[CO.5] Electrochemistry of ions in solution</p> <p>[CO.6] Electrode-electrolyte interface and different electrochemical processes</p> <p>[CO.7] Photochemical and photo physical processes</p> <p>[CO.8] Radiation chemistry and different dosimeters</p>
Core	CYC- 454:	<i>Inorganic Biochemistry and Reaction Mechanism</i>	<p>[CO.1] Reaction mechanism of transition metal complexes</p> <p>[CO.2] Electron transfer reactions</p> <p>[CO.3] Photochemistry of metal complexes</p> <p>[CO.4] Various aspects of inorganic biochemistry</p> <p>[CO.5] Chemical toxicity and metallotherapy</p>
Core	CYC-455:	<i>Instrumental Methods of Analysis- II</i>	<p>[CO.1] Principles, instrumentation and applications of vibrational, electron spin resonance (ESR), nuclear magnetic resonance (NMR) and Mossbauer spectroscopy</p> <p>[CO.2] Principles and instrumentation of mass spectrometry</p> <p>[CO.3] Principles and instrumentation of x-ray diffraction techniques</p> <p>[CO.4] Radiochemical methods</p>
Core	CYL-456:	<i>Inorganic Chemistry Lab-II</i>	<p>[CO.1] To perform the experiments in the laboratory for quantitative estimation of metal (e.g., nickel) using spectrophotometric methods</p> <p>[CO.2] To interpret and analyse the electronic spectra of complex inorganic ions</p> <p>[CO.3] To perform the experiments in the laboratory for synthesizing inorganic coordination compounds (metal complexes with ligands) and interpret their electronic spectra</p>
Core	CYL-457:	<i>Organic Chemistry Lab-II</i>	<p>[CO.1] To perform the experiments in the laboratory for carrying out organic chemical transformations such as Cannizzaro reaction and Fischer Indole synthesis</p> <p>[CO.2] To perform the experiments in the laboratory for synthesizing specific and important organic compounds</p>

Core	CYL-458:	<i>Physical Chemistry Lab-II</i>	<p>[CO.1] To design and execute experiments to study the kinetics of various reactions and the factors effecting the rate of reactions.</p> <p>[CO.2] To use spectrophotometers for the quantitative applications.</p>
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Third Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYL-501:	Inorganic Chemistry Lab-III	<p>[CO.1] To perform the experiments in the laboratory for carrying out qualitative and/or quantitative analysis of metals using spectrophotometric methods, flame photometry and atomic absorption spectroscopy</p> <p>[CO.2] To perform the experiments in the laboratory for carrying out preparation of inorganic coordination compounds.</p>
Core	CYL-502:	Organic Chemistry Lab-III	<p>[CO.1] To perform the experiments in the laboratory for carrying out separation of binary mixtures of organic compounds using column chromatography</p> <p>[CO.2] To interpret and analyse the ^1H and ^{13}C NMR spectra to elucidate the structures of organic compounds</p> <p>[CO.3] To perform the experiments in the laboratory for carrying out organic chemical reactions (such as allylation, esterification and catalytic oxidation) and analyse the products using gas chromatography</p> <p>[CO.4] To perform the experiments in the laboratory for carrying out the synthesis of some peculiar organic compounds such as luminol, anthracene and 4-cyano-2-aminophenol</p> <p>[CO.5] To perform the experiments in the laboratory for determining the quantity of aspirin in the given solution</p> <p>[CO.5] To perform the experiments in the laboratory for estimating the quantity of glucose in the given solution</p>

Core	CYL-503:	Physical Chemistry Lab-III	<p>[CO.1] To design and execute experiments to study the surface chemistry of surfactant, micelles and colloidal systems using different techniques.</p> <p>[CO.2] To measure refractive index and analyse the data for quantitative analysis.</p> <p>[CO.3] To carry out electrochemical analysis for quantitation.</p>
DSE	CME-503:	Green Chemistry	<p>[CO.1] Green chemistry, and its need, goals, limitations and principles</p> <p>[CO.2] Alternate routes for the green synthesis of some organic compounds</p> <p>[CO.3] Use of microwaves as the source of energy for carrying out the reactions in water</p> <p>[CO.4] Use of ultra sound for performing reactions in water</p> <p>[CO.5] Future trends in green chemistry</p>
DSE	COE-503:	Organic Structure Determination	<p>[CO.1] Fundamentals and applications of UV-Vis, infrared (IR) and 1D-NMR spectroscopic and mass spectroscopic techniques in the structure elucidation of organic compounds</p> <p>[CO.2] The principles and applications of 2D-NMR spectroscopic techniques in the structure elucidation</p>
DSE	COE-506:	Organic Synthesis Lab	<p>[CO.1] To perform experiments in the laboratory to carry out separation of mixture of organic compounds using liquid-liquid extraction</p> <p>[CO.2] To perform experiments in the laboratory to carry out multi-step organic synthesis</p> <p>[CO.3] To perform experiments in the laboratory to explore applications of co-enzymes in organic synthesis</p> <p>[CO.4] To perform experiments in the laboratory to carry out isolation of natural products and their characterization</p> <p>[CO.5] To perform experiments in the laboratory to generate nucleophiles and use them in nucleophilic substitution reactions of alkyl halides</p>

DSE	CPE-506:	Advanced Physical Chemistry Lab	<p>[CO.1] To design and execute experiments to study the kinetics of reactions under different experimental conditions.</p> <p>[CO.2] To work with sol and gel systems and their viscoelastic properties.</p> <p>[CO.3] To carry out electrochemical analysis for determining thermodynamic parameters.</p> <p>[CO.4] To record and analyse fluorescence spectra of nanomaterials.</p> <p>[CO.5] To record and analyse electronic spectra of nanomaterials and correlate it with structural properties of the same.</p>
DSE	COE-507:	Medicinal Chemistry	<p>[CO.1] Drugs, and intermolecular interactions</p> <p>[CO.2] Drug targets including proteins, enzymes and receptors, their structures and functions</p> <p>[CO.3] Concepts of pharmacokinetic and pharmacodynamics</p> <p>[CO.4] Enzymes as drug targets, receptors as drug targets, and nucleic acids as drug targets</p> <p>[CO.5] Drug discovery, design, and development</p>
			<p>[CO.6] Identification of the structure–activity relationships (SARs), and the pharmacophore in the drug design</p> <p>[CO.7] Ways to improve target interactions (pharmacodynamics) and improve pharmacokinetic properties.</p> <p>[CO.8] Preclinical trials and significance of patent on the drug</p>

**DSE: Discipline Specific Elective; These courses are chosen by the students from the list of Discipline Specific Elective (DSE) Course.*

Fourth Semester

Course Type	Course Code	Course Title	Course Outcome:
Core	CYC– 551:	Thesis/Dissertation	To carry out research (experimental or computational) work and writing the report, article and thesis

CURRICULUM OF ACADEMIC PROGRAMMES



School of Physical Sciences

(SOPS)

PhD (Chemistry)



DOON UNIVERSITY

KEDARPUR, P. O.-AJABPUR, DEHRADUN-248001

PROGRAM OUTCOMES

PO1-To extend the knowledge, expertise and development of skill through the application of research and collaborative activities.

PO2- To enhance critical thinking ability, create awareness in the field of chemical research industry.

PO3- To acquire proficiency in oral and written communication skill by presenting scientific term papers and writing projects reports.

PO4- To know about professional ethics and plagiarism issues and inculcate fair practices in scientific research.

PO5- To development of experimental skills by working on advanced systems and an ability to design and conduct original experiments along with theoretical and chemical approaches to describe the chemical world.

PROGRAM SPECIFIC OUTCOMES

PSO1-Develop communication skills and writing skills involving the ability to listen carefully, to read texts and research papers analytically and to present complex information in a concise manner to different groups.

PSO2-To know and understand the synthesis and modification chemical compounds, learn how to use instruments like UV-Visible spectra, IR spectra, ^1H NMR spectra, ^{13}C NMR spectra, DEPT spectra and 2D (COSY and HMQC/HSBC) NMR spectra, and mass spectrometric data in the elucidation of structures of chemical compound.

PSO3-Developing an ability to involve in a productive research and academic career, including publications, proposal submission and conference presentations.

PSO4-To know and understand the difference between copyrights and patents, trademarks and their types including collective marks, certification marks, service marks, trade names.

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COURSE OUTCOMES

Course Type	Course Code	Course Title	Course Outcome
Core	CYC-700: Research Methodology	Research Methodology	<p>[CO.1] The students will learn and understand the philosophy of research, designing research, and priority setting in research</p> <p>[CO.2] The students will have the skills to use print, digital, IT and library resources for literature survey</p> <p>[CO.3] The students will have the skill of writing scientific reports, research articles and review articles</p> <p>[CO.4] The students will have the knowledge about chemical safety and handling of chemicals</p> <p>[CO.5] The students will have the skills of using the computer applications in research</p> <p>[CO.6] The students will have the ability to communicate the results of research for application</p>
Core	CYC-701:	Research and Publication Ethics	<p>CO.1] The learner will know and understand the philosophy of research, and ethics</p> <p>[CO.2] The learner will know and understand the ethics with respect to science and research,</p> <p>[CO.3] The learner will know and understand the intellectual honesty and research integrity</p> <p>[CO.4] The learner will know and understand the scientific misconducts including falsification, fabrication and plagiarism</p> <p>[CO.5] The learner will know and understand the redundant publications, selective reporting and misrepresentation of data</p> <p>[CO.6] The learner will know and understand</p>

			the publication ethics, best practices, conflict of interest and publication misconduct
Elective	CYE-702:	Molecules and Materials: Designing and Characterization	<p>[CO.1] The students will learn and understand the basic experimental techniques and separation methods, the philosophy of analytical chemistry, the volumetric methods, electrochemical methods, thermal methods</p> <p>[CO.2] The students will have the skills and ability to apply the spectroscopic and spectrometric methods (UV, IR, NMR spectroscopy and mass spectrometry) in structural elucidation</p> <p>[CO.3] The students will have the skills to use and understand the spectrophotometric and microscopic methods</p>
Elective	CYE-703:	Basics of Polymer Chemistry	<p>[CO.1] The students will learn and understand the basic concepts in polymer science</p> <p>[CO.2] The students will learn and understand the types of polymerizations</p> <p>[CO.3] The students will know and learn the kinetics of polymerization</p> <p>[CO.3] The students will have the skills to apply different instrumental techniques for the characterization of macromolecules</p>
Elective	CYE-704:	Catalysts for Chemical Transformation	<p>[CO.1] The students will learn and understand the basic concepts in homogeneous catalysts and role of ligands</p> <p>[CO.2] The students will learn and understand different types of catalytic processes of industrial importance</p> <p>[CO.3] The students will learn and understand the highly useful coupling reactions and their homogeneous, heterogeneous and nano-catalysts</p>
Elective	CYE-705:	Applications of Macromolecules and	[CO.1] The students will learn and understand the basic concepts related to surfactant aggregation

		Nanomaterials	<p>[CO.2] The students will learn and understand the functional polymers</p> <p>[CO.3] The students will have the skills and ability to synthesize nanoparticles using different chemical routes and characterize them using different techniques</p> <p>[CO.4] The students will learn and understand the synthesis and modification of inorganic solids</p> <p>[CO.5] The students will learn and understand the composite materials</p>
Elective	CYE-706:	Bioinorganic and Organometallic Chemistry	<p>[CO.1] The students will learn and understand the basic concepts related to bioinorganic chemistry</p> <p>[CO.2] The students will learn and understand the heme and non-heme proteins,</p> <p>[CO.3] The students will learn and understand the metalloenzymes and photosynthesis</p> <p>[CO.4] The students will learn and understand the different aspects of organometallic compounds, ligands and simple reactions</p> <p>[CO.5] The students will learn and understand the metallocenes</p> <p>[CO.6] The students will learn and understand the applications of organometallic compounds</p>
Elective	CYE-707:	Spectroscopic and Spectrometric Methods	<p>[CO.1] The students will learn and understand the basic concepts related to atomic absorption and emission, UV-visible, IR absorption, scattering, and luminescence spectroscopic techniques.</p> <p>[CO.2] The students will learn and understand the basic concepts related to 1D and 2D NMR spectroscopy</p> <p>[CO.3] The students will learn and understand different concepts and aspects of mass spectrometry</p>

			[CO.4] The students will have the ability and skills of using UV-Visible spectra, IR spectra, ¹ H NMR spectra, ¹³ C NMR spectra, DEPT spectra and 2D (COSY and HMQC/HSBC) NMR spectra, and mass spectrometric data in the elucidation of structures of organic compounds.
Elective	CYE-708:	Transition Metal Complexes: Bonding, Reaction Mechanism and Applications	[CO.1] The students will learn and understand the basic concepts involved in metal ligand bonding. [CO.2] The students will learn and understand the concepts of ligand substitution reactions in octahedral complexes and square planar complexes. [CO.3] The students will learn and understand the concepts of electron transfer reactions in coordination compounds [CO.4] The students will learn and understand the electronic spectra and applications of metal complexes
Elective	CYE-709:	Strategies of Synthesis and Characterization of Organic Molecules	[CO.1] The students will learn and understand the basic concepts involved in design of organic synthesis [CO.2] The students will learn and understand the concepts of asymmetric synthesis [CO.3] The students will the ability and skills to apply UV-vis spectroscopic, IR spectroscopic, NMR spectroscopic and mass spectrometric techniques in characterization of organic compounds
Elective	CYE-710:	IPR and Traditional Knowledge	[CO.1] Students will understand the history, types and importance of intellectual property. [CO.2] Students will understand and know the difference between copyrights and patents. [CO.3] Students will understand and know the trademarks and their types including collective

			<p>marks, certification marks, service marks, trade names, etc.</p> <p>[CO.4] Students will understand and know the patents, geographical indications, industrial designs, trade secrets.</p> <p>[CO.8] Students will understand and know the international agreements including (a) world trade organization (WTO) (b) Paris Convention.</p> <p>[CO.9] Students will understand and know the WIPO and TRIPS, IPR and Plant Breeders Rights, IPR and Biodiversity.</p> <p>[CO.10] Students will understand and know the IP infringement issues and enforcement.</p>
Elective	CYE-711:	Statistics and Computer Applications	<p>[CO.1] The students will learn and understand the theory of probability</p> <p>[CO.2] The students will learn and understand the concepts involved in the sampling and sampling distribution</p> <p>[CO.3] The students will learn and understand the statistical inference</p> <p>[CO.4] The students will learn and understand the concepts of correlation and regression</p> <p>[CO.5] The students will have the ability and skills to use and apply the software of chemistry</p>



CURRICULUM OF ACADEMIC PROGRAMMES



School of Physical Sciences
MSc (Mathematics)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

The main objectives of B.Sc.(Hons) Mathematics Programme are to:

- a) inculcate strong interest in learning mathematics,
- b) evolve broad and balanced knowledge and understanding of definitions, key concepts, principles and theorems in Mathematics,
- c) enable learners/students to apply the knowledge and skills acquired by them during the programme to solve specific theoretical and applied problems in mathematics,
- d) develop in students the ability to apply relevant tools developed in mathematical theory to handle issues and problems in social and natural sciences,
- e) provide students with sufficient knowledge and skills that enable them to undertake further studies in mathematics and related disciplines,
- f) enable students to develop a range of generic skills which will be helpful in wage employment, self-employment and entrepreneurship

PROGRAM SPECIFIC OUTCOMES:

The completion of the B.Sc. (Hons.) Mathematics Programme will enable a student to:

- a) Communicate mathematics effectively by written, computational and graphic means.
- b) Create mathematical ideas from basic axioms.
- c) Gauge the hypothesis, theories, techniques and proofs provisionally.
- d) Utilize mathematics to solve theoretical and applied problems by critical understanding, analysis and synthesis.
- e) Identify applications of mathematics in other disciplines and in the real-world, leading to enhancement of career prospects in a plethora of fields and research.

COURSE OUTCOMES:

MAC-101: Calculus

This course will enable the students to: (a) To introduce fundamentals of the calculus in order to enhance application skill of students and prepare them to pursue higher analytical mathematics. (b) By the completion of the course the students will be able to analysis the relationships between quantities such as rates of changes, area, volume, properties of curves) and their mathematical equivalents. (c) The course will be able to equip the students with the tools of calculus to measure various quantities such as curvature, torsion, point motion in space etc. One of the main objective of the course is to further deepen the fundamentals of analytical mathematics.

MAC-102: Algebra

This course will enable the students to: a) Employ De Moivre's theorem in a number of applications to solve numerical problems. b) Learn about equivalent classes and cardinality of a set. c) Use modular arithmetic and basic properties of congruences. d) Recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix. e) Find eigenvalues and corresponding eigenvectors for a square matrix.

MAC-151: Real Analysis

This course will enable the students to: a) Understand many properties of the real line \mathbb{R} , including completeness and Archimedean properties. b) Learn to define sequences in terms of functions from \mathbb{N} to a subset of \mathbb{R} . c) Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence. d) Apply the ratio, root, alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.

MAC-152: Differential Equations

The course will enable the students to: a) Learn basics of differential equations and mathematical modeling. b) Formulate differential equations for various mathematical models. c) Solve first order non-linear differential equations and linear differential equations of higher order using various techniques. d) Apply these techniques to solve and analyze various mathematical models.

MAC-201: Theory of Real Functions

This course will enable the students to: a) Have a rigorous understanding of the concept of limit of a function. b) Learn about continuity and uniform continuity of functions defined on intervals. c) Understand geometrical properties of continuous functions on closed and bounded intervals. d) Learn extensively about the concept of differentiability using limits, leading to a better understanding for applications. e) Know about applications of mean value theorems and Taylor's theorem.

MAC-202: Group Theory I

The course will enable the students to: a) Recognize the mathematical objects that are groups, and classify them as abelian, cyclic and permutation groups, etc. b) Link the fundamental concepts of groups and symmetrical figures. c) Analyze the subgroups of cyclic groups and classify subgroups of cyclic groups. d) Explain the significance of the notion of cosets, normal subgroups and factor groups. e) Learn about Lagrange's theorem and Fermat's Little theorem. f) Know about group homomorphisms and group isomorphisms.

MAC-203: PDE and Systems of ODE

The course will enable the students to: a) Formulate, classify and transform first order PDEs into canonical form. b) Learn about method of characteristics and separation of variables to solve first order PDE's. c) Classify and solve second order linear PDEs. d) Learn about Cauchy problem for second order PDE and homogeneous and nonhomogeneous wave equations. e) Apply the method of separation of variables for solving many well-known second order PDEs

MAC-204: Mathematical Transforms

The course will enable the students to: a) determine Laplace transform of functions. b) determine Fourier and Z-Transforms for various functions. c) use properties of Fourier and Z-Transforms to solve physical problems. d)

introduce Mellin Transform, its Shifting and scaling properties, Mellin transforms of derivatives and integrals e) applications of transforms to solve physical problems.

MAC-251: Numerical Methods

The course will enable the students to: a) Learn some numerical methods to find the zeroes of nonlinear functions of a single variable and solution of a system of linear equations, up to a certain given level of precision. b) Know about methods to solve system of linear equations, such as Gauss–Jacobi, Gauss–Seidel and SOR methods. c) Interpolation techniques to compute the values for a tabulated function at points not in the table. d) Applications of numerical differentiation and integration to convert differential equations into difference equations for numerical solutions.

MAC-252: Riemann Integration and Series of Functions

(a) The objective of this course is to impart complete constructive and analytical knowledge of the theory of integration. (b) The students will be able of analysis of the various type of the integrals occurring in engineering and science. (c) After the completion of the course, the students are expected to gain capability for inquiring about questions relating to the concepts in various fields of mathematics and science. (d) It is essentially expected that integration theory supported by the knowledge of series and sequences of functions will make a powerful tool to analyze problems of science and technology.

MAC-253: Ring Theory and Linear Algebra-I

The course will enable the students to: a) Learn about the fundamental concept of rings, integral domains and fields. b) Know about ring homomorphisms and isomorphisms theorems of rings. c) Learn about the concept of linear independence of vectors over a field, and the dimension of a vector space. d) Basic concepts of linear transformations, dimension theorem, matrix representation of a linear transformation, and the change of coordinate matrix.

MAC-301: Multivariate Calculus

The course will enable the students to: a) Learn the conceptual variations when advancing in calculus from one variable to multivariable discussion. b) Find partial derivatives and Jacobian of multivariable functions and use them in practical problems, like to find extreme values of functions having two independent variables and to solve constrained optimization problems. c) Apply Fundamental Theorem of Line Integrals, Green’s Theorem, Stokes’ Theorem, and Divergence Theorem to evaluate multiple integrals. d) Understand the maximization and minimization of multivariable functions subject to the given constraints on variables. e) Learn about inter-relationship amongst the line integral, double and triple integral formulations.

MAC-302: Group Theory II

The course shall enable students to: a) Learn about automorphisms for constructing new groups from the given group. b) Learn about the fact that external direct product applies to data security and electric circuits. c) Understand fundamental theorem of finite abelian groups. d) Be familiar with group actions and conjugacy in S_n . e) Understand Sylow theorems and their applications in checking non simplicity.

MAC-351: Metric Spaces and Complex Analysis

The course will enable the students to: a) Learn various natural and abstract formulations of distance on the sets of usual or unusual entities. Become aware one such formulations leading to metric spaces. b) Analyse how a theory advances from a particular frame to a general frame. c) Appreciate the mathematical understanding of various geometrical concepts, viz. balls d) Learn the significance of differentiability of complex functions leading to the understanding of Cauchy–Riemann equations. e) Learn some elementary functions and valuate the contour integrals. f) Understand the role of Cauchy–Goursat theorem and the Cauchy integral formula. g) Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals.

MAC-352: Ring Theory and Linear Algebra II

On completion of this course, the student will be able to: a) Appreciate the significance of unique factorization in rings and integral domains. b) Compute the characteristic polynomial, eigenvalues, eigenvectors, and eigenspaces, as well as the geometric and the algebraic multiplicities of an eigenvalue and apply the basic diagonalization result.

c) Compute inner products and determine orthogonality on vector spaces, including Gram–Schmidt orthogonalization to obtain orthonormal basis. d) Find the adjoint, normal, unitary and orthogonal operators.

DSE1.1 Portfolio Optimization

This course will enable the students to: a) know the history of portfolio optimization b) have some idea about portfolio management in practice, what is risk and its types. c) why optimization techniques are rarely used in practice, at least for portfolios of individual stocks and measures. d) the opportunities for mathematical optimization to be used in practice.

DSE1.2 Number Theory

This course will enable the students to: a) Learn about some fascinating discoveries related to the properties of prime numbers, and some of the open problems in number theory, viz., Goldbach conjecture etc. b) Know about number theoretic functions and modular arithmetic. c) Solve linear, quadratic and system of linear congruence equations. d) Learn about public key crypto systems, in particular, RSA.

DSE1.3 Analytical Geometry

This course will enable the students to: a) introduction to analytical geometry of 2 dimensional. b) study of lines in 2 and 3 dimension. c) finding equation in various form of line, circle, ellipse, sphere, cones etc. d) sketch the graphs of some special curves by using polar coordinates on the plane.

DSE2.1 Industrial Mathematics

This course will enable the students to: a) give sufficient knowledge of fundamental principles, methods and a clear perception of the innumerable power of mathematical ideas and tools and knowledge of how to use them by modeling, solving and interpreting. b) Developing mathematical tools for continuing further study in various fields of science including medical science. c) Know the idea of inverse problems and their applications.

DSE 2.2 Boolean Algebra and Automata Theory

Course Outcome: This course will enable the students to: a) convert numbers into different systems and perform arithmetic operations there; b) identify various methods for representing characters in a computer; c) design circuits for simple Boolean expressions, and implement basic logic gates using universal gates; d) define Automata; e) discuss the acceptability of a string by finite automation; f) construct non-deterministic finite state machine.

DSE2.3 Probability and Statistics

At the end of the course the students will be able to: a) Explain the basic concepts of probability, random variables and solve problems using Baye’s theorem. b) Apply probability distributions like Binomial, Poisson, Geometric, Negative binomial, Uniform and Normal distributions, and Law of Large numbers, Central limit theorem, Markov chains, Chapman –Kolmogrov equations to solve statistical problems.

DSE3.1 Theory of Equations

On completion of the course, a student will be able to a) describe the graphical representation of a polynomial, maximum and minimum values of a polynomial, b) acquire the concept of symmetric functions, c) use Newton’s theorem to find the sums of power of roots, homogeneous products, limits of the roots of equation, d) derive Sturm’s theorem and its application.

DSE3.2 Bio-Mathematics

On completion of the course, a student will be able to a) Learn the development, analysis and interpretation of bio mathematical models such as population growth, cell division, and predator-prey models. b) Learn about the mathematics behind heartbeat model and nerve impulse transmission model. c) Appreciate the theory of bifurcation and chaos. d) Learn to apply the basic concepts of probability to molecular evolution and genetics.

DSE3.3 Linear Programming

This course will enable the students to: a) Learn about the graphical solution of linear programming problem with two variables. b) Learn about the relation between basic feasible solutions and extreme points. c) Understand the theory of the simplex method used to solve linear programming problems. d) Learn about two-phase and big-M methods to deal with problems involving artificial variables. e) Learn the role of sensitivity analysis in linear

programming problem. f) Learn about the relationships between the primal and dual problems. g) Solve transportation and assignment problems.

DSE4.1 Mathematical Modeling

The course will enable the students to: a) Know about power series solution of a differential equation and learn about Legendre's and Bessel's equations. b) Use of Laplace transform and inverse transform for solving initial value problems. c) Learn about various models such as Monte Carlo simulation models, queuing models, and linear programming models.

DSE4.2 Mechanics

The course will enable the students to: a) Know about the concepts in statics such as moments, couples, equilibrium in both two and three dimensions. b) Understand the theory behind friction and center of gravity. c) Calculate moments of inertia of areas and rigid bodies. d) Know about conservation of mechanical energy and work-energy equations. e) Learn about translational and rotational motion of rigid bodies.

DSE 4.3 Differential Geometry

At the end of the course the students will be able to understand: a) The theory of space curves and plane curves, properties of curves such as curvature, torsion evolutes, and involutes etc. b) The theory of surfaces, the fundamental quadratic Forms of surfaces, intrinsic and extrinsic geometry of surfaces, and the Gauss-Bonnet theorem. c) Developable surfaces, Geodesics. d) Tensors, and their properties.

SEC1.1 Logics and Set

At the end of the course the students will be able to: a) Construct proofs of basic set-theoretic identities involving unions, intersections, and cartesian products b) Formulate the negation, converse, and contrapositive of a quantified implication, both linguistically and in symbolic form. c) Demonstrate an understanding of the concept of a "counterexample" and be able to provide appropriate instances. d) Demonstrate an understanding of the Principle of Mathematical Induction. e) Understand the concepts of propositions, truth table, predicates and quantifiers, relation, partition etc.

SEC1.2 Computer Graphics

At the end of the course the students will be able to: a) Implement various geometric algorithms, transformations, area filling, clipping. b) Describe the importance of viewing and projections. c) Define the fundamentals of animation, virtual reality and related technologies. d) Apply mathematics and logic to develop programs for elementary graphic operations.

SEC1.3 Special Functions

Students will be able to: a) know the solution of second order differential equations with variable coefficients. b) find the solution of Legendre's differential equations and know about its properties. c) determine the solution of Bessel's differential equation. d) find the solution of Chebyshev differential equations and its properties.

SEC 2.1 Graph Theory

The course will enable the students to: a) understand the basics of graph theory and learn about social networks, Eulerian and Hamiltonian graphs, diagram tracing puzzles and knight's tour problem. b) able to formulate problems in graph theoretic terms. c) understand various versions of connectedness of a graph, d) be able to formulate applied problems as coloring problems, e) understand and be able to use different models of random graphs and (random networks).

SEC 2.2 Operating System: Linux

On completion of this course, students will be able to understand a) the objectives and functions of modern operating systems, b) the basic commands of linux operating system and can write shell scripts, c) to create file systems and directories and operate them, d) to create processes background and fore ground etc., by fork() system calls, e) to create shared memory segments, pipes, message queues and can exercise inter process communication.

GE 1.1 Object Oriented Programming in C++

After completion of this course, student will be able to: a) Identify importance of object oriented programming and difference between structured b) oriented and object oriented programming features. c) make use of objects and classes for developing programs. d) use various object oriented concepts to solve different problems.

GE1.2 Finite Element Methods

At the end of the course, a student will be able to: a) apply direct stiffness, Rayleigh-Ritz, Galerkin method to solve engineering problems and outline the requirements for convergence. b) analyze linear 1D problems like bars and trusses; 2D structural problems using CST element and analyse the axi-symmetric problems with triangular elements. c) write shape functions for 4 and 8 node quadrilateral, 6 node triangle elements and apply numerical integration to solve; 1D and 2D; stiffness integrations. d) solve linear 2D structural beams and frames problems; 1D heat conduction and convection heat transfer problems. e) evaluate the Eigenvalues and Eigenvectors for stepped bar and beam, explain nonlinear geometric and material non linearity.

GE 1.3: Applied Calculus

At the end of the course, students should be able to: a) Identify functions as linear, exponential, or periodic, compute the change and average rate of change for given functions, b) Interpret the concept of derivative as the rate of change, and approximate the derivative at a single point, c) Perform analysis and computation of limits by analytic, graphical and numerical methods, and use limits to investigate continuity of functions. d) Use techniques of differentiation, including the product, quotient, and chain rules to derive derivatives for polynomials, powers, exponentials, periodic functions and their compositions. e) Interpret definite integrals as areas, and evaluate them by numerical approximations and by the Fundamental Theorem of Calculus. Derive indefinite integrals by using power rule, exponential rule, logarithm rule, and rules for periodic functions. f) Use first and second derivatives to determine max/min values and locations for given functions, and to apply them to investigate the behaviors of logistic and surge functions. g) Understand the concepts of vector triple product, introduction to vector functions, space curves, tensor, tangent plane, normal and envelope analysis, helices, etc.

GE2.1 Mathematical Finance

After completion of this course, student will be able to: a) Understand the concept of time value of money. b) Explain and compare different types of interest (simple and compound, discrete and continuous) c) Understand the relation between a present value, a set of cash flows and interest, as well as understand the interest rate risk (duration, immunisation). d) Develop formulae for the expected value and variance of the present values of simple insurance and annuity contracts, assuming constant deterministic interest. e) Employ methods related to these concepts in a variety of financial applications.

GE2.2 Econometrics

At the end of the course the students will be able to: a) Apply basic statistical concepts like normal distribution, chi square, t, and F distributions, and test- Hypotheses to the data based problems. b) Apply Simple linear and multilinear regression models with the application of statistical tools for estimating economic relationships, testing economic hypotheses and forecasting.

GE3.1 Cryptography and Network Security

After the course, the student will be able to: a) Understand the fundamentals of cryptography and computer security attacks. b) Learn about various ciphers and data encryption standard. c) Review basic concepts of number theory and finite fields. d) Learn about advanced encryption standard. e) Understand the fundamentals of RSA and elliptic curve cryptography. f) Encrypt and decrypt messages using block ciphers, sign and verify messages using well known signature generation and verification algorithms.

GE 3.2 Information Security

After the completion of the course, the students will be able to: a) develop basic understanding of security, cryptography, system attacks and defences against them, b) Cryptography tools usage c) understand the methods and techniques for information security, d) have knowledge of data security and secure system development.

GE4.1 Applications of Algebra

At the end of the course the students will be able to use and apply: a) Balance incomplete Block design (BIBD), in design of experiments in science, engineering and technology, symmetric theory in development of designs, b) Coding theory in information technology, c) Theory of matrices in remote sensing in image processing, and in

constraint optimization problems and d) Theory of linear transformations in Least square method and to find approximate solution of system of linear equations finding inverse of rectangular matrices

GE4.2 Combinatorial Mathematics

Students will develop skills for: a) problem solving, counting, permutations and combinations, generating functions, recurrence relations, partitions, Binomial theorem etc., b) Many fundamental mathematical objects, such as sets and functions, c) Specialized mathematical objects, such as Fibonacci numbers and permutations d) Communicating about math with their peers.

GE 4.3 Numerical Methods

The course will enable the students to: e) Learn some numerical methods to find the zeroes of nonlinear functions of a single variable and solution of a system of linear equations, up to a certain given level of precision. f) Know about methods to solve system of linear equations, such as Gauss–Jacobi, Gauss–Seidel methods. g) Interpolation techniques to compute the values for a tabulated function at points not in the table. h) Applications of numerical differentiation and integration to convert differential equations into difference equations for numerical solutions.

CURRICULUM OF ACADEMIC PROGRAMMES



School of Physical Sciences
MSc (Mathematics)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

1. To recognize the nature of abstract mathematics and thoroughly explore the underlying concepts.
2. To create mathematical models for real-world problems and deduce optimal solutions through a systematic approach.
3. To apply mathematics to both theoretical and practical challenges through critical understanding, analysis, and synthesis of mathematical principles.
4. To engage in research in demanding domains of pure, applied, and computational mathematics.
5. To enable students to independently delve into specific areas of mathematics, teach mathematics or subjects heavily reliant on mathematics at high school, college, and degree levels, and pursue careers in industries where mathematics plays a vital role.

PROGRAMME SPECIFIC OUTCOMES:

1. To instill in students a deep understanding of pure, applied, and computational mathematical concepts, encompassing key principles, theorems, and computer programming using MATLAB, MATHEMATICA, and PYTHON.
2. To introduce students to the formulation and resolution of practical problems by employing various computational and mathematical tools and methodologies.
3. To provide students with the essential knowledge and skills required to pursue further, more advanced studies in mathematics and related fields.
4. To deliver a high-quality education by incorporating projects, participatory learning, and the latest software tools into the processes of teaching and learning.
5. To nurture in students the capacity for creative thinking, collaborative teamwork, and the upholding of ethical principles to meet societal expectations and to equip them with the competencies needed for successful careers in academia, business, and research, while also ensuring they possess adequate subject-matter expertise to assist in preparing for various competitive exams, including the GATE, GRE, UGC-CSIR, NET/JRF, and Civil Services Exams, among others.

COURSE OUTCOMES:

First Semester

Course Type	Course Code & Course Title	Course Outcome
Core Course	MAC401: Finite Field	After studying this course the student will be able to: e) identify and construct examples of fields, distinguish between algebraic and transcendental extensions, characterize normal extensions in terms of splitting fields and prove the existence of algebraic closure of a field. f) characterize perfect fields using separable extensions, construct examples of automorphism group of a field and Galois extensions as well as prove Artin's theorem and the fundamental theorem of Galois theory. g) classify finite fields using roots of unity and Galois theory and prove that every finite separable extension is simple. h) use Galois theory of equations to prove that a polynomial equation over a field of characteristic is solvable by radicals iff its group (Galois) is a solvable group and hence deduce that a general quintic equation is not solvable by radicals.
Core Course	MAC402: Topology	After studying this course the student will be able to:

		<ul style="list-style-type: none"> i) The knowledge gained in this subject will make students able to generalize and extend concepts of real/complex analysis to more abstract spaces. j) It is expected that the critical reasoning ability will be further enhanced and sharpened at the end of the course. Students completing this course will be able to present mathematics clearly and precisely, make vague ideas precise. k) This course will enable the students to understand the importance and properties of abstract analysis
Core Course	MAC403: Ordinary Differential Equation	<p>After studying this course the student will be able to:</p> <ul style="list-style-type: none"> d) know about existence, uniqueness and continuity of solutions of first order ODE's, properties of zeros of solutions of linear second order ODE's, boundary value problems. e) Understand witheigen values and eigen functions of Sturm–Liouville systems, and the solutions of initial and boundary value problems. f) be well equipped to undertake any advanced course on ordinary differential equations.
Core Course	MAC404: Numerical Analysis	<p>The course will enable the students to</p> <ul style="list-style-type: none"> e) Learn some numerical methods to find the zeroes of nonlinear functions of a single variable and solution of a system of linear equations, up to a certain given level of precision. f) Interpolation techniques to compute the values for a tabulated function at points not in the table, spline. g) Numerical solution of differential equations using single step and multi step methods along with their stability analysis.
Core Course	MAC405: Mathematical Modelling	<p>After studying this course the student will be able to:</p> <ul style="list-style-type: none"> c) Know the concept of how to develop mathematical models using experimental data and observation data (Discrete and continuous) in the form of difference and differential equations and basic methods to solve them. d) To develop Models of growth and decay (for problems of aging), Prey Predator (problems of ecology and environment), drugs delivery

		problem (Medical problems), motion of planets and satellites (Space problems), population dynamics (genetics and microbiology), etc.
Core Course	MAC406: Linear Algebra	<p>After studying this course, the student will be able to:</p> <ul style="list-style-type: none"> e) Learn about the concept of linear independence of vectors over a field, and the dimension of a vector space. f) Basic concepts of linear transformations, dimension theorem, matrix representation of a linear transformation, and the change of coordinate matrix. g) Compute the characteristic polynomial, eigenvalues, eigenvectors, and eigenspaces, as well as the geometric and the algebraic multiplicities of an eigenvalue and apply the basic diagonalization result. <p>Compute inner products and determine orthogonality on vector spaces, including Gram–Schmidt orthogonalization to obtain orthonormal basis.</p>

Second Semester

Core Course	MAC451: Functional Analysis	<p>After studying this course the student will be able to:</p> <ul style="list-style-type: none"> d) Familiarize with distance and extension of distance as a norm. The student will learn central concepts from functional analysis, including the Hahn-Banach theorem, the open mapping and closed graph theorems and the uniform boundedness theorem. e) Structural properties of spaces those are constructed with the help of suitable norms. The students will be able to unify the various concepts of calculus and analysis with the help of other concepts from vector spaces,
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		<p>matrix theory and complex variables.</p> <p>f) The concepts of linear operators, their adjoint operators and properties of bounded linear operators. The significance of orthonormal sequences in the Fourier series and orthonormal expansions.</p>
Core Course	AC452: Complex Analysis	<p>After studying this course the student will be able to</p> <p>f) understand analytic function as a mapping on the plane, Mobius transformation and branch of logarithm.</p> <p>g) understand Cauchy's theorems and integral formulas on open subsets of the plane.</p> <p>h) understand how to count the number of zeros of analytic function giving rise to open mapping theorem.</p> <p>i) know about the kind of singularities of meromorphic functions which helps in residue theory and contour integrations.</p> <p>j) handle integration of meromorphic function with zeros and poles leading to the argument principle and Rouché's theorem.</p>
Core Course	AC453: Partial Differential Equation	<p>After studying this course the student will be able to</p> <p>e) Establish a fundamental familiarity with partial differential equations.</p> <p>f) Distinguish between linear and nonlinear partial differential equations.</p> <p>g) Find complete integrals of Non-linear first order partial differential equations.</p> <p>h) Solve second order partial differential equations by method of characteristic equations, and by method of separation of variables (Elliptic, parabolic, and Hyperbolic).</p>
Core Course	MAC454: Measure & Integration	<p>After studying this course the student will be able to</p> <p>g) verify whether a given subset of P or a real valued function is measurable</p> <p>h) understand the requirement and the concept of the Lebesgue integral (a generalization of the Riemann integration) along its properties.</p> <p>i) demonstrate understanding of the statement and proofs of the fundamental integral convergence theorems and their applications.</p> <p>j) know about the concepts of functions of bounded variations and the absolute continuity of functions with their relations.</p> <p>k) extend the concept of outer measure in an abstract space and integration with respect to</p>

		a measure. l) learn and apply Holder and Minkowski inequalities in L^p -Spaces and understand completeness of L^p -Spaces and convergence in measures.
Core Course	MAC455: Advanced Linear Programming	After studying this course the student will be able to e) To appropriately formulate Linear Programming models for service and manufacturing systems, and apply operations research techniques and algorithms to solve these LP problems f) Apply linear programming method to solve two-person zero-sum game problems. g) To appropriately formulate Network models for service and manufacturing systems, and apply operations research techniques and algorithms to solve these Network problems. h) To appropriately formulate Queuing and Inventory models for service and manufacturing systems, and apply operations research techniques and algorithms to solve these problems.

Third Semester

Core Course	MAC501: Non-Linear Programming Problem (NLPP)	(a) Understand the basic concepts of NLPP, difference between LPP and NLPP, convex set and convex function, relative maxima and relative minima. (b) Solution of NLPP problems with equality constraints using Lagrangemultiplier method, solution of NLPP problem with inequality constraint using KarushKuhn-Tucker(KKT)conditions. (c) Different types of numerical optimization methods
Core Course	MAC502: Fluid Dynamics	This course will (a) impart the complete constructive and analytical knowledge of the theory of Fluid Mechanics (b) The students will be able to solve the

		<p>various type of the Differential Equations, Integral equations, and Boundary Value Problems of Fluid Mechanics occurring in Mathematical Science , Engineering and Science.</p> <p>(c) The students are expected to gain capability for inquiring about questions relating to the concepts in variousfields of Mathematical Science , Engineering and Science.</p>
Core Course	MAC503:Applied Functional Analysis	<p>Learn the fundamental theorem, Hahn-Banach, Open mapping, Closed graph and Banach fixed point theorems.</p> <p>Use the Banach fixed point theorem to demonstrate the existence and uniqueness of solutions to differential equations, Integral equations, numerical root finding, system of linear equations and eigen value problems.</p>
Core Course	MAC504:Integral Equations &Calculus of variation	<p>The student will be able to understand</p> <p>(a) the relationship between linear differential equations, Volterraand Fredholm integral equations, and their solutions by using resolvent kernels.</p> <p>(b) solution of Abel’s integral equation, Iterated kernels, solution of Cauchy type integral equations, eigen values and eigen functions of Fredholdimntegral equations, Green’s function.</p> <p>(c) Use of Laplace transformation to get the solution of integro-differential equations,Volterraintegral equation of the First kind.</p> <p>(d) functionals, strong and weak variations, Euler’sEquation, Variational problem, Isoperimetric problem.</p>
Core Course	MAC510:Project Work	<p>A project may be undertaken in the form of a case study or otherwise and data be collected, if required, as the case may be.The topic of the project be chosen in consultation with the assigned supervisor and the candidate should prepare a summary/synopsis of the proposed project related to some topic in Mathematics. The candidate needs to collect data/related literature on any particular aspect of the identified topic and</p>

		shall prepare the report of the project from historical point of view, or as a survey or unification of different aspects.
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Fourth Semester

Core Course	MAC-551: Fuzzy Sets and Logics	<p>The students will be able to understand</p> <ul style="list-style-type: none"> (a) the basic ideas of fuzzy sets, arithmetic operations, norms and conforms, properties of fuzzy sets and fuzzy relations, (b) the basic features of membership functions, fuzzification process and different types of defuzzification methods, (c) use of fuzzy logic, fuzzy inference systems and design of fuzzy rule based system along with fuzzy optimization.
Core Course	MAC552: Biomathematics	<ul style="list-style-type: none"> (a) Draw inferences from models using higher technique including problem solving, quantitative, qualitative using numerical methods. (b) Students gets the scientific & research ability by this multi-disciplinary course. (c) Biological problem dealing by mathematics.
Core Course	MAC553: Approximation theory	<p>The students will be able to recognize problems of engineering, science in abstract setting and construct the suitable mathematical model.</p> <p>The confluence of abstract, applied mathematics and computer softwares will lead to efficiently understand and solve the problems. The convergence of approximation methods and possibility of approximation will be learn.</p>

		Learn the existence and uniqueness problems and dependence of the solution on structure of the space as well as the type of approximation.
Core Course	MAC560:Dissertation	Any topic in mathematics may be picked up by a candidate in consultation with the assigned supervisor. An in-depth study of the topic in a specific direction be made leading to the identification of a problem. The derivation of full/partial answer to the problem be written in the form of a thesis. The investigation be made either to give birth to another proof of an existing result or a new technique be proposed in lieu of an existing technique or a novel finding.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Physical Sciences PhD (Mathematics)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

1. Apply the knowledge of mathematical concepts in interdisciplinary fields as well as real world domain.
2. Identify, determine and define new issues that are relevant to one's field of interest.
3. Upon completion of the program, Students will be able to exhibit critical comprehension at an advanced level and current knowledge of research technique in their field of interest.
4. The student will be fully prepared to pursue a PhD course and carry on with their study.
5. It is expected that they will pass competitive exams such as the NET, GATE, Postdoc etc.

PROGRAMME SPECIFIC OUTCOMES:

1. To comprehend the essence of abstract mathematics and thoroughly investigate its underlying concepts.
2. To construct mathematical models for real-world problems and derive optimal solutions systematically.
3. To employ mathematics in addressing both theoretical and practical challenges through critical comprehension, analysis, and synthesis of mathematical principles.
4. To engage in research within the rigorous domains of pure, applied, and computational mathematics.
5. To empower students to independently delve into specific mathematical areas, teach mathematics or subjects heavily reliant on mathematics at high school, college, and degree levels, and pursue careers in industries where mathematics plays a pivotal role.

COURSE OUTCOMES:

Course Type	Course Code & Course Title	Course Outcome
Core Course	MAC-601: Research Methodology	<p>The students will be able to</p> <ul style="list-style-type: none"> (a) Acquire tools to mine literature, extract the data and identify the research gap. (b) Identify the research question, develop a hypothesis and evolve the experimental design. (c) Develop skill for statistical analyses, to present data, and write a research paper.
Core Course	MAC-602: Research and Publication Ethics(RPE)	<ul style="list-style-type: none"> (a) Understand basic philosophy of science and ethics, research integrity, publication ethics. (b) Identify research misconduct and predatory publications indexing and citation database, open access publication, research matrix and plagiarism tools.
Elective Course	MAE-601: Advanced Numerical Analysis with MATLAB	<p>The course will enable the students to</p> <ul style="list-style-type: none"> h) Learn some numerical methods to find the zeroes of nonlinear functions of a single variable and solution of a system of linear equations, up to a certain given level of precision. i) Numerical solution of ordinary differential equations, Euler's method, Taylor series method, Runge-Kutta methods of different orders, stability analysis. j) Finite differences methods for partial differential equations for solving, parabolic and hyperbolic problems. k) MATLAB basics and its use in interpolation, numerical solution of ODE and PDE.

<p>Elective Course</p>	<p>MAE-602:Advanced Differential Equations with MATLAB</p>	<ul style="list-style-type: none"> (a) The students will be able to solve higher order BVP, (b) understanding the well-posed initial and boundary value problems for classical differential equation with various numerical techniques, (c) to understand scientific research related problem mathematically. (d) MATLAB programming is used for solving the different kinds of initial and boundary value problems.
<p>Elective Course</p>	<p>MAE-603: Constructive Function Theory</p>	<p>The students will be able to</p> <ul style="list-style-type: none"> (a) recognize problems of numerical mathematics and science in abstract setting and construct the suitable mathematical model. (b) Concept of approximation, possibility of approximation, order of convergence, linear positive functionals, operators, strong and weak* convergence (c) The confluence of abstract, applied mathematics and computer software will lead to efficiently understand and solve the problems with higher accuracy. The possibilities and convergence of approximation methods are supposed to learn. (d) Learn the existence and uniqueness problems and dependence of the solution on structure of the space as well as the type of approximation.

CURRICULUM OF ACADEMIC PROGRAMMES



School Of Physical Sciences PhD (Computer Science)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

- To develop an understanding of various research designs and techniques.
- To provide students with an understanding of the expectations from research work.
- To improve the research skills of computer science students
- To bridge the skill gaps and make students research ready
- To provide an opportunity for students to develop interdisciplinary skills.
- To focuses on research skill development and more than 50% of the time is spent on practical training and problem-solving, to provide the requisite understanding toward the application of academic topics from Computer science disciplines into real-world research projects.

Course Type	Course Code	Course Title	Course Outcomes
Core	CSPC-601	Research Methodology	<ul style="list-style-type: none"> ➤ Students who complete this course will be able to understand and comprehend the basics in research methodology and applying them in research/ project work. ➤ This course will help them to select an appropriate research design. ➤ With the help of this course, students will be able to take up and implement a research project/ study. ➤ The course will also enable them to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate students' prosperity in higher education. ➤ The Students will develop skills in qualitative and quantitative data analysis and presentation. ➤ Students will be able to demonstrate the ability to choose methods appropriate to research objectives.
Core	CSPC-602	Research and Publication Ethics (RPE)	<ul style="list-style-type: none"> ➤ To know rules, issues, options, and resources for research ethics. ➤ To familiarize with various institutional ethics review boards/academic integrity guidelines. ➤ To understand the purpose and value of ethical decision-making. ➤ To have a positive disposition towards continued learning about research ethics.
Discipline	CSPE-601	Numerical	<ul style="list-style-type: none"> ➤ Develop intelligent systems leveraging the paradigm of soft

Specific Elective (DSE)		and Soft Computing	<p>computing techniques.</p> <ul style="list-style-type: none"> ➤ Develop intelligent systems leveraging the paradigm of soft computing techniques. ➤ Recognize the feasibility of applying a soft computing methodology for a particular problem ➤ Design the methodology to solve optimization problems using fuzzy logic, genetic algorithms and neural networks. ➤ Design hybrid system to revise the principles of soft computing in various applications
Discipline Specific Elective (DSE)	CSPE-602	Digital Image Processing	<ul style="list-style-type: none"> ➤ Review the fundamental concepts of a digital image processing system. ➤ Evaluate the techniques for image enhancement and image restoration. ➤ Analyze the utility of wavelet decompositions and their role in image processing systems. ➤ Elucidate the mathematical modelling of image morphology. ➤ Interpret image segmentation and representation techniques. ➤ Design algorithms to solve image processing problems and meet design specifications.
Discipline Specific Elective (DSE)	CSPE-603	Image Analysis and Object Detection	<ul style="list-style-type: none"> ➤ Apply the definitions of the image classification and analysis problem to common problems in computer vision. ➤ Explain the basics of object recognition and image search, object detection techniques, motion estimation, object tracking in video using convolutional filters. ➤ Apply convolutional neural networks to image data for object recognition and detection. ➤ Select different network architectures for the appropriate image processing problems. ➤ Design and execute an implementation of an image processing system using tools such as PyTorch or TensorFlow. ➤ Explain the theoretical background of convolutional neural networks in terms of learning rates and system size. ➤ Perform theoretical analyses of network performance.
Discipline Specific Elective (DSE)	CSPE-604	Information Security	<ul style="list-style-type: none"> ➤ Protect and defend computer systems and networks from cybersecurity attacks. ➤ Diagnose and investigate cybersecurity events or crimes related to computer systems and digital evidence. ➤ Effectively communicate in a professional setting to address information security issues.
Discipline Specific Elective (DSE)	CSPE-605	Data Warehousing And Data Mining	<ul style="list-style-type: none"> ➤ Understand the functionality of the various data mining and data warehousing component. ➤ Appreciate the strengths and limitations of various data mining and data warehousing models. ➤ Explain the analyzing techniques of various data.

			<ul style="list-style-type: none"> ➤ Describe different methodologies used in data mining and data ware housing. ➤ Compare different approaches of data ware housing and data mining with various technologies.
Discipline Specific Elective (DSE)	CSPE-606	Machine Learning using Python	<ul style="list-style-type: none"> ➤ Develop an appreciation for what is involved in Learning models from data. ➤ Understand a wide variety of learning algorithms. ➤ Understand how to evaluate models generated from data. ➤ Apply the algorithms to a real problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models.
Discipline Specific Elective (DSE)	CSPE-607	Blockchain Technology	<ul style="list-style-type: none"> ➤ Describe the basic concepts and technology used for block chain. ➤ Describe the primitives of the distributed computing and cryptography related to block chain. ➤ Illustrate the concepts of Bitcoin and their usage. ➤ Implement Ethereum block chain contract. ➤ Apply security features in block chain technologies. ➤ Apply security features in block chain technologies.
Discipline Specific Elective (DSE)	CSPE-608	Cloud Security	<ul style="list-style-type: none"> ➤ Understand the characteristics in terms of the systems, protocols and mechanisms in Cloud. ➤ Comprehend the security & privacy issues with reference to Cloud Computing. ➤ Discipline Specific Elective (DSE) Identify the vulnerabilities, threats and attacks in Cloud Environment and the defense mechanisms. ➤ Examine intrusion detection systems and approaches in Cloud Computing. ➤ Implement open-source attacking and security tools. ➤ Differentiate the Container and Hypervisor based security architectures.
Discipline Specific Elective (DSE)	CSPE-609	Introduction To Cloud Computing	<ul style="list-style-type: none"> ➤ Understand the evolution of Cloud Computing and compare with traditional Computing. ➤ Remember the key terminologies used in source tools. ➤ Identify the advantages and disadvantages of various cloud computing platforms and service models. ➤ Classify security and privacy issues in cloud computing. ➤ Apply various cloud services to understand elasticity, scalability and availability properties of Cloud services and also their usage towards web service deployments. Cloud Computing and understand key concepts.
Discipline Specific Elective (DSE)	CSPE-610	Intrusion Detection System	<ul style="list-style-type: none"> ➤ Understand the attack taxonomy and components of Intrusion Detection ➤ Compare the State-of-the-Art approaches and discuss Recent Advances in Intrusion Detection

			<ul style="list-style-type: none">➤ Implement few Open-Source IDSes (Snort in specific) and improve their performance➤ Analyze and evaluate the anomaly-based IDSes over some publicly available datasets
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CURRICULUM OF ACADEMIC PROGRAMMES



School Of Physical Sciences MTech (Computer Science)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOMES:

PO1. Communicate computer science concepts, designs, and solutions effectively and professionally

PO2. Apply computer science theory and software development concepts to produce effective designs and solutions for specific problems.

PO3 Identify, analyze, and synthesize scholarly literature relating to the field of computer science.

COURSE OUTCOMES

Semester I

CSC-411: Parallel and Distributed Computing:

By the end of the course, students should be able to:

- Understand the terminologies in distributed computing
- Understand the different type of Processors, single as well multi-core processors
- Understand the concepts of computational Grids.

CSC-412: Combinatorics and Graph Theory

By the end of the course, students should be able to:

- Understand elementary concepts in combinatorics
- Understand the basics of graph theory
- Understand the usage of probabilistic method

Semester II

CSC-461: Advanced Algorithms

By the end of the course, students will be able to

- Understand the necessary mathematical abstraction to solve problems.
- Come up with analysis of efficiency and proofs of correctness.
- Comprehend and select algorithm design approaches in a problem specific manner.

CSC-462: Research Methodology

By the end of the course, students should be able to:

- Understand the concept of research.
- Understand the concept of data collection and selection for research.
- Understand the applicability of research for public at large.

Semester III

CSP-462: Research Seminar

Course Outcome: By the end of the seminar, students should be able to:

- Understand the concept of research
- Describe and present the literature study and research gaps identified.
- Improving written and communication skills

CSP-462: Dissertation- Part 1

By the end of the Dissertation-Part 1, students should be able to:

- Formulate the research objectives
- Design the framework/architecture of the proposed work
- Demonstration of research tools

Semester IV

CSP-462: Dissertation-Part 2

By the end of the Dissertation-Part 2, students should be able to:

- Design and implement the proposed framework/architecture of the proposed work
- Research paper writing and publishing
- Dissertation report

CURRICULUM OF ACADEMIC PROGRAMMES



Dr. Nityanand Himalayan Research &
Study Centre
MSc (Geology)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAM OUTCOME:

1. To provide students with a foundational and skill-focused grasp of Geology, enabling them to foster a logical approach within the industry, academia, and research fields.
2. To ready students for Geology research and related domains, ensuring they are well-prepared to pursue advanced studies and investigations in the field.

PROGRAM SPECIFIC OUTCOME:

1. Students will have basic and applied understanding of different aspects of Geology.
2. Students will be able to seek new knowledge, skills and manage relevant information from various sources.
3. Students will be trained to work effectively and safely in the field & laboratory environment independently as well as in groups.
4. Students will be able to clearly communicate the results of scientific work in oral, & written formats to both science community and society.
5. Students will be able to learn and act with integrity and good ethics in their profession and their obligation to society.
6. Students will be able to demonstrate knowledge and skills in analyzing and identifying entrepreneur opportunities.

COURSE OUTCOMES:**SEMESTER-I**

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
GEOL/C/101	Igneous & Metamorphic Petrology	On completion of the course, the student should be able to understand the genesis of igneous rocks using petrographically, mineralogical and geochemical perspectives.
GEOL/C/102	Sedimentology	Detailed knowledge of sedimentary rocks, structures, environments of sedimentation and sedimentary facies in nature. Characteristics of various sedimentary environments. Field and laboratory methods to study and analyze sedimentary rocks.
GEOL/C/103	Structural Geology	Students will gain the practical knowledge about the subject and will be able to apply it in the field in geo-scientific projects professionally.
GEOL/C/104	Mineralogy and Geochemistry	Develop an understanding of the chemical nature of earth and other planetary material.
GEOL/C/107	Field Training	Students will have comprehensive understanding of geological features, their genesis, extent, and significance in sustainable development.

SEMESTER-II

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
GEOL/C/108	Paleontology	This course will provide a deep understanding of the history of life on Earth, as well as the scientific methods used to study and interpret the fossil record.
GEOL/C/109	Stratigraphy	Students can expect to learn about the different stratigraphic units in India, their correlation with the international geological time scale, and the geological formations and economic resources associated with them.
GEOL/C/110	Economic Geology	Students will learn about the geological processes behind the formation and extraction of economically valuable minerals, as well as interdisciplinary subjects such as chemistry, physics, geography, and economics.
GEOL/C/111	Tectonic geomorphology	It will help in understanding natural surface and subsurface agents engaged in removal of old and formation of new landforms on the earth's surface. It helps in many fields such as ground water exploration and storage, flood control, waste disposal, smart city development, oil and natural gas exploration, infrastructure development, and more.
GEOL/C/114	Seminar (related to dissertation)	It will help students for structured discussion/conversation or debate focused on assigned tasks/readings.

SEMESTER-III

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
GEOL/C/115	Engineering Geology	Students will learn methods of assessing geological perspective of major infrastructure projects. Rock properties related to the strength and bearing capacities of rocks and soils. Understanding the effect and relationship of natural hazards on engineering projects.
GEOL/C/116	Mineral exploration and Mineral economics	Students will be able to gain information regarding geo- exploration methods and its usefulness in exploration programme and to society.
GEOL/C/117	Geodynamics	Students will learn deformation pattern of earth through various perspectives.
GEOL/C/118	Geohydrology	Basic knowledge of geohydrology and groundwater prospecting techniques. knowledge regarding groundwater flow under steady and unsteady conditions Knowledge regarding groundwater exploration and management. Application of seismic refraction methods in groundwater problems.
GEOL/F/121	Field Training	Students will have comprehensive understanding of geological features, their genesis, extent, and significance in sustainable development

SEMESTER-IV

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
GEOL/C/122	Remote Sensing and GIS	They will also learn about specific applications of remote sensing and GIS technology in different fields, such as environmental monitoring, urban planning, agriculture, and disaster management.
GEOL/C/123	Glaciology and Paleoclimate	Students can expect to gain a deep understanding of the physical processes of glaciers, their formation, movement, and impact on the environment.
GEOL/C/124	Himalayan Geology	Students will have basic understanding of Himalayan geological setting.
GEOL/E/125	Elective Course (Marine Geology; Environmental Geology)	MG: Students will learn basic concepts of Ocean dynamics and its interaction with atmosphere. EG: Students will understand Components of environment, ecology and ecosystem
GEOL/D/128	Project oriented dissertation	Research oriented rationality will develop among students.

CURRICULUM OF ACADEMIC PROGRAMMES



Dr. Nityanand Himalayan Research &
Study Centre

MA (Geography)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES:

The learning outcomes of the Postgraduate degree course in Geography are as follows:

- A. This course will provide students, the advanced concepts of Physical & Human Geography
- B. It will communicate Geography effectively by theoretical and practical means.
- C. Students will be able to analyze the problems of present physical as well as cultural world and they will try to find out the possible measures to solve those problems.
- D. Students will be able to understand applied and interdisciplinary aspects of Geography. .
- E. Students will be able to learn how Geography acts as a bridge between natural and social sciences.
- F. Students will learn how to use various surveying instruments in the field.
- G. Students will be equipped with various statistical techniques and their uses.
- H. Students will learn how to prepare maps based on toposheets as well as GIS.
- I. As a spatial science subject will train students to employ in the sectors of geospatial analysis, regional planning and development, tourism, mapping and surveying etc.
- J. Students will be able to relate and use geographical knowledge and its applied aspects in their practical life.

PROGRAMME SPECIFIC OUTCOMES:

The Postgraduate degree course in Geography aims to provide:

- a) In-depth knowledge in Geography through understanding of key geographical concepts, principles, theories and their applications.
- b) inculcate strong interest in learning Geography,
- c) Provide a holistic understanding of Geography through general and specialised courses in both physical and human geography
- d) Enable students to understand the role of geography as a bridge between natural and social sciences
- e) enable learners/students to apply the knowledge and skills acquired by them during the programme to understand and solve real world problems like climate change, global warming, hazards, disasters, solid waste management etc.
- f) provide students with sufficient knowledge and skills that enable them to undertake research in Geography and related disciplines,
- g) To enable students to make use of Geography in their professional field
- h) Provide sufficient subject matter competence and enable students to prepare for various competitive examinations such as GRE, UGC NET/JRF and Civil Services Examinations etc.

COURSE OUTCOMES:**SEMESTER-I**

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
SLE 101	Geomorphology	On completion of the course, the student should be able to understand the linkages between landscape form and processes.
SLE 102	Geographical Thought	Understand the development of Geography as a scientific discipline. Learn the basic concepts of Geography. Know the contributions of Indian, Arab, Greek, Roman, and modern geographers.
SLE 103	Regional Geography of India	The course will enable the students to know about the physical and cultural diversities and interrelationships of India.
SLE 104 a	Climatology and Climate Change	Understand the basic principles of global climate. Recognize the problems of climate change
SLE 105	Cartography	Students will have comprehensive understanding of geographical data of different types using diagrams, graphs and maps.

SEMESTER-II

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
SLE 201	Geography of Natural Resource	This course will provide a deep understanding of resource availability, accessibility, utilization, its use and misuse.
SLE 202	Fundamentals of Remote Sensing and GIS	Students can expect to learn about the meaning and importance of Remote Sensing and GIS and learn to map making by using RS and GIS.
SLE 203	Geography of Himalayan Mountain	Students will learn about the physical as well as cultural aspects of the Himalayas.
SLE 204	Computer, Remote Sensing and GIS	It will help in learning to map making by using RS and GIS and to use GIS for various analysis techniques like Overlay Analysis, Spatial Analysis etc.
SLE 205a	Oceanography	It will help students to acquire in-depth knowledge of basic concepts and theories in oceanography.

SEMESTER-III

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
SLE 301	Environmental Geography	Students will learn about the basic concepts and principles of environmental geography and analyse the causes and consequences of environmental degradation and pollution with special reference to India.
SLE 302	Research Methodology	Students will be able to gain understand social science research philosophy with special reference to geography.
SLE 303	Cultural Geography	Students will learn about the world distribution of cultures and various cultural traits like language and religion.
SLE 304	Field Surveying	Basic knowledge of how to make basic maps of any space using methods like plane table survey and prismatic com-pass.
SLE 305a	Natural Hazards and Disaster Management	Students will learn about the different types of hazards and the impact of hazards and disasters on various spheres of human life.

SEMESTER-IV

COURSE CODE.	TITLE OF THE COURSES	COURSE OUTCOME
SLE 401	Regional Geography of Uttarakhand	They will learn about specific physical and cultural characteristics of the state of Uttarakhand that make the mosaic of life in the state.
SLE 402	Urban Geography	Students can expect to understand the concepts and components of urban development and management
SLE 403	Geo-Hydrology	Students will have basic understanding of Himalayan geological setting.
SLE 404	Quantitative Techniques in Geography	Students will learn basic concepts of and understand the importance of statistical methods in Geographical studies.
SLE 405a	Political Geography	The students will learn about the territorial bases of the state and role of geographic factors in shaping political history.

CURRICULUM OF ACADEMIC PROGRAMMES



Dr. Nityanand Himalayan Research &
Study Centre
MA (Theatre)



DOON UNIVERSITY

KEDARPUR, P.O-AJABPUR DEHRADUN-248001

PROGRAMME OUTCOMES (POs)

1. To ensure that students attain a firm understanding of fundamental theatre concepts. Additionally, they should be well-versed in the folk theatrical traditions of Uttarakhand.
2. To provide postgraduate students with a comprehensive knowledge of theatre techniques, including screenwriting, stage lighting, set design, and more.
3. To equip students with proficiency in both theatrical performance and teaching, enabling them to become skilled directors and actors.
4. To empower students with the capability to create solo performances, conduct artistic research, and utilize various theatrical applications and music software, among other skills.
5. To prepare all enrolled students for UGC/NET exams, ensuring they have the necessary qualifications for success in these assessments.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

The program shall enable the learner to gain insight into the theatrical science as a subject defines the birth potential, background and development journey of the Indian screen.

It also includes the knowledge of theatrical theater techniques such as drama set, costume designing and makeup designing are equally important.

Under the curriculum, folk songs and folk arts have also been included in the curriculum for the preservation and knowledge of the folk arts of Uttarakhand.

The learner shall be able to use voice, body postures and inanimate timing for creative theatrical skills.

Folk theater arts include the Indian development from ancient times to modern times. This topic focuses in detail on the study of theater and designing techniques like blocking, craft stage scripting, costume designing etc. The history of World Theater includes Indian theatre, western and Asian theatre.

COURSE OUTCOMES:

First Semester			
Course type	Course Code	Course Title	Course Outcome
Theoretical	MIT.101	Indian classical drama (history and literature)	Students will study the origin and theory of Indian classical theatrical literature. Apart from this, they will also get the knowledge of acting, auditorium, rasa, emotion, acting mirror and dasharupak. Students will take advantage of important subjects like Natyashastra, Bhasa, Kalidasa, Shudraka, analysis of the plays of Bhavabhuti.
Theoretical	MIT.102	Modern Indian Drama (History and Literature)	Under this course, students will study the origin, development of modern Indian drama and the interrelationship of modern Hindi drama with other theatrical genres.
Practical	MIT.103	Practical and Viva	In practical and oral, students will learn to practice yoga, voice, speech, acting, visual work, color, music. They will also get training in the famous folk dance of Uttarakhand.
Second Semester)			
Theoretical	MIT.104	Study of Indian and Asian Theater	Will acquire knowledge of important topics like the origin, development, features and styles of Indian folk theater and what is the relation of Sanskrit theatre, will do research work.

Theoretical	MIT.105	Western Theater (History and Literature	<p>The students will study the origin of western theatre, concepts such as Aristotle's poetics, a research study of Greek, Roman, Religious, Medieval Theatre, and ElizabethanGlobe,</p> <p>Shakespeare will understand the importance of theater in its current relevance by studying the subject. By making a critical study of the Renaissance period and modern western theater, students will be able to understand its historical side very well. To be inspired by the literature of great playwrights like Sophocles, Moliere, Shakespeare, Brecht</p>
			and Chekhov and understand their contribution to world theatre.
Practical	MIT.106	Practical and Viva	To become a good actor-actress, students have to practice body postures, voice etc. Along with this, by getting information about the folk culture of Uttarakhand through folk

			songs of Uttarakhand, strengthen your voice according to your character.
Third Semester			

Theoretical	MIT.107	Drama Theory and Styles	The students will study the origin of western theatre, concepts such as Aristotle's Poetics, a research study of Catharsis. Greek, Roman, Religious, Medieval Theatre, and Elizabethan, Globe, Shakespeare will understand the importance of theater in its current relevance by studying the subject. By making a critical study of the Renaissance period and modern western theater, students will be able to understand its historical side very well. To be inspired by the literature of great playwrights like Sophocles, Moliere, Shakespeare, Brecht and Chekhov and understand their contribution to world theatre.
Theoretical	MIT.108	Theater Appreciation and Criticism	The concept of theatrical analysis, characteristics of ideal drama, theatrical review, origin, development, audience theatre relationship, theatrical institutions, and play writing under the short drama. To encourage and explain the importance of drama writing to the students.
Practical	MIT.109	Short Dissertation and Experimental	One of the most important benefits to writing a dissertation or Theatre plan is that students get to come up with their own titles and ideas. They have the opportunity and freedom to explore in- depth research into a topic of their choice. Additionally, the ability to undertake research, critical thinking and excellent communication are important skills that you will also pick up along the way. Finally, when you have to present and defend your research, you will have the chance to put your presentation skills into practice.
Fourth Semester)			

Theoretical	MIT.110	Aesthetics of Theater and Film	To enhance the knowledge of the students by systematic study of the various stages of development and development of aesthetics, Indian and western cinema in the Indian art world. To develop the knowledge of the
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			students from important subjects like the interrelationship of theater and cinema, differences, similarities. To see the difference between film and theater acting, technology and to make a critical study of the society being influenced by visual poetry.
Theoretical	MIT.111	Theatre in Uttarakhand	The origin and development of the traditional theater of Uttarakhand is to benefit the students. Apart from this, research has to be done on the contribution and importance of various folk artists, theatre artists, and theatrical institutions here. In this subject, students should be awakened towards their art culture and they should contemplate about its protection and promotion.
Practical	MIT.112	Practical and Viva	Students will develop their practical knowledge through technical skills of camera acting, film making, sound music. We will acquire technical information from the critical study of important films of Uttarakhand.

CURRICULUM OF ACADEMIC PROGRAMMES



MSc (Integrated Economics)
Doon University Dehradun



DOON UNIVERSITY

❖ **PROGRAM OUTCOMES:**

Program Name	Program Outcome(PO)
MSc (Integrated Economics)	PO-1 To provide the students knowledge, skill, values and sensitivity necessary for a good citizen.
	PO-2 To generate and disseminate knowledge through interdisciplinary research and creative inquiry for creating a meaningful and sustainable society.
	PO-3 To equip the students with problem solving, leadership and teamwork skills and to inculcate in them a sense of commitment to quality, ethical behavior and respect for others.
	PO-4 To ensure academic excellence in a dynamic knowledge economy by exposing the students to new ideas, new ways of understanding, new ways of knowing in their intellectual and spiritual odyssey.

❖ **PROGRAM SPECIFIC OUTCOMES**

Program Name	Program Specific Outcome(PSO)
MSc (Integrated Economics)	PSO-1 To help students to think critically about the economic issues they confront in their daily lives, and develop a commitment to be actively engaged with policy issues in local, national, and global communities.
	PSO-2 To provide students with preparation in economic concepts and techniques.
	PSO-3 To provide an opportunity to the students to focus on applied issues as well as policy issues in Economics.
	PSO-4 To provide specializations in Core Economics, Environmental Economics & Business Economics

PSO-5 To provide the students with the opportunity to pursue courses that emphasize on both aspects i.e. theoretical and quantitative of Economics.

❖ **COURSE OUTCOMES:**

Course Type	Course Code	Course Name	Course Outcomes(CO)
CORE	SSEI 110	Microeconomics-I	CO-To provide a sound training in microeconomic theory. Mathematical tools are used to facilitate understanding of the basic concepts. This course looks at the behaviour of the consumer and the producer and covers the behaviour of a competitive firm.
CORE	SSEI 111	Macroeconomics-I	CO-To cover the main paradigms involved in the determination of real income, employment and unemployment, the price level and inflation in an open mixed economy, and the conduct of macroeconomic policy.
CORE	SSEI 112	Mathematics-I	CO-To transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.
CORE	SSEI 114	Statistics-I	CO-To acquaint students with the statistical use in the field of Economics. The field of economics depends greatly on the likelihood that something is going to happen.

Generic Course	SSG 571 (I)	English Language, Literature & Application-I	CO-To provide the foundation in English Grammar, sentence structure, Phonetics or suitable pronunciation required for correct verbal and written communication. Activities such as Group Discussions, Mock Interviews and Power Point Presentations aimed at enhancing skill and confidence in verbal communication are regularly arranged in class. Expertise at interaction based on active listening is developed. Students study poems, plays or short stories in English Literature to comprehend the subtle nuances of expression and use them in creative writing to enhance the beauty in verbal or written content.
Generic Course	SSG 572 (I)	Basics of Computer Applications-I	CO-Designed to teach students the theoretical and practical approach of information technology with the application of economic theories
Generic Course	EES 110	Environmental Studies	CO-The emphasis of environmental studies is on a rational approach involving the application of scientific and technical information to understand, conserve and manage the environment and its resources.
CORE	SSEI-150	Microeconomics-II	CO-This course is a sequel to Microeconomics I. The emphasis will be on giving conceptual clarity to the student coupled with the use of mathematical tools and reasoning. It covers general equilibrium and welfare, imperfect markets.
CORE	SSEI-151	Macroeconomics-II	CO- This course is a sequel to Macroeconomics I. In this course, the students are introduced to the long run dynamic issues like growth and technical progress. It also provides the micro foundations to the various aggregative concepts used in the previous course.
CORE	SSEI-152	Mathematics-II	CO-This course is the second part of a compulsory three-course sequence. This part is to be taught in Semester II following the first part in Semester I. The first course covered single variable functions and optimization and this course covers the essentials of linear algebra and optimization techniques required for the analysis of functions of several variables that are commonly used in economics.

Generic Course	SSG 571(II)	English Language, Literature & Application	CO- This course is a sequel to English Language, Literature & Application (I). In this course, the students are introduced to the advanced level of the subject. It also provides the application of various concepts in real world.
Generic Course	SSG 572: (II)	Basics of Computer Applications	CO-The course is the sequel of Basic Computer Applications (I). Basic part has been covered in First Semester and its wide area of application will be covered in Semester II.
CORE	SSEI 210	Public Economics	CO- The course is designed to equip students in broad arenas of public finance and some other selected topics in public sector economics. An emphasis of the course is also on impact analysis of impact of public policies on resource allocation and distribution in the economy
CORE	SSEI- 212	International Economics-I	CO-The course provides a broad understanding about the theories which tend to govern the free flow of trade in goods, services and capital at global level and also equip students on some of the concepts like gains from trade, balance of payments etc.
CORE	SSEI 214	Mathematics III	CO-This syllabus is developed for third semester students in MSc Integrated degree programme. The course is designed to develop mathematical abilities of students to solve economics related practical problems with quantitative tools.
CORE	SSEI 215	Statistics III	CO-This syllabus is developed for third semester students in MSc Integrated degree programme. The purpose of this course is to apply statistical use in the field of economics & other areas through statistical software. It also covers major portion of Vital Statistics.
CORE	SSEI 221	Public Economics –II	CO-Designed to equip students in broad arenas of public finance and some other selected topics in public sector economics.

CORE	SSEI 223	International Economics-II	CO-To provide a broad understanding about the theories which tend to govern the free flow of trade in goods, services and capital at global level and also equip students on some of the concepts like balance of payments, adjustment process, trade policies and restrictions, exchange rate determination, custom unions etc
CORE	SSEI 224	Environment Economics	CO- To focus on economic causes of environmental problems. In particular, economic principles are applied to environmental questions and their management through various economic institutions, economic incentives and other instruments and policies. Economic implications of environmental policy are also addressed as well as valuation of environmental quality, quantification of environmental damages, tools for evaluation of environmental projects such as cost-benefit analysis and environmental impact assessments. Selected topics on international environmental problems are also discussed.
CORE	SSEI 213	History of Economic Thought	CO-Designed to familiarize the students about the gradual encroachment of economic ideas and theories since the 16 th century. It provides an understanding of how the economic theories evolved in their historical context and how they influenced the modern economic theories in later years.
CORE	SSEI 310	Economic Growth	CO-This is the first part of a two-part course on economic development. The course begins with a discussion of alternative conceptions of development and their justification. It then proceeds to aggregate models of growth and cross-national comparisons of the growth experience that can help evaluate these models.
CORE	SSEI 311	Indian Economy I	CO-Using appropriate analytical frameworks, this course reviews major trends in economic indicators and policy debates in India in the post-Independence period, with particular emphasis on paradigm shifts and turning points.

CORE	SSEI 312	Econometrics I	CO- This course provides a comprehensive introduction to basic econometric concepts and techniques. It covers estimation and diagnostic testing of simple and multiple regression models.
CORE	SSEI 321	Development Economics	CO- It begins with basic demographic concepts and their evolution during the process of development. The structure of markets and contracts is linked to the particular problems of enforcement experienced in poor countries.. The course ends with reflections on the role of globalization and increased international dependence on the process of development.
CORE	SSEI 322	Indian Economy-II	CO-This course examines sector-specific policies and their impact in shaping trends in key economic indicators in India. It highlights major policy debates and evaluates the Indian empirical evidence.
CORE	SSEI 323	Econometrics-II	CO-This course covers the nature, consequences, tests and remedies for violations of classical assumptions and the consequence for mis- specification of regression models. It also introduces simultaneous model building and some basic applications of least square method.
Elective	SSEI 650	Banking and Monetary Economics	CO-This course mainly covers the monetary part in good detail which includes modern theories of money, banking and recent developments in the analysis of monetary policy. The main aim of this course is to look at some key issues of financial markets, monetary policy and banking and also to study the effect of their interaction in the real world.
Elective	SSEI-655	Regional Development and Regional Economics with Special Emphasis on Uttarakhand	CO-This course provides a framework within which the spatial dimension of economic issues pertaining to the development of Uttarakhand State may be understood.

Elective	SSEI 659	Gender Economics- Women and the Economy	CO-This course “Economics of Gender and Development” would provide students an understanding of the nature of the economic role of women and their contribution to the national economy. The modules incorporated in this course provide an analysis of issues at the theoretical level and also with regard to specificity of issues prevailing in the Indian context.
Elective	SSEI-660	Economics of Discrimination	CO-To introduce students to economic analysis of discrimination and affirmative action. Also to bring out the effect of affirmative action (good and bad) on the society leading to reverse discrimination.
Elective	SSEI-666	Agricultural Economics	CO-An introduction to the principles of economics including production principles; production costs, supply and revenue; profit maximization; consumption and demand; price elasticity; market price determination; and competitive versus non-competitive market models. These principles are applied to agriculture and the role of agriculture in India. Other topics include a survey of the world food situation; natural, human and capital resources; commodity product marketing; and agricultural problems and policies. The basic objective of course content is to demonstrate a basic knowledge of the principles of economics and their application to agricultural problems.
Elective	SSEI-668	Energy Economics	CO-This course will help student in understanding Energy Technologies, its role in Economic Development , also to understand complexities of the energy market and how these complexities make energy market different from another economic markets.

Elective	SSEI-669	Poverty & Inequality	CO-The aim of this course is for students to come away with an understanding of recent historical trends in terms of thinking about poverty and its causes and how that thinking influences policy making. There will usually be a short overview/lecture, but much of the class will be focused on discussion. Students will be expected to come to class prepared, having done the readings and to engage in class and small group discussions.
Elective	SSEI 665	Labour Economics	CO-This course provides a general introduction to the field of labour economics and as such is an application of basic microeconomic principles. Our approach to studying labour economics will be both theoretical and empirical. That is, not only will we discuss models of how labour markets function, we will also discuss the evidence on how well the real world matches the predictions of such models.
CORE	SSEI 510	Advanced Microeconomics-I	CO-This course provides a broad understanding about the behaviour of an economics agent, namely, a consumer, a producer a factor owner, and price determination in the market. The approach of this paper is to study the behaviour of a unit and analysis is generally static and in a partial equilibrium framework.
CORE	SSEI 511	Advanced Macroeconomics-I	CO-The purpose of teaching Macroeconomics is to acquaint students with the broad paradigms of Macroeconomic Theory with a focus on contemporary models and provide an exposure to international perspectives.
CORE	SSEI 513	Mathematics for Economists	CO-This course will give the learner an overview of the different mathematical/quantitative techniques that are used to solve economic problems. The course aims to impart scientific, logical and critical thinking and help learners in taking economic decisions.

CORE	SSEI-520	Advanced Microeconomics-II	CO-This course provides a broad understanding about the behaviour of economic agents namely, a consumer, a producer, a factor owner, and price determination in the market. The approach of this paper is to study the behaviour of a unit and analysis is generally static and in a partial equilibrium framework.
CORE	SSEI-521	Advanced Macroeconomics-II	CO-The purpose of teaching Macroeconomics is to acquaint students with the broad paradigms of Macroeconomic Theory with a focus on contemporary models and provide an exposure to international perspectives.
CORE	SSEI-522	Advanced Econometrics	CO-The course deals with econometric methods and applications designed for the analysis of cross- section and panel data models. It can be viewed as a course in micro econometrics, since we cover methods that are most often used in empirical microeconomic research. The main topics covered are maximum likelihood & GMM methods, panel data models, semi parametric and nonparametric methods, limited dependent variable models, and qualitative response models. Single as well as simultaneous equations models will be treated. Important topical applications will be treated.
Elective	SSEI-523	Operation Research	CO-This course is designed to elaborate the topics related to application of economics and industrial field to build the capability of solving quantitative real-life problem to obtain the right and optimum solution.

Elective	SSEI-620	Financial Theory and Markets	CO-To introduce students about the important topics of financial theory, instruments and firms in financial market. Also to make students clear understanding of derivatives and the effects in financial markets.
Elective	SSEI 621	Business and Economic Forecasting	CO-The purpose of this course is to equip students with the techniques that can improve forecast accuracy and also to provide them basis for evaluating forecast accuracy.
Elective	SSEI 623	Law and Economics	CO-The focus of this course will be on how legal rules affect implicit prices for consumer and firm behavior, the distribution of resources and economic efficiency. This course will provide students a background on the law surrounding property, contracts and torts. The content will focus on how legal rules impact consumers and producers, and whether these rules and regulations help to generate an efficient use of economic resources.
Elective	SSEI-652	International Trade and International Finance	CO-The course provides a broad understanding about the theories which tend to govern the free flow of trade in goods, services and capital at global level and also equip students on some of the concepts like gains from trade, balance of payments and adjustment process etc.
Elective	SSEI-653	Economic Reforms and Economic Performance	CO-The main aim of this course is to study the impacts of economic reforms on different aspects of the economy since 1991. It provides a wide coverage of the economy dealing with economic performance of agriculture sector, industrial sector, foreign sector.
Elective	SSEI-654	Public Finance or Public Economics	CO-This course covers the key aspects of public finance and public policy theory which helps the students to understand the government's role in the economy. It enables the students to understand how to deal with political and economic policy problems and also to participate in public policy debates.

Elective	SSEI-656	Issues in Environmental Economics	CO- This course is designed to enable students to recognize the important linkages between the environment and economics, be aware of the key environmental issues around the globe and understand approaches to identify and value costs and outcomes to include in economic evaluation of the environment through benefit cost analysis.
Elective	SSEI 657	Development and Political Economy	CO- To Provide the students with the opportunity to develop knowledge of global as well as national political and economic issues
Elective	SSEI-658	Public Policy- Theory And Practices	CO-This course will help students in understanding Public Policy as Multidisciplinary Governance Tool; Indian Public Policy and change and development of Indian Public Policy during planning period.
Elective	SSEI-661	Research Methodology	CO-This course enables the students in developing the appropriate methodology for their research studies; and also makes them familiar with the art of using different research methods and techniques.
Elective	SSEI-664	Economics of Industrial Organizational And Strategy	CO-In the contemporary world with globalization and liberalization more and more attention is being given to industry. This course intends to provide knowledge to the students on the basic issues such as productivity, efficiency, capacity utilization and debates involved in the industrial development of India. The objective is to provide a thorough knowledge about the economics of industry in a cogent and analytical manner, particularly in the Indian context.

<p>Elective</p>	<p>SSEI- 667</p>	<p>Game Theory</p>	<p>CO-This course is a survey of the main ideas and techniques of game-theoretic analysis related to bargaining, conflict, and negotiation. As such, the course emphasizes the identification and analysis of archetypal strategic situations frequently occurring in bargaining situations. The goals of the course are to provide students with a foundation to apply game-theoretic analysis, both formally and intuitively. Moreover, it develops capability to negotiation and bargaining situations and Recognize and assesses archetypal strategic situations in complicated negotiation settings.</p>
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CURRICULUM OF ACADEMIC PROGRAMMES



MA (Economics)

Doon University Dehradun



DOON UNIVERSITY

❖ **PROGRAM OUTCOMES:**

Program Name	Program Outcome(PO)
MA (Economics)	PO-1 To provide the students knowledge, skill, values and sensitivity necessary for a good citizen.
	PO-2 To generate and disseminate knowledge through interdisciplinary research and creative inquiry for creating a meaningful and sustainable society.
	PO-3 To equip the students with problem solving, leadership and teamwork skills and to inculcate in them a sense of commitment to quality, ethical behavior and respect for others.
	PO-4 To ensure academic excellence in a dynamic knowledge economy by exposing the students to new ideas, new ways of understanding, new ways of knowing in their intellectual and spiritual odyssey.

❖ **PROGRAM SPECIFIC OUTCOMES**

Program Name	Program Specific Outcome(PSO)
MA (Economics)	PSO-1 To helps students to think critically about the economic issues they confront in their daily lives, and develop a commitment to be actively engaged with policy issues in local, national, and global communities.
	PSO-2 To provide students with preparation in economic concepts and techniques.
	PSO-3 To provide an opportunity to the students to focus on applied issues as well as policy issues in Economics.
	PSO-4 To provide specializations in Core Economics, Environmental Economics & Business Economics

PSO-5 To provide the students with the opportunity to pursue courses that emphasize on both aspects i.e. theoretical and quantitative of Economics.

M.A Economics Courses and Credit Structure

L- Lectures P-Practical T-Tutorial

First Year						
First Semester						
Course code	Core Courses	General Courses	L	T	P	Credit
SSE 510	Microeconomics-I		3	1	-	4
SSE 531	Macroeconomics-I		3	1	-	4
SSE 512	Statistical Methods		3	1	-	4
SSE 511	Mathematical Methods		3	1	-	4
Second Semester						
SSE 530	Microeconomics-II		3	1	-	4
SSE 610	Macroeconomics-II		3	1	-	4
SSE 513	Development Economics		3	1	-	4
SSE 532	Econometrics		3	1	-	4
Second Year						
Third Semester						
Course code	Core Courses	Elective Courses	L	T	P	Credit
SSE 661		Research Methodology	3	1	-	4
SSE 533	Environmental Economics	-	3	1	-	4
		Elective I	3	1	-	4
		Elective II	3	1	-	4
Fourth Semester						
		Elective III	3	1	-	4
		Elective IV	3	1	-	4
SSE 690		Dissertation				10
Total Credits(Two years)						66

Options for Electives for PG Level:

SSE 620 Financial Theory and Markets
 SSE 621 Business and Economic Forecasting
 SSE 623 Law and Economics
 SSE 651 Applied Econometrics
 SSE 652 International Trade and International Finance
 SSE 653 Economic Reforms and Economic Performance
 SSE 654 Public Finance or Public Economics
 SSE 657 Development and Political Economy
 SSE 658 Public Policy- Theory and Practices
 SSE 661 Research Methodology

SSE 664 Economics of Industrial Organization and Strategy
 SSE 667 Game Theory

❖ **Course Outcomes**

Course Type	Course Code	Course Name	Course Outcomes(CO)
CORE	SSE 510	Microeconomics-I	CO-This course provides a broad understanding about the behaviour of an economics agent, namely, a consumer, a producer a factor owner, and price determination in the market. The approach of this paper is to study the behaviour of a unit and analysis is generally static and in a partial equilibrium framework.
CORE	SSE 531	Macroeconomics-I	CO-The purpose of teaching Macroeconomics is to acquaint students with the broad paradigms of Macroeconomic Theory with a focus on contemporary models and provide an exposure to international perspectives.
CORE	SSE 512	Statistical Methods	CO-The main objective of this paper is to train the students to use the techniques of statistics, which are commonly applied to understand and analyze economic problems.The paper assumes the learner to be acquainted with basic knowledge of Measures of Central Tendency, Dispersion and Association of Variables and further extends the knowledge to Theory of Probability and Sampling Distribution. It also deals with analysis of data and drawing inferences about various statistical hypotheses.
CORE	SSE 511	Mathematical Methods	CO-This course will give the learner an overview of the different mathematical/quantitative techniques that are used to solve economic problems. The course aims to impart scientific, logical and critical thinking and help learners in taking economic decisions.
CORE	SSE 530	Microeconomics-II	CO-This course provides a broad understanding about the behaviour of economic agents namely, a consumer, a producer, a factor owner, and price determination in the market. The approach of this paper is to study the behaviour of a unit and analysis is generally static and in a partial equilibrium framework.

CORE	SSE-610	Macroeconomics-II	CO-The purpose of teaching Macroeconomics is to acquaint students with the broad paradigms of Macroeconomic Theory with a focus on contemporary models and provide an exposure to international perspectives.
CORE	SSE 513	Development Economics	CO-The study of economic development has gained importance because of sustained interest of the developing countries in uplifting their economic conditions by restructuring their economies to acquire greater diversity, efficiency and equity in consonance with their priorities. While few success stories can be counted, many have grappled with chronic problems of narrow economic base, inefficiency and low standard of living. For this and other reasons, there have been many approaches to economic development. The topics incorporated in this paper are devoted to the theories of growth and development, social & institutional aspects of development and interdependence of the two major sectors.
CORE	SSE 532	Econometrics	CO-This is an introductory course to Econometric theory. The learner will be introduced to regression models and consequences of the violation of important least square assumptions, important concepts in time series analysis and the identification problem.
CORE	SSE 533	Environmental Economics	CO-This course is a unique inter-disciplinary course. The main objective of this course is to orient students with the techniques used in analyzing the impact of economic activity and policy on the environment.
Elective	SSE 620	Financial Theory and Markets	CO-To introduce students about the important topics of financial theory, instruments and firms in financial market. Also to make students clear understanding of derivatives and the effects in financial markets.

Elective	SSE 621	Business and Economic Forecasting	CO-The purpose of this course is to equip students with the techniques that can improve forecast accuracy and also to provide them basis for evaluating forecast accuracy.
Elective	SSEI 623	Law and Economics	CO-The focus of this course will be on how legal rules affect implicit prices for consumer and firm behavior, the distribution of resources and economic efficiency. This course will provide students a background on the law surrounding property, contracts and torts. The content will focus on how legal rules impact consumers and producers, and whether these rules and regulations help to generate an efficient use of economic resources.
Elective	SSE 652	International Trade and International Finance	CO-The course provides a broad understanding about the theories which tend to govern the free flow of trade in goods, services and capital at global level and also equip students on some of the concepts like gains from trade, balance of payments and adjustment process etc.
Elective	SSE 653	Economic Reforms and Economic Performance	CO-The main aim of this course is to study the impacts of economic reforms on different aspects of the economy since 1991. It provides a wide coverage of the economy dealing with economic performance of agriculture sector, industrial sector, foreign sector.
Elective	SSE 654	Public Finance or Public Economics	CO-This course covers the key aspects of public finance and public policy theory which helps the students to understand the government's role in the economy. It enables the students to understand how to deal with political and economic policy problems and also to participate in public policy debates.
Elective	SSE 656	Issues in Environmental Economics	CO- This course is designed to enable students to recognize the important linkages between the environment and economics, be aware of the key environmental issues around the globe and understand approaches to identify and value costs and outcomes to include in economic evaluation of the environment through benefit cost analysis.
Elective	SSE 657	Development and Political Economy	CO- To Provide the students with the opportunity to develop knowledge of global as well as national political and economic issues
Elective	SSE 658	Public Policy-Theory and Practices	CO- This course will help students in understanding Public Policy as Multidisciplinary Governance Tool; Indian Public Policy and change and development of Indian Public Policy during planning period.

Elective	SSE 661	Research Methodology	<p>CO-This course enables the students in developing the appropriate methodology for their research studies; and also makes them familiar with the art of using different research methods and techniques.</p>
Elective	SSE 664	Economics of Industrial Organizational and Strategy	<p>CO-In the contemporary world with globalization and liberalization more and more attention is being given to industry. This course intends to provide knowledge to the students on the basic issues such as productivity, efficiency, capacity utilization and debates involved in the industrial development of India. The objective is to provide a thorough knowledge about the economics of industry in a cogent and analytical manner, particularly in the Indian context.</p>
Elective	SSE 667	Game Theory	<p>CO-This course is a survey of the main ideas and techniques of game-theoretic analysis related to bargaining, conflict, and negotiation. As such, the course emphasizes the identification and analysis of archetypal strategic situations frequently occurring in bargaining situations. The goals of the course are to provide students with a foundation to apply game-theoretic analysis, both formally and intuitively. Moreover it develops capability to negotiation and bargaining situations and Recognize and assesses archetypal strategic situations in complicated negotiation settings.</p>