Programme Code	Name of the Programme	Course code	Title of the Course	Course Outcomes
PTAT	M.A Tamil	P23CT1	Ikkala Ilakkiyam	Tamil PG Course Outcomes.pdf
		P23CT2	Ara Ilakkiyam	
		P23CT3	Tholkappiyam-Eluthu	
		P23DT03	Periyariyal	
		P23DT13	Tholliyal	
		P23CT4	Bakthi Ilakkiyam	
		P23CT5	Kappiya Ilakkiyam	
		P23CT6	Tholkappiyam-Chol	
		P23DT01	Nattar Valakkatrial	
		P23DT06	Uraiyasiriyargal	
		P23SET1	Noolagaviyal	
		P23CT7	Sitrillakkiyam	
		P23CT8	Tholkappiyam-Porul	
		P23CT9	Oppilakkiyam	
		P23CT10	Padaipputh Thiran	
		P23DT11	Panpattu Manidaviyal	
		P23SET2	Udagakkalaiththiran Internship/Industrial Activity	
		P23SIT1	Internship/Industrial Activity	
		P23CT11	Sanga Ilakkiyam	

		P23CT12	Tholkappiyam		
		P23TPW	Aaivuththittam, Vaimolith Thervu		
		P23DT02	Pothumoliyiyal		
		P23SET3	Professional Competency SkillP23EAT Extension Activity		
		P23CV1	ENGLISH POETRY	**CO1**	1 Gain ideas about the old English writing style.
				CO2	2 Acquire knowledge about various forms of poetry during different centuries.
				CO3	Evaluate various poets as representatives of their periods
				CO4	4 Trace the evolution of various literary movements
				CO5	Justify British Poetry as an aesthetic record of the societies concerned
		P23CV2	ENGLISH DRAMA	**CO1**	Appraise various aspects ofdrama and theatre
				CO2	Identify drama and performance as a cultural process and an artistic discourse
				CO3	Evaluate plot structure, characterization and dialogue
				CO4	Interpret drama texts asaesthetic records of their times viz., Elizabethan, Restoration, Victorian and EarlyModern ages
				CO5	Examine the sequentialcourse dealing with Modern and Postmodern British Drama
		P23CV3	ENGLISH FICTION	**CO1**	Gain wide knowledge about different types of novels.
				CO2	Learn the art of writing different forms ofnovel with the learned notions.
				CO3	Explore Social, domestic and gothic novels.
				CO4	Assess philosophical and political underpinnings of Victorian morality, anti Victorian realities and the aesthetic movement.
				CO5	Infer themes relating to the turn of the century events through close reading of text.
				CO1	Understand the themes of Indian Writing in English

		P23DV01	INDIAN WRITING IN ENGLISH	**CO2**	Identify the major trends in Indian Writing in English
				CO3	Examine the background and settings of theprescribed texts
				CO4	Evaluate the cultural significance of Indian English Literature
				CO5	Gain exposure to diverse culture and literature and further enlighten them about socio-cultural scenario in the contemporary era.
		P23DV02	THEATRE ART	**CO1**	Understand a broad range of theatrical disciplinesand Experiences
				CO2	Identify the diversity of theatrical experiences andthe role of theatre in society
				CO3	Discover the relationships among the various facetsof Theatre
				CO4	Estimate drama as a performing art and the aspectsof Stagecraft
				CO5	Gain exposure to diverse components of actingand techniques
		P23CV4	AMERICAN LITERATURE	**CO1**	Analyze the movements and trends that shaped American literature
				CO2	Estimate various speeches and concepts of livingwhich changed American history
				CO3	Evaluate the relation between aesthetics and racismin fiction
				CO4	Validate representative socio-political, cultural, racial and gender perspectives in theatrical works
				CO5	Gain exposure to the different literary genres andits evolution in American Literature
		P23CV5	SHAKESPEARE STUDIES	**CO1**	Critically understand the appreciations by critics on Shakespeare
				CO2	Understand Elizabethan theatre and the theatre'sdevelopment.
				CO3	Be familiarized with critical perspectives on Shakespeare's Plays and Sonnets
				CO4	Understand the trends in Shakespeare studies
				CO5	Learn Modern Approaches in Shakespearean criticism
				CO1	Critically understand the political and social background of the third world nations
				CO2	Understand the emerging trends in Post ColonialLiterature

PENE	M.A. English	P23CV6	POST-COLONIAL THEORY AND LITERATURE	CO3	Be sensitive towards the problems and consequences of the decolonization of a country,
				CO4	Examine the ethnocentric perspective of different colonial cultures with respect to postcolonial literature
				CO5	Interpret the postcolonial concepts found in differentliterary genres
		P23DV03	APPROACHES TO ENGLISH LANGUAGE TEACHING	CO1	Know the brief history of language teaching methods
				CO2	Understand the difference between the terms, methods, approaches and techniques used in teaching
				CO3	Identify the objectives, active role of learners, teachers and materials of different approaches in teaching
				CO4	Analyse the steps of teaching prose, poetry, grammar,non- detailed text etc and develop it.
				CO5	Perceive the use of radio and television inlanguage learning
		P23DV04	A GLIMPSE OF NOBEL LAUREATES	CO1	Relate the outstanding works of Nobel Laureates in anidealistic direction that adds the greatest benefit to humankind
				CO2	Interpret the works of various Nobel Laureates
				CO3	Analyse the different themes with regard to social, political and cultural aspects.
				CO4	Evaluate critically and aesthetically the prescribed texts.
				CO5	Perceive the influence of Nobel Laureates in Literature
		P23SEV1	TECHNICAL WRITING	CO1	Understand and know how to follow the stages of the writing process and apply them to technical and workplace writing tasks.
				CO2	Be able to produce a set of documents related to technology and writing in the workplace and will have improved their ability to write clearly and accurately.
				CO3	Understand the basic components of definitions, descriptions, process explanations, and other common forms of technical writing.
				CO4	Be Familiar with basic technical writing concepts and terms, such as audience analysis, jargon, format, visuals, and presentation.
				CO5	Be able to read, understand, and interpret material on technology.
		P23CV7	CONTEMPORARY LITERARY CRITICISM	CO1	Understand a literary text by applying various critical theories.
				CO2	Develop analytical understanding of the subject matter
				CO3	Analyze a literary text with reference to socio political issues

				CO4	Evaluate critically and aesthetically the prescribed texts.
				CO5	Appreciate a text at emotional,intellectual and aesthetic levels
		P23CV8	CANADIAN STUDIES	**CO1**	Understand the historical andpolitical background of Canadian Literature
				CO2	Be familiarized with the folklore andits influence in Canadian Literature
				CO3	Analyze a literary text withreference to socio political Issues
				CO4	Appreciate critically and aesthetically the prescribedtexts.
				CO5	Evaluate a text at emotional, intellectual and aesthetic levels
		P23CV9	LITERATURE OF THE MARGINALIZED IN INDIA	**CO1**	Understand the historical and political background of Caste
				CO2	Focus on understanding the dimensions of discriminations
				CO3	Analyze a literary text with reference to socio-political Issues
				CO4	Evaluate the prescribed texts critically.
				CO5	Be exposed to a range of disciplines including history, sociology, ethnography, anthropology and literature.
		P23CV10	FILM AND MEDIA STUDIES	**CO1**	Film Review and appreciation becomes handy for the Students
				CO2	Connectingfilmandliteraturenuances effectively
				CO3	Exposure to film techniques and genres
				CO4	Critical appreciation of films
				CO5	Analysing film form seffectively
		P23DV05	TRANSLATION STUDIES	**CO1**	Understand the systematic study of translation
				CO2	Appreciate better the dimensions of language and its nuances essential for translation
				CO3	Gain exposure to effective translation
				CO4	Be equipped in the skills as well as the politics of translation.

				CO5	Gain knowledge in the regional languages through representative texts in English translation
		P23SEV2	FUNCTIONAL ENGLISH	**CO1**	Define communicative skills
				CO2	Utilize the nuances of English language in public speaking
				CO3	Evaluate language skills in day to day life
				CO4	Develop different styles of occupational skills
				CO5	Learn to analyze the usage of English words in different contexts and acquire considerable flair inusing broad range of vocabulary
		P23CV11	TWENTY FIRST CENTURY MILLENNIAL LITERATURE AND CULTURE	**CO1**	Analyse contemporary issues and its immediate requirement
				CO2	Effectively understand their social responsibility
				CO3	Gain exposure to the emerging trends in 21st century millennial literature.
				CO4	Be equipped in the interdisciplinary theories.
				CO5	Appreciate the viability of interdisciplinary analyses of literary andcultural forms.
		P23CV12	SUBALTERN STUDIES	**CO1**	Remember the diverse concepts that address issues of subalterns.
				CO2	Comprehend the meaning and nature of the Subaltern history.
				CO3	Analyse various subaltern texts
				CO4	Determine the sources and structures of social inequalities.
				CO5	Develop strategies to deal with Maginalized issues successfully.
		P23DV06	ENGLISH FOR CAREERS	**CO1**	Gain knowledge of the various modes of official correspondence and presentation
				CO2	Comprehend the right use of English at official works
				CO3	Apply the acquired styles of occupational skills and practicing them
				CO4	Pick up the official behavior and becoming better doers
				CO5	Market the skill business correspondence and fixing themselves in better jobs

		P23SEV3	ENGLISH LITERATURE FOR COMPETITIVE EXAMINATION	**CO1**	Remember the literary terms , forms and theories
				CO2	Comprehend the right use of English at official works
				CO3	Apply the acquired styles of occupational skills and practicing them
				CO4	Pick up the official behavior and becoming better doers
				CO5	Market the skill business correspondence and fixing themselves in better jobs
		P23DVO7	**ELECTIVE V1 ENGLISH LITERATURE FOR NTA, NET, SET & GATE**	**CO1**	Succeed with ease in competitive exams
				CO2	Effectively attempt MCQs
				CO3	Gain profound understanding about the various movements in English Literature
				CO4	Understand the nuances of Competitive Exams
				CO5	Relate to theory and literature
		P23CH1	History of Ancient and Early Medieval India - Prehistory to 1206 Common Era (CE)	**CO 1**	Know the Prehistoric sites and the life of early man and appreciate the urban character of Indus Valley Civilization
				CO 2	Know the various theories of origin of Aryans, and their socio-economic life.
				CO 3	Detail the polity, administration, and religious policy of Mauryas and the origin and development of new religions.
				CO 4	Give a detailed account of the Age of Guptas and Harsha's administration.
				CO 5	explain the history of Peninsular India under various dynasties.
		P23CH2	Socio Cultural History of Tamil Nadu up to 1565 CE	**CO 1**	Give Detail the early history of Tamil Nadu
				CO 2	Give an account of the history of Pallavas and their contribution.
				CO 3	Highlight the impact of the Chola rulers's administration.
				CO 4	Present an account of the history of Pandyas of Madurai
				CO 5	Explain the society and culture under Madurai Sultanate and Vijayanagara
				CO 1	Compare the concepts of civilization and culture and brief history of pre- historic period

		P23CH3	History of World Civilizations (Excluding India)	**CO 2**	Understand the significant features of Mesopotamian, Sumerian and Egyptian civilizations
				CO 3	Study about origin and growth of river valley civilizations
				CO 4	Describe the features of Chinese and Japanese civilizations
				CO 5	Explain the contributions of Greek and Roman civilizations
		P23CH6	Freedom Struggle in Tamil Nadu /	**CO 1**	Appreciate the contribution of early resistance against British rule in Tamil Nadu.
				CO 2	Describe the role of organizations in increasing nationalist consciousness.
				CO 3	Assess the role of press in Tamil Nadu towards the nationalist cause.
				CO 4	Evaluate the contribution of various leaderstos India's freedom struggle.
		P23DH02	Indian Art and Architecture	**CO 1**	Explain the various forms of Indus and Mauryan Art.
				CO 2	Compare and contrast the Gandhara and Mathura Schools of Art.
				CO 3	Examine the similarities and differences between temple architectural styles.
				CO 4	Discuss the relation between the five pillars of Islam and Islamic architecture.
				CO 5	Appreciate the features of colonial architecture.
		P23DH03	Cultural Heritage of India	**CO 1**	Explain the concepts and the dynamism involved in the Evolution of culture
				CO 2	Describe critical role of religions in the growth of Art and architectural forms
				CO 3	Examine the importance of Royal patronage for the progress of various art forms
				CO 4	Explain the role of British colonialism and its compulsions in the introduction of syncretic art forms
				CO 5	Appreciate the advent of new art forms
		P23DH04	Administrative History of Tamil Nadu	**CO 1**	Appreciate the administration of Justice Party
				CO 2	Evaluate the Congress Administration
				CO 3	Interpret DMK administration.

				CO 4	Compare AIADMK administration.
				CO 5	Assess the impact of various administrations
		P23DH06	History Of Journalsim	**CO 1**	Explain the origins and the and role of press in social awakening.
				CO 2	Present the role of the press in the freedom movement at the national level
				CO 3	Explain the government reaction to the role of the press.
				CO 4	Assess the role of prominent personalities for the growth of journalism.
				CO 5	Understand the contribution of various newspapers.
		P23CH4	History of Medieval India - 1206 - 1707 CE	**CO 1**	understand the establishment of centralized monarchy.
				CO 2	Evaluate the contributions of AlauddinKhalji and Muhammad bin Tughlaq
				CO 3	Analyse the religious and Deccan policy of Mughals .
				CO 4	Outline the advancements in art and architecture.
				CO 5	Detail the facets of economic and socio-cultural life in Medieval India
		P23CH5	Socio Cultural History of Tamil Nadu - 1565 - 1956 CE	**CO 1**	Narrate the social condition during the Nayak period.
				CO 2	Evaluate the contributions of Marathas to the culture of the Tamil region.
				CO 3	Analyse the Contribution of Sethupathis of Ramnad to Tamil society.
				CO 4	Appreciate the Growth of Western Education
				CO 5	**Assess** the contribution of Dravidian movement to social transformation.
		P23CH6	Historiography and Historical Methods	**CO 1**	Explain the meaning and scope of history.
				CO 2	Outline the various theories and philosophical approaches to history.
				CO 3	Undertake historical research.
				CO 4	Analyse the contribution of western historians

				CO 5	Highlight the historical writings of important Indian historians
		P23DH05	International Migrations and Diasporic Studies	**CO 1**	Explain the theories of international migrations and diaspora.
				CO 2	Outline the position of Indian diaspora worldwide.
				CO 3	Examine the issues of identity among the Indian diasporas.
				CO 4	Evaluate the Indian policies towards diaspora.
		P23DHO7	Environmental History of India	**CO 5**	understand the perspectives and policies of receiving countries.
				CO 1	Understand the various schools of thought in ecological studies.
				CO 2	Trace the impact of eco systems from a historical perspective.
				CO 3	Evaluate the impact of British ecological imperialism.
				CO 4	Examine the impact of various environmental movements in India.
				CO 5	Examine the role of various movements.
PHE1	**M.A HISTORY**	**P23DH08**	Indian Constitution	**CO 1**	**Understand** the historical background of the Indian Constitution.
				CO 2	Compare and contrast basic features of the constitution.
				CO 3	Evaluate the nature of Indian federalism and the rationale for emergency provisions.
				CO 4	Describe the powers and functions of the various units of the government.
				CO 5	Explain the structure at the state level.
		P23SEH1	Introduction to Epigraphy	**CO 1**	Define epigraphy and explain its significance
				CO 2	Identify the varieties of materials used.
				CO 3	Explain the types of inscriptions.
				CO 4	Trace the origin of writing in south India.
				CO 5	Explain the use of inscriptions as historical source

		P23CH7	Colonialism and Nationalism in India	**CO 1**	Evaluate the impact of British imperialism.
				CO 2	Examine the nature of early resistance against British rule in India.
				CO 3	Compare the relative merits of different methods of anti-British struggle.
				CO 4	Evaluate the Gandhian non-cooperation movement and its influence on the masses.
				CO 5	Explain the process of partition
		P23CH8	Intellectual History of India	**CO 1**	Understand the evolution of intellectual history of India.
				CO 2	Evaluate the contributions of economic nationalists.
				CO 3	Appreciate the contribution of radical thinkers.
				CO 4	Assess the role of social thinkers.
				CO 5	Appreciate the legacy of Gandhi, Nehru, and Jaya Prakash Narayan
		P23CH9	Economic History of India since 1857 CE	**CO 1**	Examine the agrarian condition of Colonial India and the impact of commercialization.
				CO 2	Assess the impact of international linkages on the growth of industries in colonial India.
				CO 3	Explain the trade and monetary policy of colonial India.
				CO 4	Examine the development of various transport systems.
				CO 5	Critique the ideas of the economic nationalists.
		P23CH10	Principles and Techniques of Archaeology	**CO 1**	Understand the meaning of archaeology and the importance of its relations with allied disciplines.
				CO 2	Describe the evolution of archaeology.
				CO 3	Describe the methods and techniques of excavation.
				CO 4	List the Archaeological study centres.
				CO 5	Ability to interpret the artefacts
				CO 1	Explain the types of tourism in Tamil Nadu.

		P23SEH2	Tourism in Tamil Nadu	**CO 2**	Describe the role of Tamil Nadu government in the promotion of Tourism.
				CO 3	List out the various training facilities associated with Tourism industry.
				CO 4	Describe the tourist attractions in Tamil Nadu.
				CO 5	Examine the employment and entrepreneurial opportunities in Tamil Nadu.
		P23DH10	Tourism Potentials in Madurai	**CO 1**	Explain the types of tourism in Madurai.
				CO 2	Describe the natural resources availability and its developments in Madurai.
				CO 3	List out the religious circuits in Madurai.
				CO 4	Describe the tourist attractions in Madurai.
				CO 5	Examine the Famous Fairs and Festivals in Madurai.
		P23SIH1	Communication Strategies for Leadership Success	**CO 1**	To explain the basic definitions of communication and communication skills
				CO 2	To list out the types of communication skills
				CO 3	To detail the methods to improve communication.
				CO 4	To highlight the requirements of effective communication in the workplace
				CO 5	To understand the types of corporate skills
		P23CH11	Contemporary India	**CO 1**	Evaluate the contribution of different governments.
				CO 2	Assess the impact of government’s policy on scientific advancements in India.
				CO 3	Describe the India’s economic development and foreign policy.
				CO 4	Explain the uniqueness of Indian society and culture.
				CO 5	Examine the culture and Arts in Independent India
				CO 1	Explain the various theories and concepts of International Relations.
				CO 2	Evaluate the impact of cold war.

		P23CH12	International Relations since 1945 CE	**CO 3**	Assess the achievements of UNO and other regional organizations.
				CO 4	Examine the role of international economic organisations.
				CO 5	Examine the key international issues with special reference to India's concerns.
		P23SEH3	Women in India through the Ages	**CO 1**	Explain the various perspectives on women's issues.
				CO 2	Appreciate the contribution of social reformers to women's cause.
				CO 3	Outline the constitutional safeguards for women.
				CO 4	Examine the position of women in society.
				CO 5	Examine the women welfare Organisations and schemes.
		P23CH12	Science and Technology in India since 1947 CE	**CO 1**	Describe the evolution of India's Science & Technology Policy
				CO 2	Evaluate the contribution of Green, White, and Blue Revolutions
				CO 3	Understand the advancements in the field of atomic and space research
				CO 4	Outline India's progress in the frontier areas of scientific research
				CO 5	Examine the social and economic impact of scientific advancements.
		P23SEH3	Cargo and Logistics	**CO 1**	List the definitions of cargo and logistics and its evolutions.
				CO 2	Describe the cargo handling in the ports and airports.
				CO 3	Describe the functions of logistics management.
				CO 4	Describe provision and carriage of loading accessories.
				CO 5	Explain the role of IATA.
		P23CE1	ADVANCED MICRO ECONOMICS	**CO 1**	C1 To illustrate and analyse the theories of consumer behavior
				CO 2	C2 To illustrate and identify the choice under uncertainty.
				CO 3	C3 To compare how price and output is determined in different market situations and evaluate the market structures

				CO 4	C4 To identify and examine the alternative theories of firms.
				CO 5	C5 To define, explain, and compare the theory of distribution.
		P23CE2	INDIAN ECONOMIC DEVELOPMENT AND POLICY	**CO 1**	C1 Understand the Structural change in Indian economy
				CO 2	C2 Assess the Performance of agricultural and Industrial sector
				CO 3	C3 Ability to learn the trends in the economy
				CO 4	C4 Understand the Impact of Poverty
				CO 5	C5 Identify Social Issues like Unemployment, Gender disparities
		P23CE3	STATISTICS FOR ECONOMISTS	**CO 1**	C1 Summarize the basic Probability rules and understand theoretical distributions.
				CO 2	C2 Acquire knowledge on the various sampling methods and testing of Hypotheses
				CO 3	C3 Use t test and chi square for analysis
				CO 4	C4 Understand the importance of one and two way ANOVA
				CO 5	C5 Know the various Decision making tools available
		P23DE02	MODERN ECONOMIC THOUGHT	**CO 1**	C1 Understand modern economic concept of role of Entrepreneur Innovation, BusinessCycles and Capitalism and Socialism.
				CO 2	C2 Ability to understand about Capital Formation, Disguised UnemploymentImperfectCompetition and Mathematical Economic Analysis
				CO 3	C3 Understand the ideas ofPermanent Income Hypothesis, Revealed Preference Theory, Social Welfare Function and Samuelson's Utility Possibility Approach
				CO 4	C4 Gain knowledge about the ideas of Modern Indian Economists-Regional Economics, Ecological Theory of Population - Economics of Growth and Development-Economics of Fast
				CO 5	C5 Understand economic ideas like role of Technological Progress-Poverty -Deficit Financing and Public Expenditure, Human Factor in Economic Growth and Inequality and Concept of Capability
		P23DE01	RURAL ECONOMICS	**CO 1**	C1 To label and interpret the nature and scope of rural economics.
				CO 2	C2 To define and demonstrate the theories of rural development and rural resources.
				CO 3	C3 To recall, outline and determine rural demography and occupation structure.
				CO 4	C4 To organize, examine and evaluate rural poverty and unemployment.

				CO 5	C5 To summarize, develop and explain the rural empowerment programs.
		P23DE04	REGIONAL ECONOMICS	**CO 1**	C1 understand the Nature and scope of regional economics and its need
				CO 2	C2 Discuss the Models of regional, inter-regional and multi-regional models
				CO 3	C3 Evaluate the various theories of regional economic growth
				CO 4	C4 Describes the Measurement of interregional economic growth at State level
				CO 5	C5 apply Regional Aspects of Stabilization and Growth Policy
		P23DE03	WELFARE ECONOMICS	**CO 1**	C1 Summarize the Contribution to Welfare Economics
				CO 2	C2 Analyse the different approaches to Welfare Economics
				CO 3	**C3 Interpret** the development of Pareto Optimality Conditions
				CO 4	C4 Explain the compensation Criteria of Economics
				CO 5	C5 Evaluate theories of Social Choice.
		P23CE4	MONETARY ECONOMICS	**CO 1**	C1 To list out and outline the theories of money.
				CO 2	C2 To explain construct and distinguish various determinate of money supply and multiplier.
				CO 3	C3 To label, explain and evaluate the capital market.
				CO 4	C4 To define, illustrate and importance of banking sector.
				CO 5	**C5 To interpret and make use of monetary policy.**
		P23CE5	LABOUR ECONOMICS	**CO 1**	C1 study the recent trends of labour and their productivity
				CO 2	C2 assess the determination of employment and wages
				CO 3	C3 Understand the trade unions and their impact on labour market
				CO 4	C4 evaluate the Industrial relation
				CO 5	C5 analyze the current trends of social security measures

		P23CE6	MATHEMATICAL ECONOMICS	**CO 1**	C1 Understand the mathematical structure of standard economic theoretical framework
				CO 2	C2 Equip students with mathematical tools to solve optimization problems appear in economic theory
				CO 3	C3 Equip students with tools to read the technical writing appear in standard economic journals
				CO 4	C4 analyse the dynamics of macroeconomic policies in an economy
				CO 5	C5 analyse mathematically the dynamics of the growth process in an economy
		P23DE06	GENDER ECONOMICS	**CO 1**	C1 Understand the Gendered jobs and Social Inequality
				CO 2	C2 describes the Issues of wage discrimination and exploitation in unogranised sector
				CO 3	C3 Explain the Gender issues in Health, Environment, Family welfare Measures
				CO 4	C4 Evaluate the Impact of Globalization on working women and National Policy for the empowerment of women 2001
				CO 5	C5 Assess the Initiatives towards recognition of women as agents of development from sixth five year plan.
		P23DE05	URBAN ECONOMICS	**CO 1**	C1 understand scope of urban economics and urban economic growth
				CO 2	C2 Describe the process of urbanisation and classification or urban areas
				CO 3	C3 Evaluate the various theories of urban growth and spatial structure
				CO 4	C4 Explain the urban Labour Market, Labour Force Participation and Distribution of Workers
				CO 5	C5 Familiarize the urban problems and planning process.
		P23DE07	RESOURCE ECONOMICS	**CO 1**	C1 Ability to understand land resources in India and the issues related to it
				CO 2	C2 Assess the availability of Forest resources and understand the methods to conserve the resources
				CO 3	C3 Understand the water resources in the country and related environmental issues
				CO 4	C4 Trace the mineral resources in the country
				CO 5	C5 Ability to know about conservation of Natural Resources
				CO 1	C1 To define and explain the science of climate change.

PECE	M.A.ECONOMICS	P23DE08	ECONOMICS OF CLIMATE CHANGE	**CO 2**	C2 To explain and identify the climate change policy.
				CO 3	C3To illustrate and analyses the integrated assessment of climate changes.
				CO 4	C4 To classify, compare and evaluate climate change impact assessment.
				CO 5	C5 To estimate and illustrate the climate change negotiations and equity.
		P23SEE1	SOCIAL ETHICS AND RESPONSIBILITIES (Women Empowerment,Disability, Social Inclusion)	**CO 1**	C1 Understand the importance of Ethics and outlining the various types of Ethical Issues in an organization
				CO 2	C2 Categories the ethical issues in the workplace
				CO 3	C3 Evaluate the need for Corporate Social Responsibility
				CO 4	C4 Design Policies for Social inclusion
				CO 5	C5 Know various schemes for disabled
		P23CE7	ADVANCED MACROECONOMICS	**CO 1**	C1 Defines and understand the concepts of general Equilibrium in the Economy and its models and approaches
				CO 2	C2 Define, Illustrate and examine the role of rational expectations influencing macroeconomics variables, models of income and the various approaches to the working of business cycles.
				CO 3	C3 To demonstrate, identify and to understand the functions of the major propositions of new Keynesian macroeconomics
				CO 4	C4 To understand how, Evaluate and to analyse the open economy model in post Keynesian era
				CO 5	C5 To explain and apply the role of stabilization policies such as fiscal and monetary policy on the economy and to analyze, elaborate and to know the importance government policies and tax frame work
		P23CE8	PUBLIC ECONOMICS	**CO 1**	C1 To label and interpret the basic theories of public finance.
				CO 2	C2 To explain, identify and analyse the public expenditure.
				CO 3	C3 To recall, outline and determine about taxes
				CO 4	C4 To organize, examine and evaluate about fiscal policy.
				CO 5	C5 To summarize, develop and explain about Indian public finance.
				CO 1	C1 To understand what are all the basic concepts in Research and explain means of data collection
				CO 2	C2 Explain and distinguish various sources of primary and secondary data and to apply it in data collection

		P23CE9	RESEARCH METHODOLOGY	**CO 3**	C3 Demonstrate, construct, and explain the functions of presenting data in different methods
				CO 4	C4 To develop the statistical inference and to explain the errors that can happen during data analysis
				CO 5	C5 To illustrate, identify, evaluate and create new models and evaluate the data
		P23CE10	ECONOMETRIC METHODS	**CO 1**	C1 Examine the meaning and applicability of dummy variables
				CO 2	C2 Estimate the Auto Regressive model and the role of lags in dynamic econometric models
				CO 3	C3 Identify the problems of ignoring OLS assumptions
				CO 4	C4 Gain in-depth knowledge in Simultaneous equation models
				CO 5	C5 Analyze the stochastic process and cointegration model
		P23DE10	ECONOMICS IN EVERYDAY LIFE	**CO 1**	C1 To know what is price and to explain and identify its mechanism in economies function
				CO 2	C2 To define, illustrate and evaluate the value of economics in social customs of the society
				CO 3	C3 To find and examine the evils happening in the economy and to identify and measures to overcome those evils
				CO 4	C4 To illustrate, analyse the importance of various dimensions of economics in the society
				CO 5	C5 Analyse, measure and to discuss the role of economics in the effective functioning of the country
		P23DE09	ENTREPRENEURIAL DEVELOPMENT	**CO 1**	C1 Understand the concept of Entrepreneurship
				CO 2	C2 Ability to learn the factors involved in business
				CO 3	C3 Identify the process involved in the project
				CO 4	C4 Assess the methods of Project Appraisal
				CO 5	C5 Acquire the knowledge about source of Finance
		P23SEE2	PERSONALITY DEVELOPMENT	**CO 1**	C1 Understand the importance of personality development
				CO 2	C2 To evaluate the Characteristics of Personality
				CO 3	C3 Examine and analyse the concept of Self-evaluation

				CO 4	C4 Describes the concept of Qualities of Personality Development
				CO 5	C5 Create the self-evaluation and Organizational Context of Leadership and Personality
		P23CE11	INTERNATIONAL ECONOMICS	**CO 1**	C1 Understand Theories of International trade
				CO 2	C2 Learn the Recent Theories in International trade
				CO 3	C3 Ability to know the concept of Balance of Payments Policies
				CO 4	C4 Assess the working of MNC s,Foreign Aid
				CO 5	C5 Understand the working of Foreign Exchange
		P23CE12	DEVELOPMENT ECONOMICS	**CO 1**	C1 Understand the concepts of Development
				CO 2	C2 Acquire knowledge about the theories of economic development
				CO 3	C3 Ability to understand the concepts related to Poverty , Inequality, Health and Education
				CO 4	C4 Gain knowledge about the insights of Rural Development
				CO 5	C5 Understand the role of State in Fiscal Management
		P23DE12	ECONOMICS OF SOCIAL ISSUES	**CO 1**	C1 To define social economics and illustrate the role of the government in creating equality in human societies.
				CO 2	C2 To explain and elaborate the concept of welfare economics with specific reference to healthcare.
				CO 3	C3 To illustrate and discuss the importance of education in creating human capital; private and social demand for education.
				CO 4	C4 To recall, classify and compare the various sources of social discrimination, causes and consequences of the same.
				CO 5	C5 To examine, estimate and illustrate the several components of human development index and the importance of these indices on development of the social sector.
		P23DE11	HUMAN RESOURCES DEVELOPMENT	**CO 1**	C1 To understand the outline of HRM and concepts therein.
				CO 2	C2 To know the approaches in acquiring the human talents.
				CO 3	C3 To analyze the trends in training and developing the manpower acquired.
				CO 4	C4 To identify the methods to improve the performance.

				CO 5	C5 To gain insight to motivate and retain the employees.
		P23SEE3	ROLE OF MSMEs-PRACTICE OF PUBLIC AND PRIVATE COMPANIES AND BANKING SYSTEMS	**CO 1**	C1 To define MSME and to explain the history of it in India
				CO 2	C2 To summarize and identify numerous schemes for MSMEs
				CO 3	C3 To analyze and illustrate the programs for women and economic backward
				CO 4	C4 To know the functions of and discuss about MSME development Act
				CO 5	C5 To evaluate and estimate the role of WTO in the functioning of MSMEs
		P23SIE1	INTERNSHIP	**CO 1**	C1 Bring personal growth and fullfillment
				CO 2	C2 Provide employability and entrepreneurial skill
				CO 3	C3 Enhance the administrative capabilities
				CO 4	C4 Promote empowerment and problem solving skills
				CO 5	C5 Inculcate leadership qualities and communicative skills
		P23CA1	Business Finance	CO 1 Explain the important finance concepts K2 CO 2 Estimate risk and determine its impact on return K5 CO 3 Examine leasing and other sources of finance for startups K4 CO 4 Summarise cash receivable and inventory management techniques K2 CO 5 Evaluate techniques of long term investment decision incorporating risk factor K5	
		P23CA2	Digital Marketing	CO 1 Explain the dynamics of digital marketing K2 CO 2 Examine online marketing mix K4 CO 3 Compare digital media channels K4 CO 4 Explain online consumer behavior K2 CO 5 Analyse social media data K4	
		P23CA3	Banking and Insurance	CO 1 Relate the transformation in banking from traditional to new age K2 CO 2 Apply modern techniques of digital banking K3 CO 3 Evaluate the role of insurance sector K5 CO 4 Examine the regulatory mechanism K4 CO 5 Assess risk mitigation strategies K5	
		P23DA01	i)Security Analysis and Portfolio Management	CO 1 Examine investment options and structure a portfolio K4 CO 2 Assess the value of Equity Shares, Preference Shares and Bonds K5 CO 3 Examine stock performance through fundamental and technical analysis K4 CO 4 Examine the various Portfolio Theories. K4 CO 5 Evaluate the portfolio performance. K5	
		P23DA02	ii)Operations Research	CO 1 Apply Linear Programming K3 CO 2 Identify models for problem solving K3 CO 3 Apply sequencing and game theory K3 CO 4 Apply network analysis to enhance effectiveness K3 CO 5 Examine the models for decision making K4	
		P23DA03	i) Labour Laws	CO 1 Recall the basic labour legislations pertaining to Trade Unions K1 CO 2 Explain various provisions of the Factories Act and Equal Remuneration Act K2 CO 3 Assess provisions relating to the workmen's compensation and state insurance. K5 CO 4 Examine provisions relating to payment of wages and minimum wages. K4 CO 5 Explain the provisions of provident fund, gratuity and bonus schemes. K2	
		P23DA04	ii) Strategic Human Resource Management	CO 1 Recall the fundamentals of strategic Human Resource Management K1 CO 2 Examine the conceptual framework of strategic Human Resource Management Models K4 CO 3 Apply the knowledge of various strategies in Human Resource Management in the corporate arena K3 CO 4 Illustrate drafting of HR policies K2 CO 5 Analyse the latest trend in the strategic Human Resource Management. K4	
		P23CA4	Strategic Cost Management	CO1 Explain strategic cost management and QC K2 CO2 Choose the appropriate technique for cost control K3 CO3 Make use of activity based costing in practice K3 CO4 Choose transfer pricing methods to solve problems K3 CO5 Construct cost structure for Agriculture and IT sector K3	
		P23CA5	Corporate Accounting	CO1 Determine profit and financial position by preparing financialstatementsofcompaniesasperscheduleIIIofCompaniesAct,2013 K5 CO2 Apply the provisions of IRDA Regulations in the preparation of final accounts of Life Insurance and General Insurance Companies. K3 CO3 Determine the overall profitability and financial position by preparing consolidated financial statements of holding	
		P23CA6	Setting up of Business Entities	CO 1 Compare the various avenues of acquiring finance to setup a business entity K2 CO 2 Recall the legal requirements for Section 8 Company K1 CO 3 Examine the provisions for LLP and joint venture K4 CO 4 Analyse the registration and licensing procedure K4 CO 5 Examine the compliance of regulatory framework regarding environment K4	

PCOE	M.COM	P23DA05	i) Business Ethics and Corporate Sustainability	CO 1 Apply the concepts of business ethics in practice K3 CO 2 Demonstrate ethical decision making by applying various theories K2 CO 3 Evaluate moral issues relating to business, marketing, advertising, finance, HR and environmental protection K5 CO 4 Explain the concepts of corporate sustainability K2 CO5 Construct reports disclosing sustainability information K3
		P23DA06	ii) Audit and Due Diligence	CO 1 Compare different types of audit K2 CO 2 Assess the provisions relating to secretarial audit K5 CO 3 Recall the basics of due diligence K1 CO 4 Explain the various types of due diligence K2 CO 5 Examine due diligence for take overs and prepare due diligence report K4
		P23DA07	i) Rural and Agricultural Marketing	CO 1 Recall the concepts of rural marketing K1 CO 2 Analyse the buying behaviour of rural consumers K4 CO 3 Develop the strategies relating to rural product, branding, packaging, etc. K3 CO 4 Construct Distribution and promotional mix in the rural market relating to food processing industry K3 CO5 Explain the principles and functioning of cooperative marketing K2
		P23DA08	ii) Logistics and Supply Chain Management	CO 1 Recall the concepts and features of SCM K1 CO 2 Summarise global and Indian perspectives of SCM K2 CO 3 Examine changing logistics environment pertaining to materials management, warehousing and distribution K4 CO 4 Explain strategic warehousing for SCM K2 CO5 Outline the role of internet in SCM K2
		P23SEA1	Soft Skills – Art of Communication	CO 1 Remembering the Art of Listening K1 CO 2 Applying the concepts of Reading K3 CO 3 Analyse the Art of Speaking K4 CO 4 Design and Build the Art of Writing K5 CO5 Practicing good command on Body Language K3
		P23CA7	Taxation	CO 1 Apply the provisions of income tax to determine taxable income K3 CO 2 Plan taxes K3 CO 3 Illustrate the nuances of international business taxation K2 CO 4 Apply the provisions of GST K3 CO 5 Summarise the provisions of Customs Act K2
		P23CA8	Research Methodology	CO 1 Recall the research concepts and recognise the research problem K1 CO 2 Construct research hypothesis and determine the sample size K3 CO 3 Select appropriate method for data collection K3 CO 4 Interpret the results of statistical tests K2 CO 5 Construct research report avoiding plagiarism K3
		P23CA9	Computer Applications in Business	CO 1 Construct data file in SPSS K3 CO 2 Examine Means of samples K4 CO 3 Apply non-parametric tests K3 CO 4 Construct a company, form groups and get automated financial statements K3 CO 5 Plan for automation of inventory K3
		P23CA10	International Business	CO 1 Recall the concepts of International Business and International Business Environment K1 CO 2 Analyse different theories of International Business K4 CO 3 Explain the legal procedures involved in International business K2 CO 4 Explain the different types of economic integrations. K2 CO 5 Identify the operations of MNCs through real case assessment K3
		P23DA09	i) Strategic Management	CO 1 Summarise strategic management principles at different levels and phases K2 CO 2 Explain the dynamics of competitive strategic management techniques K2 CO 3 Examine business and functional level strategies K4 CO 4 Identify strategic leadership and organisational skills K3 CO5 Apply latest concepts in strategy implementation and control K3
		P23DA10	ii) International Financial Management	CO 1 Explain the importance and nature of international flow of funds K2 CO 2 Analyse the fluctuations in exchange rate and impact on exchange markets K4 CO 3 Analyse the techniques of international investment decisions for building a better portfolio K4 CO 4 Explain the flow of funds in the international banks K2 CO 5 Examine various international financial market instruments K4
		P23SEA2	Soft Skills – Career Planning	CO1 Develop Ambitious Goals CO2 Preparation of curriculum vitae CO3 Developing Professional and Personal Manners CO4 Improve the ability to work collaboratively with team CO5 Master the art of answering insightful questions.
		P23CA11	Corporate and Economic Laws	CO 1 Recall important provisions of FEMA K1 CO 2 Examine the provisions of the Competition Act, 2002 and Consumer Protection Act to govern commercial competition and protect a consumer K4 CO 3 Summarise the process relating to obtaining copyrights and patents. K2 CO 4 Examine the provisions of Money Laundering Act K4
		P23CA12	Human Resource Analytics	CO 1 Examine the concept of human resource analytics K4 CO 2 Apply the HR tools and techniques in decision making K3 CO 3 Examine the different types of HR metrics and their relative merits K4 CO 4 Make use of HR data in report preparation K3 CO 5 Build models for predictive analysis K3
		P23DA11	i)Organisational Behaviour	CO 1 Identify the effect of OB models and organizational learning human behaviour K3 CO 2 Assess the theories of motivation and their impact on job satisfaction. K5 CO 3 Examine effective communication tools for better organisational climate. K4 CO 4 Analyse interpersonal transactions at the workplace. K4 CO5 Analyse the various OB models for change management and development in the organization. K4
		P23DA12	ii) Insolvency Law and Practice	CO 1 Recall the concepts needed for the insolvency and Bankruptcy Code 2016. K1 CO2 Analyse the provisions relating to Corporate Insolvency Resolution Process, Insolvency resolution of corporate persons and Resolution Strategies K4 CO 3 Analyse the legal provisions of Liquidation of Corporate Person, Companies and Adjudication and Appeals for Corporate Persons K4
		P23SEA3	Soft Skills – Personality Development	CO 1 Develop Personality Skills. K1 CO2 Ability to present oneself with good attitude. K4 CO 3 Build Self-confidence, overcome self-doubt K2 CO 4 Understanding the importance of interpersonal relationships K4 CO 5 Develop and maintain good manners K2
		P23CK1	Management Principles and Business Ethics	**CO1** Possess the knowledge on the basic concepts of management and understand how an organization functions.
				CO2 Possess knowledge on planning & decision making.
				CO3 Have insights on organizing, managing change and Innovation
				CO4 Learn leadership, communication and controlling skills.

				CO5	Have better understanding on business ethics and social responsibility.
		P23CK2	Quantitative Techniques and Research Methods in Business	CO1	Be able to develop problem-solving techniques needed to accurately calculate probabilities.
				CO2	Be able to devise research methods, techniques and strategies in the appropriate manner for managerial decision making and conduct research for the industry.
				CO3	Be able to apply and interpret the different types of quantitative and qualitative methods of data analysis.
				CO4	Be able to use multivariate techniques appropriately, undertake multivariate hypothesis tests, and draw appropriate conclusions.
				CO5	Be able to present orally their research or a summary of another‘s research in an organized, coherent, and compelling fashion.
		P23CK3	Managing Organizational Behaviour	CO1	Possess the knowledge on the basic concepts of managing Organizational Behaviour in order to aid in understanding how an men behave in an organization
				CO2	Possess knowledge on Individual Differences, perception, learning, Attitudes values and motivation
				CO3	Have insights on Group Dynamics and Interpersonal Communication
				CO4	Learn Leadership, Politics, Conflicts and Negotiation.
				CO5	Have better understanding on work stress and Emotional Intelligence and its influence on employees in an organization.
		P23CK4	Accounting for Managers	CO1	Be able to understand the fundamentals of principles of financial, cost and management accounting
				CO2	Be able to prepare, analyze and interpret financial statements
				CO3	Be able to use the tools and techniques of financial analysis.
				CO4	Be able to take decisions using management accounting tools.
				CO5	Be able to prepare the reports with the accounting tools and facilitate and take managerial decisions.
		P23CK5	Managerial Economics	CO1	Be able to understand the basic concepts of managerial economics that helps the firm in decision making process.
				CO2	Be familiar about the Basic concepts of Demand, Supply and Equilibrium and their determinants
				CO3	Have better idea and understanding about production function and market structure
				CO4	Have better insights about macroeconomics concepts like National income, Savings and Investment, Indian Economic Policy and planning
				CO5	Possess better knowledge about Money market, Monetary and Fiscal policy, inflation and deflation, FDI and globalization and Cashless economy and digitalized cash transfers.

		P23CK6	Legal Systems in Business	CO1	Have knowledge on understandings on law of contract.
				CO2	Know the sale of Goods & Negotiable instrument act.
				CO3	Have understandings on partnership and company law
				CO4	Have familiarize with various labour laws.
				CO5	Possess insights & awareness about consumer protection Act Cyber Crimes, Intellectual Property Rights.
		P23KED1	Entrepreneurship Development	CO1	Be able to know about growth of entrepreneurship in India
				CO2	Gain knowledge on innovation, its types, role of technology in innovation, patents and licensing
				CO3	Obtain knowledge on new venture creation
				CO4	Be able to prepare a business plan
				CO5	Gian knowledge on various types of financing available for new ventures.
		P23KSS1P	Soft Skills I – Executive Communication	CO1	Understanding of theories and concepts, types and various modes of communication in organizations
				CO2	Development of skills on developing Business Correspondence
				CO3	Development of skills on preparing Business Reports and Proposals
				CO4	To draft effective business correspondence with brevity, and clarity in designing and developing clean and lucid organizing skills.
				CO5	To demonstrate his/her verbal and non-verbal communication ability through presentations.
		P23CK7	Applied Operations Research	CO1	Obtain insight on the origin and nature of OR and also the application of various models of OR.
				CO2	Learn about the graphical, Simplex, Big M and dual methods of Linear programming problem.
				CO3	Be well versed with the concept of transportation and Assignments models
				CO4	Have better understanding on inventory models, replacement models, job sequencing, networking model and Queuing model
				CO5	Be imparted knowledge on the various methods of game model
				CO1	To embark importance of HRM role, functions and need

		P23CK8	Human Resource Management	CO2	To assimilate theoretical and practical implications of HRP
				CO3	To critically use appropriate training tools
				CO4	To analyze and implement an effective performance management
				CO5	To extrapolate and design compensation management techniques
		P23CK9	Marketing Management	CO1	To develop an understanding and enhance the knowledge about marketing theories, principles, strategies and concepts and how they are applied.
				CO2	To provide with opportunities to analyze marketing activities within the firm.
				CO3	To analyze and explore the buyer behavior pattern in marketing situations.
				CO4	To understand the branding, pricing and strategies in marketing a product.
				CO5	To upgrade the knowledge and awareness of Consumer Rights in the Market.
		P23CK10	Operations Management	CO1	To understand the production function, production design & capacity planning,
				CO2	Exploring the Make or Buy decision, and thus understanding the role of inventory management
				CO3	To determine multiple plant location decisions and effective utilization of plant layout. To explain the models, concepts, and techniques adopted in the areas of inventory control and maintenance.
				CO4	To elucidate the importance and usefulness of work-study and quality control tools
				CO5	To provide insights on service operations management and waiting line analysis.
		P23CK11	Financial Management	CO1	To create an understanding and familiarize the students to the fundamentals of financial management and create awareness on the various sources of finance.
				CO2	To create awareness on the various investment techniques on the investment decision making.
				CO3	To throw light on the concept of cost of capital and familiarize on the technique of identifying the right source of capital.
				CO4	To educate on the concept of capital structure and the create understanding on the concept of dividend.
				CO5	To create an understanding on the concept of working capital, its need, importance, factors and forecasting technique
				CO1	To enable the students understand the importance of vision and mission in framing corporate strategy.
				CO2	To provide insights on how business is responsible socially and ethically.

PBAE	MBA	P23CK12	Strategic Management	**CO3**	To highlight on the environmental analysis framework.
				CO4	To throw light on strategic formulation and strategic choice.
				CO5	To understand strategic implementation and strategic control.
		P23KED2	International Business	**CO1**	To understand and analyze international situations and evaluate international collaborative arrangements and strategic alliances.
				CO2	To apply knowledge of political, legal, economic and cultural country differences to develop competitive strategies in foreign, regional and global markets.
				CO3	To throw light on international trade theories and the management of business functional operations in an international context.
				CO4	To analyze and evaluate barriers, opportunities, market entry modes and the process of internationalization.
				CO5	To know about regional economic integration and contemporary issues in international business.
		P23KSS2P	Soft Skills II – Business Etiquette	**CO1**	To analyze the Business etiquette at workplace
				CO2	To determine the Principles of exceptional work behavior
				CO3	To explore Tech etiquette in using various telecommunication devices and channels
				CO4	To successfully handle Multi-cultural challenges
				CO5	To ascertain sensitivity to new and emerging issues in etiquette
		P23KSS3P	Soft Skills III – Computing Skills	**CO1**	To create awareness and understanding on the basic functions of MS Excel
				CO2	To elucidate the students on the various advanced functions of MS Excel
				CO3	To educate the students on MS Access and its application in database management
				CO4	To enable the students to understand the functions and usage of various cloud based apps like Google Drive, Google Sheets and Google Docs
				CO5	To enable the students learn the functions and usage of Cloud based apps like Google Forms, Google Slides and Google Cloud Printing.
		P23CK13	Information Systems for Business	**CO1**	To enable students to understand the fundamentals of information system and its role of information in managerial decision making
				CO2	To throw light on fundamentals of information systems like TPS, DSS, and EIS.
				CO3	To manage system applications and data to best support functional areas of business

				CO4	To provide insights in securely managing database and information using the process of
				CO5	To elucidate the need and importance of ERP, its selection and implementation in workplace
		P23KED3	Employability skills	**CO1**	To learn about the employability skills
				CO2	To understand dimensions of task oriented skills
				CO3	To study on critical problem-solving techniques
				CO4	To develop employability skills
				CO5	To understand the logical and reasoning skills
		P23KSS4P	Soft Skills IV – Leadership and Team Building Skills	**CO1**	To understand the characteristics, style, traits of leaders, and theories of leadership.
				CO2	To learn more about self-leadership and developing team-building skills through case studies and examples.
				CO3	To understand how to form, manage and lead the team.
				CO4	To understand the measures of conflict in a team
				CO5	To explore team roles & processes in developing and managing a team
		P23SIK1	Summer Internship	**CO1**	Students will apply advanced management theories and principles to analyze and solve real-world organizational challenges.
				CO2	Students will develop the ability to conduct in-depth analysis of industry dynamics, including market trends, competitive landscapes, and organizational strategies.
				CO3	Students will demonstrate leadership and team management skills by collaborating effectively in professional settings to achieve project objectives.
				CO4	Students will master professional reporting and presentation techniques to effectively communicate insights and recommendations to stakeholders.
				CO5	Students will gain a strategic understanding of managerial processes, equipping them with the skills to make informed and impactful business decisions.
		P23KF1	Corporate Finance	**CO1**	To familiarize the students with the fundamental understanding of corporate finance.
				CO2	To create awareness and understanding on the Indian capital market, the various sources of capital and role of SEBI.
				CO3	To throw light on the investment techniques on the investment decision making
				CO4	To educate the students on the various sources of international finance available to the Indian companies.

				CO5	To elucidate on the various modes through which corporate can go international and multinational collaboration can be made.
		P23KF2	Banking and Insurance	CO1	To provide a basic understanding of the insurance mechanism and principle of insurance.
				CO2	To provide an overview of Indian insurance industry.
				CO3	To understand the basics of Banking and the emergence of Banking in India.
				CO4	To get acquainted with the functionality of the Banks.
				CO5	To know the meaning and use of commonly used technologies in Banking.
		P23KF4	Merchant Banking and Financial Services	CO1	To enable a better understanding of the financial structure in India and various regulations in the Merchant Banking domain and also throw light on the rules and regulations governing the Indian securities market.
				CO2	To familiarize the students with public issue management mechanism, role of issue manager, SEBI guidelines and marketing of securities.
				CO3	To create an understanding on the trends in financial services, merger and acquisition, portfolio management services and credit rating.
				CO4	Provide exposure to fund based financial services such as leasing and hire purchasing, financial evaluation.
				CO5	Students can understand other fund based financial services such as consumer credit, real estate financing, bill discounting, factoring and venture capital.
		P23KHR4	Industrial and Labour Relations	CO1	To familiarize the students to the basic concepts of Industrial Relations in order to aid in understanding how an industry functions.
				CO2	To provide insights on Industrial Harmony and Conflicts
				CO3	To throw light on Labour Relations, Joint consultation
				CO4	To explicate on Trade Union, Problems and role of Indian Trade Unions.
				CO5	To elucidate on Collective Bargaining, Tripartite Machinery
		P23KHR7	HR Analytics	CO1	To derive a strong understanding of HR Analytics, Process and impact
				CO2	To expand the learning on statistics and toolkits of HRM
				CO3	To summarize the best practices in HR analytics
				CO4	To collate and appraise optimal methods for measuring HR contribution
				CO5	To develop and construct HR regulations and reporting requirements

		P23KHR18	Compensation and Rewards Management	**CO1**	To familiarize the students to the basic concepts of compensation
				CO2	To provide insights on compensation planning
				CO3	To throw light on compensation Pay
				CO4	To elucidate on Executive compensation
				CO5	To create awareness and importance of Wage administration in India:
		P23KPW	Project Work & Viva- Voce	**CO1**	Students will demonstrate the ability to conduct independent research, utilizing appropriate methodologies to investigate and solve complex problems.
				CO2	Students will synthesize and apply theoretical concepts and practical insights to produce a comprehensive project report aligned with industry or academic standards.
				CO3	Students will exhibit advanced critical thinking skills by analyzing data, interpreting results, and offering innovative solutions to real-world challenges.
				CO4	Students will effectively present their findings and defend their work through a structured viva-voce, showcasing clarity, confidence, and professionalism.
				CO5	Students will gain experience in working with internal and external examiners, fostering their ability to receive constructive feedback and refine their work accordingly.
		P23CM1	Algebraic Structures	CO1. Recall basic counting principle, define class equations to solve problems, explain Sylow's theorems and apply the theorem to find number of Sylow subgroups	
				CO2. Define Solvable groups, define direct products, examine the properties of finite abelian groups, define modules	
				CO3. Define similar Transformations, define invariant subspace, explore the properties of triangular matrix, to find the index of nilpotence to decompose a space into invariant subspaces, to find invariants of linear transformation, to explore the properties of nilpotent transformation relating nilpotence with invariants	
				CO4. Define Jordan, canonical form, Jordan blocks, define rational canonical form, define companion matrix of polynomial, find the elementary devices of transformation, apply the concepts to find characteristic polynomial of linear transformation	
				CO5. Define trace, define transpose of a matrix, explain the properties of trace and transpose, to find trace, to find transpose of matrix, to prove Jacobson lemma using the triangular form, define symmetric matrix, skew symmetric matrix, adjoint, to define Hermitian, unitary, normal transformations and to verify whether the transformation in Hermitian, unitary and normal	
		P23CM2	Real Analysis-I	CO1. Analyze and evaluate functions of bounded variation and Rectifiable Curves.	
				CO2. Describe the concept of Riemann-Stieltjes integral and its properties	
				CO3. Demonstrate the concept of step function, upper function, Lebesgue function and their integrals	
				CO4. Construct various mathematical proofs using the properties of Lebesgue integrals and establish the Levi monotone convergence theorem.	
				CO5. Formulate the concept and properties of inner products, norms and measurable functions	
				CO1. Establish the qualitative behaviour of solutions of systems of differential equations	

		P23CM3	Ordinary Differential Equations	CO2. Recognize the physical phenomena model by differential equations and dynamical systems.
				CO3. Analyze solutions using appropriate methods and give examples.
				CO4. Formulate Green's function for boundary value problems.
				CO5. Understand and use various theoretical ideas and results that underlie the mathematics in this course
		P23DM01	Number Theory and Cryptography	CO1. Understand problems in elementary number theory
				CO2. Apply elementary number theory to Cryptography
				CO3. Develop a deep understanding of theoretical basis of number theory and Cryptography
				CO4. Identify how number theory is related and applied in Cryptography
				CO5. Develops knowledge of encryption and decryption and their application in managing the security of data.
		P23DM02	Graph Theory and Applications	CO1. Understand and write precise mathematical definitions of objects in graph theory
				CO2. Understand the properties of trees and distance concept in graphs.
				CO3. Identify Eulerian/Hamiltonian graphs, apply algorithms to construct Eulerian trails in graphs.
				CO4. Enumerate properties of edge connectivity and understand the matching concept
				CO5. Validate and critically assess the vertex coloring and planarity.
		P23DM03	Fuzzy Sets and Their Applications	CO1. Recall the basic concept of crisp sets and develope an alogous patterns in fuzzy sets using alpha cuts and decomposition theorems
				CO2. Characterize fuzzy complement,t-norm,t-co norm.
				CO3. Identify and characterize fuzzy numbers and realize real number as a special case of fuzzy number, illustrate arithmetic operation on fuzzy numbers and solve fuzzy equations.
				CO4. Compare and contrast fuzzy relations with crisp relations
				CO5. Discuss methods for solving fuzzy relation equations and illustrate with examples.
				CO1. Understand the foundations of LOGIC and PROOFS
				CO2. Analyse counting Techniques

		P23DM04	Discrete Mathematics	CO3. Demonstrate Turing Machine
				CO4. Apply coding theory
				CO5. Deal with Formal languages
		P23CM4	Advanced Algebra	CO1. Prove theorems applying algebraic ways of thinking.
				CO2. Connect groups with graphs and understand about Hamiltonian graphs.
				CO3. Compose clear and accurate proofs using the concepts of Galois theory.
				CO4. Bring out insight into Abstract Algebra with focus on axiomatic theories
				CO5. Understand Solvability by radicals and apply Four – Square theorem.
		P23CM5	Real Analysis-II	CO1. Understand the concepts of Lebesgue measure, measurable sets and functions.
				CO5. Apply Green's function and solve Dirichlet, Laplace problems, to apply Helmholtz operation and to solve higher dimensional problem.
				CO3. Evaluate Fourier series and Fourier integrals.
				CO4. Analyze various forms of partial derivative and mixed partial derivativesandapply Taylor's theorem for functions ofR^n to R^1.
				CO5. Understand implicit functions and solve extremum problems with side conditions.
		P23CM6	Partial Differential Equations	CO1. Understand and classify second order equations and find general solutions
				CO2. Analyse and solve wave equations in different polar coordinates
				CO3. Solve Vibrating string problem, Heat conduction problem, to identify and solve Laplace and beam equations
				CO4. Apply maximum and minimum principle's and solve Dirichlet, Neumann problems for various boundary conditions.
		P23DM05	Mathematical Statistics	CO1. Recall discrete and continuous types of random variables
				CO2. Describe two dimensional random variables.
				CO3. Interpret Binomial, Poisson, Normal, Gamma and Chi-square distributions.
				CO4. Construct probability density function of given functions of the random variables.

				CO5. State and demonstrate Central Limit Theorem.
		P23DM06	Algebraic Topology	CO1. Geometric Complexes and Polyhedra
				CO2. Simplicial Homology Groups
				CO3. Simplicial Approximation
				CO4. The Fundamental Group
				CO5. Covering spaces
		P23DM07	Wavelets	CO1. Understand the concept of various signals and its representation.
				CO2. Analyse the idea of continuous wavelet transform and its properties.
				CO3. Get knowledge about the concept of various twochannel filter banks along with discrete wavelet transform.
				CO4. Analyse the idea of discrete time systems with extension to higher dimensions and wave packets.
				CO5. Emphasis on the various applications of wavelet transformations.
		P23DM08	Machine Learning and Artificial Intelligence	CO1. Understand the AI Foundations
				CO2. Deal with Data.
				CO3. Work with Data in an AI project.
				CO4. Construct Machine Learning Algorithms .
				CO5. Construct Machine Learning Algorithms.
		P23SEM1	Mathematical Documentation Using LATEX / Other Packages	CO1. Know how to create basic types of LaTex documents (article)
				CO2. Typeset latex commands
				CO3. To Create a paragraph, symbols, comments and font style
				CO4. To Change font characteristics
				CO5. Know about various environments

PMAE	M.Sc Mathematics	P23CM7	Complex Analysis	CO1. Analyze and evaluate local properties of analytical functions and definite integrals.
				CO2. Describe the concept of definite integral and harmonic functions.
				CO3. Demonstrate the concept of the general form of Cauchy's theorem
				CO4. Develop Taylor and Laurent series
				CO5. Explain the infinite products, canonical products and Jensen's formula
		P23CM8	Probability theory	CO1. Tackle problems regarding point and interval estimation
				CO2. Analyse the properties of estimators
				CO3. Understand Bayesian estimation and Rao crammer inequality
				CO4. Devise powerful tests and determine best critical region
				CO5. Develop suitable tests for normal models
		P23CM9	Topology	CO1. Define and illustrate the concept of topological spaces and the basic definitions of open sets, neighbourhood, interior, exterior, closure and their axioms for defining topological space.
				CO2. Understand continuity, compactness, connectedness, homeomorphism and topological properties
				CO3. Analyze and apply the topological concepts in Functional Analysis.
				CO4. Ability to determine that a given point in a topological space is either a limit point or not for a given subset of a topological space
				CO5. Develop qualitative tools to characterize connectedness, compactness, second countable, Hausdorff and develop tools to identify when two are equivalent(homeomorphic)
		P23CM10	Core Industry Module: Resource Management Techniques	CO1. Explain the fundamental knowledge of Linear Programming
				CO2. Use classical optimization techniques and numerical methods of optimization. Enumerate fundamentals of Integer programming technique and apply different techniques to solve various optimization problem
				CO3. Describe the basics of different Heuristic algorithms and solve Dynamic Programming problems.
				CO4. Enumerate fundamentals of Integer programming technique and apply different techniques to solve various optimization problem
				CO5. Understand Queuing systems and understand constrained and unconstrained problems
				CO1. Understand the basic properties and principles of viscous and non-viscous fluids

		P23DM09	Fluid Dynamics	CO2. Derive and deduce the consequences of the governing equations of fluid
				CO3. Solve kinematics problems such as finding particle paths and streamlines
				CO4. Understand the basic theorems of fluid mechanics and its applications
				CO5. Derive the boundary layer equations of some basic flows and its solutions
		P23DM10	Algerbraic Number Theory	CO1. Understand the concept of Modules
				CO2. Deal with algebraic integers and its applications
				CO3. Understand the concept of Quadratic fields and cyclotomic fields
				CO4. Learn Ramanujan-Nagell Theorem
				CO5. Understand Prime Factorization of Ideals
		P23SEM2	Mathematical Logic and Reasoning	CO1. Gain the Knowledge of Mathematical Operators & Mathematical Problems
				CO2. Develop increase their cognitive capabilities
				CO3. Acquire knowledge to complete a series
				CO4. Understand the Direction Sense Test – Numbers Test and Time Sequence Test
				CO5. Learn about Blood relation
		P23CM11	Mechanics	CO1. Understand Continuos linear Transformations and conjugate of an Operator
				CO2. Describe Adjoint of an operator, Self adjoint operator, Normal and unitary operators.
				CO3. Apply Spectral Theorem.
				CO4. Analyse general preliminaries of Banach Algebra.
				CO5. Prove Gelfand-Neumark theorem.
				CO1. Demonstrate the knowledge of core principles in mechanics
				CO2. Interpret and consider complex problems of classical dynamics in a systematic way.

		P23CM12	Project with Viva voce	CO3. Apply the variation principle for real physical situations
				CO4. Explore different applications of these concepts in the mechanical and electromagnetic fields
				CO5. Describe and apply the concept of Angular momentum, Kinetic energy and Moment of inertia of a particle .
		P23DM11	Mathematical Python	CO1. Basic definitions of space curve
				CO2. Understand intrinsic equation, Fundamental existence theorem for space curve and Helics
				CO3. Gain the knowledge of metric, local intrinsic properties of a surface and Geodesics
				CO4. Present the knowledge of Geodesic parallels, Geodesic curvature and Gauss Bonnet theorem
				CO5. Get the knowledge of local non-intrinsic properties of a surface.
		P23DM12	Professional competency skill: Mathematics for NET/UGC-CSIR/SET/TRB Competitive Examinations	CO1. Basic definitions of space curve
				CO2. Understand intrinsic equation, Fundamental existence theorem for space curve and Helics
				CO3. Gain the knowledge of metric, local intrinsic properties of a surface and Geodesics
				CO4. Present the knowledge of Geodesic parallels, Geodesic curvature and Gauss Bonnet theorem
				CO5. Get the knowledge of local non-intrinsic properties of a surface.
		P23SEM3	Professional competency skill: Mathematics for NET/UGC-CSIR/SET/TRB Competitive Examinations	CO1. Gain the knowledge of mathematical operators and mathematical problems
				CO2. Develop increase their cognitive capabilities
				CO3. Acuquire knowledge to complete a series
				CO4. Understand the direction sense test-numbers test and time sequence test
				CO5. Learn about blood relation
		P23SIM1	Internship Industrial Activity	CO1.To develop work habits and attitudes necessary for job success.
				CO2. To develop communication,interpersonal and other critical skills in the job interview process.
				CO3. To acquire employment contacts leading directly to a full time job following graduation from college.

				CO4. To build a record of work experience .	
				CO5. To access interests and abilities in their field of study.	
		P23EAM	Extenstion Activity	CO1. To learn how to work together.	
				CO2: To develop leadership skills.	
				CO3. To develop empathy.	
				CO4.To learn about social issues and how to be engaged citizens .	
				CO5. To gain hands on experience that connect theory to practice .	
		P23MPW	Project with Viva voce	CO1. To get the knowledge about literture survey.	
				CO2: To get the knowledge of collecting and analyzing the data.	
				CO3. To use the results to learn and improve the project.	
				CO4.To get the knowledge of presentation.	
				CO5. To improve their persionality.	
		P23CP1	Mathematical Physics	**CO1**	Understand use of bra-ket vector notation and explain the meaning of complete ortho -normal set of basis vectors, and transformations and be able to apply them.
				CO2	Able to understand analytic functions, do complex integration, by applying Cauchy Integral Formula. Able to compute many real integrals and infinite sums via complex integration.
				CO3	Analyze characteristics of matrices and its different types, and the process of diagonalization.
				CO4	Solve equations using Laplace transform and analyze the Fourier transformations of different function, grasp how these transformations can speed up analysis and correlate their importance in technology
				CO5	To find the solutions for physical problems using linear differential equations and to solve boundary value problems using Green's function. Apply special functions in computation of solutions to real world problems
		P23CP2	Classical Mechanics and Relativity	**CO1**	Understand the fundamentals of Classical Mechanics.
				CO2	Apply the principles of Lagrangian and Hamiltonian mechanics to solve the equations of motion of physical systems.
				CO3	Apply the principles of Lagrangian and Hamiltonian mechanics to solve the equations of motion of physical systems.
				CO4	Analyze the small oscillations in systems and determine their normal modes of oscillations.

				CO5	Understand and apply the principles of relativistic kinematics to the mechanical systems.
				CO1	Understand the strength of material using Young's modulus.
		P23CP3P	Practical I	**CO2**	Acquire knowledge of thermal behaviour of the materials.
				CO3	Understand theoretical principles of magnetism through the experiments.
				CO4	Acquire knowledge about arc spectrum and applications of laser
				CO5	Improve the analytical and observation ability in Physics Experiments
				CO6	Conduct experiments on applications of FET and UJT
				CO7	Analyze various parameters related to operational amplifiers.
				CO8	Understand the concepts involved in Arithmatic and logical circuits using IC's
				CO9	Acquire knowledge about Combinational Logic Circuits and Sequential Logic Circuits
				CO10	Analyze the applications of counters and registers
				CO1	Learn about the basic concepts for the circuit configuration for the design of linear integrated circuits and develops skill to solve problems
		P23DP08	Linear and Digital ICs and Applications	**CO2**	Develop skills to design linear and non-linear applications circuits using Op-Amp and design the active filters circuits.
				CO3	Gain knowledge about PLL, and develop the skills to design the simple circuits using IC 555 timer and can solve problems related to it.
				CO4	Learn about various techniques to develop A/D and D/A converters.
				CO5	Acquire the knowledge about the CMOS logic, combinational and sequential circuits
		P23DP04	Physics of Nano Science and Technology	**CO1**	Understand the basic of nanoscience and explore the different types of nano materials and should comprehend the surface effects of the nano materials.
				CO2	Explore various physical, mechanical, optical, electrical and magnetic properties nanomaterials.
				CO3	Understand the process and mechanism of synthesis and fabrication of nanomaterials.
				CO4	Analyze the various characterization of Nano-products through diffraction, spectroscopic, microscopic and other techniques.
				CO5	Apply the concepts of nanoscience and technology in the field of sensors, robotics, purification of air and water and in the energy devices.

				CO1	To examine and elaborate the effect of changes in thermodynamic quantities onthe states of matter during phase transition
		P23CP4	Statistical Mechanics	**CO2**	To analyze the macroscopic properties such as pressure, volume, temperature, specific heat, elastic moduli etc. using microscopic properties like intermolecular forces, chemical bonding, atomicity etc. Describe the peculiar behaviour of the entropy by mixing two gases Justify the connection between statistics and thermodynamic quantities
				CO3	Differentiate between canonical and grand canonical ensembles and to interpret the relation between thermo dynamical quantities and partition function
				CO4	To recall and apply the different statistical concepts to analyze the behaviour of ideal Fermi gas and ideal Bose gas and also to compare and distinguish between the three types of statistics.
				CO5	To discuss and examine the thermo dynamical behaviour of gases under fluctuation and also using Ising model
		P23CP5	Quantum Mechanics-I	**CO1**	Demonstrates a clear understanding of the basic postulates of quantum mechanics which serve to formalize the rules of quantum mechanics
				CO2	Is able to apply and analyze the Schrodinger equation to solve one dimensional problems and three dimensional problems
				CO3	Can discuss the various representations, space time symmetries and formulations of time evolution
				CO4	Can formulate and analyze the approximation methods for various quantum mechanical problems
				CO5	To apply non-commutative algebra for topics such as angular and spin angular momentum and hence explain spectral line splitting.
		P23CP6P	Practical-II	**CO1**	Understand the strength of material using Young's modulus
				CO2	Acquire knowledge of thermal behaviour of the materials
				CO3	Understand theoretical principles of magnetism through the experiments.
				CO4	Acquire knowledge about arc spectrum and applications of laser
				CO5	Improve the analytical and observation ability in Physics Experiments
				CO6	Conduct experiments on applications of FET and UJT
				CO7	Analyze various parameters related to operational amplifiers
				CO8	Understand the concepts involved in arithmetic and logical circuits using IC's

				CO9	Acquire knowledge about Combinational Logic Circuits and Sequential Logic Circuits
				CO10	Analyze the applications of counters and registers.
		P23DP16	Advanced Optics		
				CO1	Discuss the transverse character of light waves and different polarization Phenomenon
				CO2	Discriminate all the fundamental processes involved in laser devices and to analyze the design and operation of the devices
				CO3	Demonstrate the basic configuration of a fiber optic – communication system andadvantages
				CO4	Identify the properties of nonlinear interactions of light and matter
				CO5	Interpret the group of experiments which depend for their action on an appliedmagnetic and electric field
		P23DP19	Microprocessor 8085 and Microcontroller 8051	**CO1**	Gain knowledge of architecture and working of 8085 microprocessor.
				CO2	Get knowledge of architecture and working of 8051 Microcontroller.
				CO3	Be able to write simple assembly language programs for 8085A microprocessor.
				CO4	Able to write simple assembly language programs for 8051 Microcontroller.
				CO5	Understand the different applications of microprocessor and microcontroller.
		P23SEP1	Solar Energy Utilization	**CO1**	Gained knowledge in fundamental aspects of solar energy utilization
				CO2	Equipped to take up related job by gaining industry exposure
				CO3	Develop entrepreneurial skills
				CO4	Skilled to approach the needy society with different types of solar cells
				CO5	Gained industrialist mindset by utilizing renewable source of energy
		P23CP7	Quantum Mechanics-II	**CO1**	Familiarize the concept of scattering theory such as partial wave analysis and Born approximation
				CO2	Give a firm grounding in relativistic quantum mechanics, with emphasis on Dirac equation and related concepts
				CO3	Discuss the relativistic quantum mechanical equations namely, Klein-Gordon and Dirac equations and the phenomena accounted by them like electron spin and magnetic moment

PPHE	MSC. PHYSICS			**CO4**	Introduce the concept of covariance and the use of Feynman graphs for depicting different interactions.
				CO5	Demonstrate an understanding of field quantization and the explanation of the scattering matrix.
		P23CP8	Condensed Matter Physics	**CO1**	Student will be able to list out the crystal systems, symmetries allowed in a system and also the diffraction techniques to find the crystal structure
				CO2	Students will be able to visualize the idea of reciprocal spaces, Brillouin Zone and their extension to band theory of solids.
				CO3	Student will be able to comprehend the heat conduction in solids
				CO4	Student will be able to generalize the electronic nature of solids from band theories.
				CO5	Student can compare and contrast the various types of magnetism and conceptualize the idea of superconductivity.
		P23CP9P	Practical-III	**CO1**	Program with the C Program/ FORTRAN with the C or any other high level language
				CO2	Use various numerical methods in describing/solving physics problems.
				CO3	Solve problem, critical thinking and analytical reasoning as applied to scientific problems.
				CO4	To enhance the problem-solving aptitudes of students using various numerical methods.
				CO5	To apply various mathematical entities, facilitate to visualise any complicate tasks.
				CO6	Process, analyze and plot data from various physical phenomena and interpret their meaning
				CO7	Identify modern programming methods and describe the extent and limitations of computational methods in physics
				CO8	Work out numerical differentiation and integration whenever routine are not applicable.
				CO9	Apply various interpolation methods and finite difference concepts.
				CO10	Understand and apply numerical methods to find out solution of algebraic equation using different methods under different conditions, and numerical solution of system of algebraic equation.
		P23CP10	Electromagnetic Theory	**CO1**	Solve the differential equations using Laplace equation and to find solutions for boundary value problems
				CO2	Use Biot-Savart's law and Ampere circuital law to find the magnetic induction & magnetic vector potential for various physical problems
				CO3	Apply Maxwell's equations to describe how electromagnetic field behaves in different media
				CO4	Apply the concept of propagation of EM waves through wave guides in optical fiber communications and also in radar installations, calculate the transmission and reflection coefficients of electromagnetic waves

				CO5	Investigate the interaction of ionized gases with self-consistent electric and magnetic fields.
		P23DP09	Numerical Methods and Computer Programming	**CO1**	Recall the transcendental equations and analyze the different root finding methods. Understand the basic concept involved in root finding procedure such as Newton Raphson and Bisection methods, their limitations.
				CO2	Relate Simultaneous linear equations and their matrix representation Distinguish between various methods in solving simultaneous linear equations.
				CO3	Understand, how interpolation will be used in various realms of physics and Apply to some simple problems Analyze the newton forward and backward interpolation
				CO4	Recollect and apply methods in numerical differentiation and integration. Assess the trapezoidal and Simson's method of numerical integration.
				CO5	Understand the basics of C-programming and conditional statements.
		P23SEP2	Solid Waste Management	**CO1**	Gained knowledge in solid waste management
				CO2	Equipped to take up related job by gaining industry exposure
				CO3	Develop entrepreneurial skills
				CO4	Will be able to analyze and manage the status of the solid wastes in the nearby areas
				CO5	Adequately sensitized in managing solid wastes in and around his/her locality
		P23CP11	Nuclear and Particle Physics	**CO1**	Gain knowledge about the concepts of helicity, parity, angular correlation and internal conversion.
				CO2	Demonstrate knowledge of fundamental aspects of the structure of the nucleus, radioactive decay, nuclear reactions and the interaction of radiation and matter.
				CO3	Use the different nuclear models to explain different nuclear phenomena and the concept of resonances through Briet-Weigner single level formula
				CO4	Analyze data from nuclear scattering experiments to identify different properties of the nuclear force.
				CO5	Summarize and identify allowed and forbidden nuclear reactions based on conservation laws of the elementary particles.
		P23CP12P	Practical-IV	**CO1**	Develop the programming skills of Microprocessor
				CO2	Appreciate the applications of Microprocessor programming
				CO3	Understand the structure and working of 8085 microprocessor and apply it.
				CO4	Acquire knowledge about the interfacing peripherals with 8085 microprocessor.
				CO5	Acquire knowledge about the interfacing 8051 microcontroller with various peripherals.

		P23DP10	Spectroscopy	**CO1**	Understand fundamentals of rotational spectroscopy, view molecules as elastic rotors and interpret their behaviour. Able to quantify their nature and correlate them with their characteristic properties.
				CO2	Understand the working principles of spectroscopic instruments and theoretical background of IR spectroscopy. Able to correlate mathematical process of Fourier transformations with instrumentation. Able to interpret vibrational spectrum of small molecules.
				CO3	Interpret structures and composition of molecules and use their knowledge of Raman Spectroscopy as an important analytical tool
				CO4	Use these resonance spectroscopic techniques for quantitative and qualitative estimation of a substances
				CO5	Learn the electronic transitions caused by absorption of radiation in the UV/Vis region of the electromagnetic spectrum and be able to analyze a simple UV spectrum.
		P23SEP3	Crystal Growth and Thin Films	**CO1**	Acquire the Basic Concepts, Nucleation and Kinetics of crystal growth
				CO2	Understand the Crystallization Principles and Growth techniques
				CO3	Study various methods of Crystal growth techniques
				CO4	Understand the Thin film deposition methods
				CO5	Apply the techniques of Thin Film Formation and thickness Measurement
		P23DP04	Physics of Nano Science and Technology	**CO1**	Understand the basic of nanoscience and explore the different types of nano materials and should comprehend the surface effects of the nano materials.
				CO2	Explore various physical, mechanical, optical, electrical and magnetic properties nanomaterials.
				CO3	Understand the process and mechanism of synthesis and fabrication of nanomaterials.
				CO4	Analyze the various characterization of Nano-products through diffraction, spectroscopic, microscopic and other techniques.
				CO5	Apply the concepts of nanoscience and technology in the field of sensors, robotics, purification of air and water and in the energy devices.
		P23DP08	Linear and Digital ICs and Applications	**CO1**	Learn about the basic concepts for the circuit configuration for the design of linear integrated circuits and develops skill to solve problems
				CO2	Develop skills to design linear and non-linear applications circuits using Op-Amp and design the active filters circuits.
				CO3	Gain knowledge about PLL, and develop the skills to design the simple circuits using IC 555 timer and can solve problems related to it.
				CO4	Learn about various techniques to develop A/D and D/A converters.
				CO5	Acquire the knowledge about the CMOS logic, combinational and sequential circuits
				CO1	Recall the transcendental equations and analyze the different root finding methods. Understand the basic concept involved in root finding procedure such as Newton Raphson and Bisection methods, their limitations.

		P23DP09	Numerical Methods and Computer Programming	**CO2**	Relate Simultaneous linear equations and their matrix representation Distinguish between various methods in solving simultaneous linear equations.
				CO3	Understand, how interpolation will be used in various realms of physics and Apply to some simple problems Analyze the newton forward and backward interpolation
				CO4	Recollect and apply methods in numerical differentiation and integration. Assess the trapezoidal and Simson's method of numerical integration.
				CO5	Understand the basics of C-programming and conditional statements.
		P23DP10	Spectroscopy	**CO1**	Understand fundamentals of rotational spectroscopy, view molecules as elastic rotors and interpret their behaviour. Able to quantify their nature and correlate them with their characteristic properties.
				CO2	Understand the working principles of spectroscopic instruments and theoretical background of IR spectroscopy. Able to correlate mathematical process of Fourier transformations with instrumentation. Able to interpret vibrational spectrum of small molecules.
				CO3	Interpret structures and composition of molecules and use their knowledge of Raman Spectroscopy as an important analytical tool Use these resonance spectroscopic techniques for quantitative and qualitative estimation of a substances
				CO4	Learn the electronic transitions caused by absorption of radiation in the UV/Vis region of the electromagnetic spectrum and be able to analyze a simple UV spectrum.
				CO5	Discuss the transverse character of light waves and different polarization Phenomenon
		P23DP16	Advanced Optics	**CO1**	Discriminate all the fundamental processes involved in laser devices and to
				CO2	analyze the design and operation of the devices
				CO3	Demonstrate the basic configuration of a fiber optic – communication system andadvantages
				CO4	Identify the properties of nonlinear interactions of light and matter
				CO5	Interpret the group of experiments which depend for their action on an appliedmagnetic and electric field
		P23DP19	Microprocessor 8085 and Microcontroller 8051	**CO1**	Gain knowledge of architecture and working of 8085 microprocessor.
				CO2	Get knowledge of architecture and working of 8051 Microcontroller.
				CO3	Be able to write simple assembly language programs for 8085A microprocessor.
				CO4	Able to write simple assembly language programs for 8051 Microcontroller.
				CO5	Understand the different applications of microprocessor and microcontroller.
				CO1 Torecallthebasicprinciplesoforganicchemistry.	
				CO2 Tounderstandtheformationanddetectionofreactionintermediatesoforganic reactions	

		P23CC1	OrganicReactionmechanismI	CO3 Topredictthereactionmechanismoforganicreactionsandstereochemistryof organic comp
				CO4 Toapplytheprinciplesofkineticandnon-kineticmethodstodeterminethemechanismof reactions
				CO5 To design and synthesize new organic compounds by correlating the stereochemistry of organic compounds
		P23CC2	StructureandBondinginInorganic compounds	CO1 Predictthegeometryofmaingroupcompoundsandclusters
				CO2 Explainaboutthepackingofionsincrystalsandapplytheradiusratioruletopredictthe coordination number of cations
				CO3 Understandthevarioustypesofioniccrystalsystemsandanalyzetheirstructuralfeatures
				CO4 Explainthecrystalgrowthmethods.
				CO5 Tounderstandtheprinciplesofdiffractiontechniquesandmicroscopictechniques
		P23CC3P	OrganicchemistryPractical	CO1 Torecallthebasicprinciplesoforganicseparation,qualitativeanalysisandpreparation
				CO2 Toexplainthemethodofseparationandanalysisofseparatedorganicmixturesandconvert them as derivatives by suitable preparation method
				CO3 Todeterminethecharacteristicsofseparationoforganiccompoundsbyvariouschemical reactions
				CO4 Todevelopstrategiestoseparate,analyzeandprepareorganiccompounds
				CO5 Toformulateamethodofseparation,analysisoforganicmixturesanddesignsuitable procedure for organic preparations
		P23DC01	Pharmaceuticalchemistry	**CO1:Toidentifythesuitabledrugsforvariousdiseases.**
				CO2: To apply the principles of various drug action and drug design. .
				CO3:To acquire the knowledge on product development based on SAR
				CO4:Toapplytheknowledgeonapplicationsofcomputersinchemistry.
				CO5:To synthesize new drugs after understanding the concepts SAR.
		P23DC07	Electrochemistry	CO1 To understand the behaviour of electrolytes in solution and compare the structures of electrical double layer of different models
				CO2 Topredictthekineticsofelectrodereactionsapplying Butler-VolmerandTafelequations
				CO3 Tostudydifferentthermodynamicmechanismofcorrosion

				CO4 Todiscussthetheoriesofelectrolytes,electricaldoublelayer,electrodicsandactivity coefficient of electrolytes
				CO5 Tohaveknowledgeonstoragedevicesandelectrochemicalreactionmechanism
		P23DC08	Molecularspectroscopy	CO1 Tounderstandtheimportanceofrotationaland Raman spectroscopy
				CO2 Toapplythevibrationalspectroscopictechniquestodiatomicandpolyatomicmolecules
				CO3 Toevaluatedifferentelectronicspectraofsimplemoleculesusingelectronicspectroscopy
				CO4 To outline the NMR,
				CO5 To develop the knowledge on principle, instrumentation and structural elucidation of simple molecules using Mass Spectrometry, EPR and Mossbauer Spectroscopy techniques.
		P23CC4	OrganicReactionmechanism II	CO1 Torecallthebasicprinciplesofaromaticityoforganicandheterocycliccompounds.
				CO2:Tounderstandthemechanismofvarioustypesoforganicreactions.
				CO3:Topredictthesuitablereagentsfortheconversionofselectiveorganiccompounds.
				CO4:Tocorrelatetheprinciplesofsubstitution,elimination,andadditionreactions.
				CO5: Todesignnewroutestosy
		P23CC5	PhysicalchemistryI	**CO1:Toexplaintheclassicalandstatisticalconceptsofthermodynamics.**
				CO2:Tocompareandcorrelatethethermodynamicconceptstostudythekineticsofchemical reactions.
				CO3: To discuss the various thermodynamic and kinetic determination.
				CO4:Toevaluatethethermodynamicmethodsforrealgasesadmixtures.
				CO5:To compare the theories of reactions rates and fast reactions
		P23CC6P	Inorganicchemistrypractical	CO1 Toidentifytheanionsandcationspresentinamixtureofsalts
				CO2 Toapplytheprinciplesofsemimicroqualitativeanalysistocategorizeacidradicalsandbasic radicals
				CO3 Toacquirethequalitativeanalyticalskillsbyselectingsuitableconfirmatorytestsandspottests.
				CO4: Tochoosetheappropriate

				CO5:Tosynthesizecoordinationcompoundsingoodquality.
		P23DC03	Medicinalchemistry	**CO1: Predictadrugspropertiesbasedonitsstructure.**
				CO2:Describethefactorsthataffectitsabsorption,distribution,metabolism,andexcretion,and hence the considerations to be made in drug design.
				CO3:Explaintherelationshipbetweendrug'schemicalstructureanditstherapeuticproperties.
				CO4:Designedtogivetheknowledgeofdifferenttheoriesofdrugactionsatmolecularlevel.
				CO5:Toidentifydifferenttargetsforthedevelopmentofnewdrugsforthetreatmentofinfectious and GIT.
		P23DC04	GreenChemistry	**CO1:Torecallthebasicchemicaltechniquesusedinconventionalindustrialpreparationsandin green innovations.**
				CO2:Tounderstandthevarioustechniquesusedinchemicalindustriesandinlaboratory.
				CO3: To compare the advantages of organic reactions assisted by renewable energy sources and non- renewable energy sources.
				CO4:ToapplytheprinciplesofPTC,ionicliquid,microwaveandultrasonicassistedorganicsynthesis.
				CO5:Todesignandsynthesizeneworganiccompoundsbygreenmethods
		P23DC09	BioInorganicchemistry	**CO1:Thestudentswillbeabletoanalysestraceelements.**
				CO2:Studentswillbeabletoexplainthebiologicalredoxsystems.
				CO3:Studentswillgainskillinanalyzingthetoxicityinmetals.
				CO4:Studentswillhaveexperienceindiagnosis.
				CO5:Learnaboutthenitrogenfixationandphotosyntheticmechanism
		P23DC10	Materialscience	**CO1:To understand and recall the synthesis and characteristics of crystal structures, semiconductors, magnets, nanomaterials and renewable energy materials.**
				CO2:Tointegrateandassessthestructureofdifferentmaterialsandtheirproperties.
				CO3:Toanalyseandidentifynewmaterialsforenergyapplications.
				CO4:To explain the importance of crystal structures, piezoelectric and pyroelectric materials, nanomaterials, hard and soft magnets, superconductors, solar cells, electrodes, LED uses,structures and synthesis.
PCHE	M.Sc CHEMISTRY			**CO5: Todesignanddevelopne**

PCHE	M.Sc.CHEMISTRY	P23SEC1P	Preparationofconsumerproducts	**CO1: discussthesignificanceofconsumerproducts**
				CO2:describethestepstobetakenbeforeconstructingorestablishingafactory,licenses registration.
				CO3:explainthepreparationofToothpowder,toothpaste,Talcumpowder,
				CO4 Explain about the preparation of shampoo, handkerchief perfumes, dry perfume sachets, soap powder, various soaps liquids
				CO5 explaintheimportanceofValueaddedfoodproductslikejam.JellyetcinfoodChemistry
		P23CC7	Organicsynthesisand photochemistry	CO1 Torecallthebasicprinciplesoforganicchemistryandtounderstandthevariousreactionsof organiccompoundswithreactionmechanisms.
				CO2 To understand the versatility of various special reagents and to correlate their reactivity with various reaction conditions
				CO3:Toimplementthesyntheticstrategiesinthepreparationofvariousorganiccompounds.
				CO4:Topredictthesuitabilityofreactionconditionsinthepreparationoftailor-madeorganic compounds.
				CO5:Todesignandsynthesizenovelorganiccompoundswiththemethodologieslearntduringthe course.
		P23CC8	CoordinationchemistryI	CO1 Understandandcomprehendvarioustheoriesofcoordinationcompounds.
				CO2 Understandthespectroscopicandmagneticpropertiesofcoordinationcomplexes
				CO3 Explain the stability of complexes and various experimental methods to determine the stability of complexes
				CO4 Predict the electronic transitions in a complex based on correlation diagrams and UV-visible spectral details.
				CO5 Comprehend the kinetics and mechanism of substitution reactions in octahedral and square planar complexes
		P23CC9P	PhysicalChemistryPractical	CO1:Torecalltheprinciplesassociatedwithvariousphysicalchemistryexperiments.
				CO2: To scientifically plan and perform all the experiments.
				CO3:Toobserveandrecordsystematicallythereadingsinalltheexperiments.
				CO4:Tocalculateandprocesstheexperimentallymeasuredvaluesandcomparewithgraphicaldata.
				CO5: To interpret the experimental data scientifically to improve students' efficiency for societal developments.
				CO1:Torecalltheprinciplesassociatedwithvariousinorganicorganicandphysicalchemistry experiments

		P23CC10P	AnalyticalInstrumentation techniques Lab	CO2:Toscientificallyplanandperformallthe experiments
				CO3:Toobserveandrecordsystematicallythereadingsinalltheexperiments
				CO4:Tocalculateandprocesstheexperimentallymeasuredvaluesandcomparewithgraphicaldata.
				CO5: To interpret the experimental data scientifically to improve students efficiency for societaldevelopments.
		P23DC05	Pharmacognosyandphytochemistry	**CO1:Torecallthesourcesofnaturalmedicinesandanalysisofcrudedrugs.**
				CO2:Tounderstandthemethodsofevaluationbasedonvariousparameters.
				CO3: To analyze the isolated drugs
				CO4:Toapplyvarioustechniquestodiscovernewalternativemedicines.
				CO5:Toevaluatetheisolateddrugsforvariouspharmacologicalactivities
		P23DC06	Biomoleculesandheterocyclic Compounds	CO1 Tounderstandthebasicconceptsofbiomoleculesandnaturalproducts.
				CO2 Tointegrateandassessthedifferentmethodsofpreparationofstructurallydifferent biomolecules and natural products
				CO3 To illustrate the applications of biomolecules and their functions in the metabolism of living organisms.
				CO4 Toanalyseandrationalisethestructureandsynthesisofheterocycliccompounds
				CO5 Todevelopthestructureofbiologicallyimportantheterocycliccompoundsbydifferentmethods
		P23SEC2P	Industrialchemistry	CO1 discuss the Scope of small-scale industries, industries that can be stated or developed location of industries
				CO2 describethestepstobetakenbeforeconstructingorestablishingafactory,licenses registration
				CO3 explainthemethodologiestodetectfoodadulterationandvariousdyesanddyeingprocess
				CO4 Explain about the significance of soil analysis and methodology for detection of calium etc in soil
				CO5 describetheextractionprocessofnaturalproducts
				CO1 : Understandandapply18and16electronrulefororganometalliccompounds
				CO2 Understand the structure and bonding in olefin, allyl, cyclopentadienyl and carbonyl containing organometallic compounds

		P23CC11	CoordinationchemistryII	CO3 Understand the reactions of organometallic compounds and apply them
				CO4: understanding the catalytic cycles
				CO5 Identify / predict the structure of coordination complexes using spectroscopic tools such as IR, NMR, ESR, Mossbauer and optical rotatory dispersion studies to interpret the structure of molecules by various spectral techniques
		P23CC12	PhysicalChemistry II	CO1 Todiscussthecharacteristicsofwavefunctionsandsymmetryfunctions
				CO2 To classify the symmetry operation and wave equations
				CO3 Toapplytheconceptofquantummechanicsandgrouptheorytopredict theelectronicstructure
				CO4 To specify the appropriate irreducible representations for theoretical applications
				CO5 Todevelopskillsinevaluatingtheenergiesofmolecularspectra.
		P23DC11	ChemistryofNaturalproducts	CO1:Tounderstandthebiologicalimportanceofchemistryofnaturalproducts.
				CO2:Toscientificallyplanandperformtheisolationandcharacterizationofsynthesizednatural products.
				CO3:Toelucidatethestructureofalkaloids,terpenoids,carotenoids,falvanoidsandanthocyanins.
				CO4:Todeterminethestructureofphytochemicalconstituentsbychemicalandphysicalmethods.
				CO5:Tointerprettheexperimentaldatascientificallytoimprovebiologicalactivityofactive components
		P23DC12	PolymerChemistry	CO1:Tounderstandthebondinginpolymers.
				CO2:Toscientificallyplanandperformthevariouspolymerizationreactions.
				CO3: To observe and record the processing of polymers.
				CO4:Tocalculatethemolecularweightbyphysicalandchemicalmethods.
				CO5:Tointerprettheexperimentaldatascientificallytoimprovethequalityofsyntheticpolymers
		P23SEC3	Chemistryforadvancedresearch studies	CO1:TounderstandfuntamentalsofResearch
				CO2:LearnabouttheLiteraturesurveyanddocumentation
				CO3:ToTounderstandtheimportanceofResearchethics,plagiarismandimpactofresearch

				CO4: To learn the Technical writing and reporting of research	
				CO5:TolearnaboutheProjectCostmanagementandFundingAgency	
		P23CZ1	Structure and Function of Invertebrates	**CO1**	Structure and function in invertebrates: Principles of Animal taxonomy; Species concept; International code of zoological nomenclature; Taxonomic procedures; New trends in taxonomy
				CO2	Organization of coelom: Acoelomates; Pseudocoelomates; Coelomates: Protostomia and Deuterostomia; Locomotion: Flagella and ciliary movement in Protozoa; Hydrostatic movement in Coelenterata, Annelida and Echinodermata
				CO3	Nutrition and Digestion: Patterns of feeding and digestion in lower metazoan; Filter feeding in Polychaeta, Mollusca and Echinodermata. Respiration: Organs of respiration: Gills, lungs and trachea; Respiratory pigments; Mechanism of respiration
				CO4	Excretion: Organs of excretion: coelom, coelomoducts, Nephridia and Malphigian tubules; Mechanisms of excretion; Excretion and osmoregulation. Nervous system: Primitive nervous system: Coelenterata and Echinodermata; Advanced nervous system: Annelida, Arthropoda (Crustacea and Insecta) and Mollusca (Cephalopoda); Trends in neural evolution
				CO5	Invertebrate larvae: Larval forms of free living invertebrates - Larval forms of parasites; Strategies and Evolutionary significance of larval forms. Minor Phyla: Concept and significance; Organization and general characters
		P23CZ2	Comparative Anatomy of Vertebrates	**CO1**	Remember the general concepts and major groups in animal classification, origin, structure, functions and distribution of life in all its forms.
				CO2	Understand the evolutionary process. All are linked in a sequence of life patterns.
				CO3	Apply this for pre-professional work in agriculture and conservation of life forms.
				CO4	Analyze what lies beyond our present knowledge of life process.
				CO5	Evaluate and to create the perfect phylogenetic relationship in classification.
		P23CZ3P	Lab Course in Invertebrates & Vertebrates	**CO1**	Understanding the different systems in invertebrates &vertebrates.
				CO2	Learning about various animal species, their phylogenetic affinities and their adaptive features
				CO3	Imparting conceptual knowledge about the salient features and functional anatomy.
				CO4	Developing the skill in mounting techniques of the biological samples.
				CO5	Gaining fundamental knowledge on the skeletal system
		P23DZ01	Molecules and their interactions relevant to Biology	**CO1**	Learn the structure, properties, metabolism and bioenergetics of biomolecules
				CO2	Acquire knowledge on various classes and major types of enzymes, classification, their mechanism of action and regulation
				CO3	Understand the fundamentals of biophysical chemistry and biochemistry, importance and applications of methods in conforming the structure of biopolymers
				CO4	Comprehend the structural organization of and proteins, carbohydrates, nucleic acids and lipids

				CO5	Familiarize the use of methods for the identification, characterization and conformation of biopolymer structures
		P23DZ02	Biostatistics	**CO1**	Clear understanding of design and application of biostatistics relevant to experimental and population studies.
				CO2	Acquired skills to perform various statistical analyses using modern statistical techniques and software.
				CO3	Knowledge on the merits and limitation of practical problems in biological/ health management study as well as to propose and implement appropriate statistical design/ methods of analysis.
		P23CZ4	Cellular and Molecular Biology	**CO1**	Understand the general concepts of cell and molecular biology.
				CO2	Visualize the basic molecular processes in prokaryotic and eukaryotic cells, especially relevance of molecular and cellular structures influencing functional features.
				CO3	Perceive the importance of physical and chemical signals at the molecular level resulting in modulation of response of cellular responses.
				CO4	Updated the knowledge on the rapid advances in cell and molecular biology for a better understanding of onset of various diseases including cancer.
				CO5	Understand the general concepts of cell and molecular biology.
		P23CZ5	Developmental Biology	**CO1**	Define the concepts of embryonic development
				CO2	Observe various stages of cell divisions under microscope
				CO3	Understand the formation of zygote
				CO4	Differentiate the blastula and gastrula stages
				CO5	Learn the distinguishing features of three different germ layers and formation of various tissues and organs
		P23CZ6P	Lab Course in Cell Biology and Developmental Biology	**CO1**	Acquire knowledge to differentiate the cells of various living organisms and become awares of physiological processes of cells e.g. cell divisions, various stages of fertilization and embryo development.
				CO2	Understand and observe as well as correctly identify different cell types, cellular structures using different microscopic techniques.
				CO3	Develop handling - skills through the wet-lab course.
				CO4	Learn the method of culturing of Drosophila and identification of their wild and mutant strains
				CO5	Acquire skills to perform human karyotyping and chromosome mapping to identify abnormalities
				CO1	Understand taxonomy, classification and life of insects in the animal kingdom.
				CO2	Know the life cycle, rearing and management of diseases of beneficial insects.

PZOE	M.Sc Zoology	P23DZ03	Economic Entomology	**CO3**	Know the type of harmful insects, life cycle, damage potential and management of pests including natural pest control
				CO4	Recognize insects which act as vectors causing diseases in animals and human.
				CO5	Overall understanding on the importance of insects in human life.
		P23DZ04	Research Methodology	**CO1**	Understand the implications of GLP
				CO2	Learn the working principles of different instruments
				CO3	Gain the knowledge on techniques of histology and histochemistry
				CO4	Acquire knowledge on the basic principle and application of various modules of light and electron microscopy
		P23SEZ1	Vector Borne diseases	**CO1**	Define, describe and write about the details of vector habitats, interaction in the food chain, biotic and abiotic factors Explain and paraphrase Anthroponotic vector diseases and its health impact on humans
				CO2	Discuss and summarize Zoonotic vectors diseases and its health impact on humans
				CO3	Include & prepare themselves and prepare the community on the awareness about arthropods of public importance Correlate and apply vector control strategies in household and at community level
		P23CZ7	Genetics and Evolution	**CO1**	Explain the organization and functions of genetic material in the living system.
				CO2	Understand various sequential processes in protein synthesis
				CO3	Able to distinguish lytic and lysogenic cycle and explain the mechanisms of genetic recombination of the microbes.
				CO4	understand the concept of evolution, Understand the major events in the evolutionary timescale, Origins of unicellular and multi-cellular organisms.
				CO5	Appreciate the concepts and rate of change in gene frequency through natural selection, migration and random genetic drift
		P23CZ8	Animal Physiology	**CO1**	Understand the functions of different systems of animals
				CO2	Learn the comparative anatomy of heart structure and functions
				CO3	Know the transport and exchange of gases, neural and chemical regulation of respiration
				CO4	Acquire knowledge on the organization and structure of central and peripheral nervous systems
				CO1	Reveal fundamental principles of genetics and development
				CO2	Understand chromosome structure, arrangements and its significance

		P23CZ9P	Lab Course in Genetics, Evolution and Animal Physiology	**CO3**	Calculate genotype frequencies under random mating
				CO4	Know how to determine the blood grouping and measure blood pressure and its importance
				CO5	Distinguish various types of excretory products in animal kingdom
		P23CZ10	Entrepreneurship for Zoologists	**CO1**	Define, describe and identify the characteristics of entrepreneurs and entrepreneurship
				CO2	Explain and comprehend the functional roles of governmental and non-governmental agencies promoting entrepreneurship
				CO3	Discuss and interpret the challenges of women entrepreneurs and also learn marketing and promotional strategies
				CO4	Prepare &Establish themselves as Agripreneurs utilizing the opportunities
				CO5	Correlate & apply the business ideas, utilize opportunities to transform into an entrepreneur
		P23DZ05	Forensic Biology		List & categorize forensic evidences and crime scene identity; analyze and relate socio economic offences to the present societal scenario
					Classify finger prints, describe post mortem changes, understand and interpret blood group and DNA paternity test
					Generalize and explain about insects of forensics, venoms and poisons. Discuss and summarize related medico-legal issues
					Describe narcotic drugs and cosmetics; Associate the symptoms and explain its effects on humans
					Distinguish and apply information technology and legal aspects related to forensics; gain knowledge about Enforcement agencies
		P23SEZ2	Climate change and human health	**CO1**	Define, describe and write about the details of Climate Change, Global warming, variability, natural disasters and IPCC Explain and paraphrase Water and Air quality , pollutants and related disease impact on humans
				CO2	Discuss and summarize Climate change impact on food quality, security and Food borne diseases Include & prepare themselves and prepare the community on the awareness about the Physiological impacts influenced by climate change
				CO3	Correlate, recognize and distinguish mental health related issues impacted by disasters and climate change
		P23CZ11	Immunology	**CO1**	Various basic concepts in immunology and organization of immune systems.
				CO2	Mechanisms of humoral immune response and its application in the diagnosis of diseases
				CO3	Mechanisms of cell mediated immune response and the role of various components produced during the immune reaction
				CO4	the immune responses in major health issues such as transplantation and cancer
				CO5	the immune reactions against various pathogens, allergens, self antigens and vaccines and its importance in disease management

		P23CZ12	Biotechnology	**CO1**	Acquire knowledge on the tools of Genetic Engineering
				CO2	Understanding the principles and methodology of basic Techniques in Genetic Engineering
				CO3	Learn advanced techniques in Genetic Engineering
				CO4	Apply skills to develop Genetically modified organisms
				CO5	Access and Analyze the bio safety and other regulations in biotechnology
		P23ZPW	Project with Viva voce	NIL	
		P23DZ08	Ecology	**CO1**	Learn about the ecosystem, biotic communities and utilizing the energy processing
				CO2	Study the various community and population and population control
				CO3	Understand the fundamentals of climatic conditions and its impact on environment
				CO4	Realizing the nature of pollution and the ways for its control/reduction
				CO5	Impact of environmental studies on solid waste management
		P23SEZ3	IPR	**CO1**	Claim the rights for the protection of their invention done in their project work.
				CO2	Identify criterias' to fit one's own intellectual work in particular form of IPRs
				CO3	To get registration in our country and foreign countries of their invention, designs and thesis or theory written by students during their project.
		P23CB1	Plant Diversity - I: Algae, Fungi, Lichens and Bryophytes	**CO1**	Relate to the structural organizations of algae, fungi, lichens and Bryophytes.
				CO2	Demonstrate both the theoretical and practical knowledge in understanding the diversity of basic life forms and their importance.
				CO3	Explain life cycle patterns in algae, fungi, lichens and Bryophytes.
				CO4	Compare and contrast the mode of reproduction in diverse groups of basic plant forms.
				CO5	Discuss and develop skills for effective conservation and utilization of lower plant forms.
				CO1	Recall on classification, recent trends in phylogenetic relationship,General characters of Pteridophytes and Gymnosperms.
				CO2	Learn the morphological/anatomical organization, life history of major types of Pteridophytes and Gymnosperms.

		P23CB2	Plant Diversity - II: Pteridophytes, Gymnosperms and Paleobotany	**CO3**	Comprehend the economic importance of Pteridophytes, Gymnosperms and fossils.
				CO4	Understanding the evolutionary relationship of Pteridophytes and Gymnosperms.
				CO5	Awareness on fossil types, fossilization and fossil records of Pteridophytes and Gymnosperms
		P23CB3P	Laboratory course - I: Algae, Fungi, Lichens, Bryophytes, Pteridophytes, Gymnosperms and Paleobotany	**CO1**	Recall and applying the basic keys to distinguish at species level,
				CO2	Demonstrate practical skills in thallophytes, Pteridophytes and Gymnosperms.
				CO3	Describe the structure of algae, fungi, lichens, Bryophytes, Pteridophytes and Gymnosperms.
				CO4	Determine the importance of structural diversity in the evolution of plant forms.
				CO5	Formulate techniques to isolate and culture of alga and fungi as well as to understand the diversity of plant forms.
		P23CB4	Taxonomy of Angiosperms and Economic Botany	**CO1**	Recollect the basic concepts of morphology of leaves, flowers. Identify the types of compound leaves , inflorescence and fruits. Describe their characteristic features
				CO2	Explain the principles of taxonomy. Summarize the taxonomic hierarchy. Define Binomial nomenclature. Group Activity –Construct key preparation
				CO3	Explain the various types of classification. Distinguish its advantages and disadvantages Construction of floral formula and floral diagram.
				CO4	Illustrate and explain the characteristic features and list out the economic importance of the families Field trip to local botanical garden and regional botanical garden.
				CO5	Illustrate and explain the characteristic features and list out the economic importance of the families.
		P23CB5	Plant Anatomy and Embryology of Angiosperms	**CO1**	Learn the structures, functions and roles of apical vs lateral meristems in monocot and dicot plant growth.
				CO2	Study the function and organization of woody stems derived from secondary growth in dicot and monocot plants.
				CO3	Apply their idea on sectioning and dissection of plants to demonstrate various stages of plant development.
				CO4	Understand the various concepts of plant development and reproduction.
				CO5	Profitably manipulate the process of reproduction in plants with a professional and entrepreneurial mindset.
		P23CB6P	Laboratory course - II: Taxonomy of Angiosperms, Economic Botany, Plant Anatomy and Embryology of Angiosperms	**CO1**	To gain recent advances in plant morphological and floral characteristics.
				CO2	Understand about different floral characteristics and artificial key preparation which employed for plant identification and conservation.
				CO3	Recall or remember the information including basic and advanced in relation with plant anatomy and embryology.

				CO4	Apply their idea on sectioning and dissection of plants demonstrate various stages of plant development.
				CO5	Know about different vegetation sampling methods.
		P23SEB1	Agriculture and Food Microbiology	**CO1**	Recognize the general characteristics of microbes and factors affecting its growth
				CO2	Explain the significance of microbes in increasing soil fertility
				CO3	Elucidate concepts of microbial interactions with plant and food.
				CO4	Analyze the impact of harmful microbes in agriculture and food Industry.
				CO5	Determine and appreciate the role of microbes in food preservation and as biocontrol.
		P23CB7	Cell and Molecular Biology	**CO1**	Recall a plant cell structure and explain its function.
				CO2	Illustrate and explain the structure of various cell organelles.
				CO3	Explain the structure and functional significance of nucleic acid.
				CO4	Compare and contrast the DNA replication (prokaryotes and eukaryotes), enzymes involved in replication, DNA repair
				CO5	Discuss and develop skills for DNA/gene manipulating and the enzymes involved.
		P23CB8	Genetics, Plant Breeding and Biostatistics	**CO1**	Understand the Mendal's Law of inheritance and gene interactions.
				CO2	Analyze the various factors determining the heredity from one generation to another.
				CO3	Explain Gene mapping methods: Linkage maps.
				CO4	Compare and contrast the genetic basis of breeding self and cross – pollinated crops.
				CO5	Discuss and develop skills for statistical analysis of biological problems.
		P23CB9P	Laboratory course - III: Cell & Molecular Biology, Genetics, Plant Breeding and Biostatistics	**CO1**	Recall or remember the various aspects of cell biology, genetics, molecular biology, plant breeding and tissue culture.
				CO2	Understand various concepts of cell biology, genetics, plant breeding and tissue culture.
				CO3	Apply the theory knowledge gained into practical mode in order to acquire applied knowledge by day-to-day hands-on experiences.
				CO4	Analyze or interpret the results achieved in practical session in the context of existing theory and knowledge.

				CO5	Evaluate the theory and practical skills gained during the course.
		P23CB10	Core Industry Module- Industrial Botany	**CO1**	Understand the basics of algae in industrial applications.
				CO2	Demonstrate and to recollect the uses in fungi in industries.
				CO3	Explain bacterial role in industries.
				CO4	Compare and contrast the use of plants in industries.
				CO5	Discuss and develop skills for working in industries specializing in biomolecules.
		P23SEB2	Gardening	**CO1**	To understand the importance and concepts of gardening .
				CO2	Demonstrate the art of ornamental gardening.
				CO3	Explain plant propagation and fruit crop cultivation.
				CO4	Compare and contrast the vegetable cultivation and kitchen gardening.
				CO5	Develop skills for effective understanding on landscaping and components of gardens.
		P23SIB1	Internship/Industrial Activity	**CO1**	For students in those pertinent core areas, the internship is preparing them to become professionals after graduation.
				CO2	Compile data and familiarize yourself with techniques for planning and carrying out tests.
				CO3	Collect data and educate yourself on how to e the analyse results of your scientific studies.
				CO4	This in-the-moment industrial exposure helps them become more knowledgeable and skilled in the latest technology.
				CO5	Improving communication skills and coming up with creative ideas are crucial components of training that help someone become an entrepreneur.
		P23CB11	Plant Physiology and Plant Metabolism	**CO1**	Relate understand properties and importance of water in biological system, nutrients and its translocation.
				CO2	Demonstrate the importance of light in plant growth and the harvest of energy.
				CO3	Explain the energy requirement and nitrogen metabolism.
				CO4	Compare the various growth regulators that influence plant growth.
				CO5	Discuss the senescence and plant response to environmental stress.

PBOE	M.Sc. Botany	P23CB12	Biochemistry and Applied Biotechnology	**CO1**	Knowledge on the fundamentals and significance of Plant Biochemistry
				CO2	Understanding on the structure and properties of plant biomolecules.
				CO3	Explain the role of enzymes in plants.
				CO4	Compare and contrast the methods of transgenic plants production and natural plants.
				CO5	Discuss and develop skills for effective utilization of microbial/plant enzymes and their role in biological cells.
		P23BPW	Project with Viva voce	**CO1**	For students in those pertinent core areas, the project is preparing them to become professionals after graduation.
				CO2	Compile data and familiarize yourself with techniques for planning and carrying out tests.
				CO3	Collect data and educate yourself on how to evaluate the analyzed results of your scientific studies.
				CO4	In-the-moment industrial exposure helps them become more knowledgeble and skilled in the latest technology.
				CO5	Improving communication skills and coming up with creative ideas are crucial components of training that help someone become anentrepreneur.
		P23SEB3	Professional Competency Skill- Botany for Competitive Examinations	**CO1**	Relate to the structural organizations of algae, fungi, lichens
				CO2	Elucidate concepts of microbial interactions with plant and humans.
				CO3	Learn the morphological/anatomical organization, life history of major types of Bryophytes, Pteridophytes, Gymnosperms & Paleobotany
				CO4	Understand the various concepts of plant development and reproduction. And the characteristic features of the families
				CO5	Compare and contrast the physiological functions and Metabolism .
		P23DB01	Microbiology, Immunology and Plant Pathology	**CO1**	Recognize the general characteristics of microbes, plant defense and immune cells.
				CO2	Explain about the stages in disease development and various defense mechanisms in plants and humans.
				CO3	Elucidate concepts of microbial interactions with plant and humans.
				CO4	Analyze the importance of harmful and beneficial microbes and immune system
				CO5	Determine and interpret the detection of pathogens and appreciate their adaptive strategies.
				CO1	Understand the concept of different natural resources and their utilization.

		P23DB02	Conservation of Natural Resources and Policies	**CO2**	Critically analyze the sustainable utilization land, water, forest and energy resources
				CO3	Evaluate the management strategies of different natural resources
				CO4	Reflect upon the different national and international efforts in resource management and their conservation.
				CO5	State the various environmental policy passed to conserve the natural resources.
		P23DB03	Ecology, Phytogeography, Conservation Biology and Intellectual Property Rights	**CO1**	Understand the scope and importance of population ecology, plant communities and ecosystem ecology.
				CO2	Understand the applied aspect of environmental botany.
				CO3	Students will spot the sources and pollution and seek remedies to mitigate and rectify them.
				CO4	Identify different plant communities, categorize plant biomes and identify threatened, endangered plant species and create awareness program in protection of biodiversity.
				CO5	Analyze insight into the vegetation types, species interaction and their importance and the factors influencing the environmental conditions.
		P23DB04	Algal Technology	**CO1**	Understand the applied facet of botany and acquire a complete knowledge about the cultivation methods in algae.
				CO2	Realization of the commercial potential of algal products.
				CO3	Analyze emerging areas of algal biotechnology for identifying therapeutic importance of algal products and their uses.
				CO4	Gain more information about algae genetics.
				CO5	Translate various algal technologies for the benefit of the ecosystem.
		P23DB10	Research Methodology, Computer Applications and Bioinformatics	**CO1**	Realize the need of centrifuges and chromatography and their uses in research
				CO2	Learn the principles and applications of electrophoresis.
				CO3	Construct thephylogenetic trees for similar characteristic feture of plant genomes and study De novo drug design through synthetic Biology
				CO4	Understand the concept of pairwise alignment of DNA sequences using algorithms.
				CO5	Interpret the features of local and multiple alignments.
				CO1	Understand the issues in use of chemical pesticides and their harmful effects onlife.
				CO2	Aware the significance of biopesticides and their beneficial role in controlling insect pests, diseases, nematodes and weeds

		P23DB11	Biopesticide Technology	**CO3**	Knowledge on identification of promising biopesticides and their mechanisms of action against insect pests, diseases, nematodes and weeds.
				CO4	Learn the mass production and formulation technology of selected biopesticides.
				CO5	Knowledge on product development for commercializationof biopesticides.
		P23DB12	Nanobiotechnology	**CO1**	Recall the essential features of biology and nanotechnology that are converging to create the new area of bionanotechnology.
				CO2	Formulate procedures for the synthesis of nanoparticles which are of medical importance which could be used totreat specific diseases.
				CO3	Characterize the various types of nano particle synthesis and advocate promotes the use of nano materials and anno composites.
				CO4	Analyze and apply the important of nanoparticles in plant diversity.
				CO5	Construct various types of nanomaterial for application and evaluate the impact on environment.
		P23DB13	Applied Bioinformatics	**CO1**	Familiarize with the tools of DNA sequence a alysis.
				CO2	Use and explain the application of bioinformatics.
				CO3	Master the aspects of protein-protein interaction, BLAST and PSI-BLAST.
				CO4	Describe the features of local and multiple alignments.
				CO5	Interpret the characteristics of phylogenetic methods and Bioinformatics applications.
		P23DB18	Recombinant DNA technology and Industrial applications	**CO1**	Understand the basics of recombinant DNA technology.
				CO2	Demonstrate and to recollect the production of vitamins.
				CO3	Analyze the production of antibiotics.
				CO4	Compare and contrast the recombined organism and natural organisms.
				CO5	Create and develop skills for rDNA techniques and in producing hybrids varieties.
		P23DB19	Silviculture and Commercial Lanscaping	**CO1**	To understand the importance and divisions of horticulture.
				CO2	Demonstrate the art of floriculture and landscape gardening.
				CO3	Explain plant propagation and fruit crop cultivation.

				CO4	Compare and contrast the vegetable cultivation and kitchen gardening.
				CO5	Discuss and develop skills for effective understanding on landscaping and components of gardens.
		P23DB23	Organic farming	**CO1**	Knowledge on various aspects of organic farming.
				CO2	Understand the relevance of organic farming, its advantages.
				CO3	Explain the short comings against conventional high input agriculture.
				CO4	Compare the packaging methods of harvest.
				CO5	Discuss and develop skills for post harvest management.
		P23DB24	Forestry and Wood Technology	**CO1**	Knowledge on various aspects of Forest Botany
				CO2	Understand the importance and of different forests.
				CO3	Analyze the ecological significance of forests
				CO4	To understand the dynamics of the forest.
				CO5	Understanding on various Indian forests laws and acts.
		P23CG1	APPLIED GEOMORPHOLOY	CO1 To introduce the concepts in Geomorphology in adequate manner, many facets of surface relief features and to understand various aspects of their growth and evolution on the Earth.	
				CO2 To understand landscape evolution through time and space	
				CO3 To understand the processes that shapes the landforms around us.	
				CO4 To apply geomorphologic concepts to identify and analyze the environmental and resources issues for sustainable development	
				CO5 To suggest the tools for reading in the landscape the signs of geomorphologic hazards and risks, human interference and geomorphologic resources	
		P23CG2	APPLIED CLIMATOLOGY	CO1 Gaining basic knowledge about weather elements	
				CO2 Learning patterns of global wind circulation	
				CO3 Understanding world climatic classification, climate change and global warming	
				CO4 Acquiring skills in micro level climate, weather forecasting methods and weather measurement techniques	

				CO5 Demonstrate applicable solutions for climate change
		P23CG3P	PRACTICAL-I TECHNIQUES OF MAPPING AND MAP INTERPRETATION	CO1 To introduce the concepts practically in mapping and map analysis
				CO2 To understand the various aspects of map reading, interpretation and representation of various data through maps.
				CO3 To provide a basic understanding in the field of interpretation and interpolation.
				CO4 To understand the theoretical and practical methods pertaining to map making
				CO5 To understand the concepts and importance of various analysis used in mapping.
		P23DG01	POPULATION AND SETTLEMENT GEOGRAPHY	CO1 To explain the arguments and assumptions of dominant theories of population change in time and space
				CO2 understanding of nature, scope and evolution of population geography through spatial and temporal
				CO3 It also helpful in knowing various kinds of demographic problems.
				CO4 Study of population is an essential component in planning of various human related issues.
				CO5 Population Geography also deals in population policies in developed & developing countries
		P23DG02	URBAN GEOGRAPHY	CO1 Understand the nature & scope: urban geography is the study of urban places with reference to their geographical environment.
				CO2 Analyze the Demographic structure: it encompasses the size, structure and distribution with spatial changes.
				CO3 Analyze the urban models and the form of human settlements and their process and rebuild the formation and transformation.
				CO4 know the city region concept: Made to formulate certain rules regarding the relationship between population size and size of the city.
				CO5 Analyze urban problems: To estimate the tremendous growth of population and consequences in housing, congestions, civic and infrastructure deteriorating.
		P23DG03	TRANSPORT GEOGRAPHY	CO1 Understand the purpose and importance of Transportation Geography
				CO2 Explain the spatial organization of transport systems
				CO3 Examine the role of transportation system in energy, environment and economy
				CO4 Discuss the modes of transportation and trade and urban transportation
				CO5 Apply and evaluate the concepts in planning and policy for sustainable development

		P23DG04	AGRICULTURAL GEOGRAPHY	CO1 understand nature, scope and significance of agricultural geography
				CO2:acquire knowledge about agricultural determinants modernization of agriculture- green revolution
				CO3:know the significance von thunen's theory and land use and land capability classification
				CO4:evaluate the agricultural productivity
				CO5:understand the regionalization of agriculture
		P23CG4	PRINCIPLES OF CARTOGRAPHY	CO1 Exploring and defining principles of cartography, emerging trends in cartography and information age
				CO2 Understanding the basics of geodesy and map projections
				CO3: Gaining skills in map symbols, cartographic design, representation and production of maps, and map composition
				CO4:Critically assessing online resources, software and its uses for interactive mapping
				CO5: Discussing the importance of web mapping and geospatial data policy
		P23CG5	HYDROLOGY AND OCEANOGRAPHY	CO1 To Understand the stages of Hydrological cycle
				CO2 To introduce a sound scientific knowledge of how water cycles through the Earth's atmosphere, surface and groundwater systems.
				CO3 To Understand Significance of oceanography and hydrology in earth and atmospheric science, Configuration of the ocean floor and variation of temperature and salinity of oceans and seas.
		P23CG5	PRACTICAL-II REMOTE SENSING DATA INTERPRETATION AND GNSS SURVEY	CO1: To train students on remote sensing data type and formats imagery products and their availability.
				CO2:To give insights on processing methods and techniques for handling radiometric andgeometric properties of remotely sensed
				CO3:Togiveprinciplesandmethodsofmulti-resolutionsandmulti-spectraldatafusion,multi- temporal processing and accuracy assessment
				CO4: Todevelopdataprocessingautomationthroughbatchprocessing
				CO5: Tocreatenecessaryskillstogenerateandanalyzehighlevelremotesensingproducts
		P23DG05	FIELD WORK AND MAPPING	CO1: To impart knowledge about basic principles of field surveying procedures andpractices.
				CO2: Geospatial applications and also to impart knowledge on advanced surveying, photogrammetry, remote sensing, and Geographic Information Systems(GIS).
				CO3: The purpose of fieldwork is to prepare students for a professional career by providing them with a "real world" experience.

				CO4: Writing report papers on the structure demonstrated analytical and researchtalents
		P23DG06	GEOGRAPHY OF TRAVEL AND TOURISM	CO1: Know the idea about the Travel – Motivation - Meaning and Nature of Tourism - Types of Tourism – development in India
				CO2: Know about History of Tourism- determinants and motivation of tourism.
				CO3: Understand the Elements of Tourism – Attraction, Accessibility, Accommodation and Amenities
				CO4: Acquire more knowledge about the Travel formalities – Tour Itinerary – Travel Agencies – Travel Abroad Facilities – Visa, Passport, Bank Restrictions – Traveller's Cheques.
				CO5: observe and recognize Tourism Potentials of India - The role of India Tourism Development Corporation (ITDC) and World Tourism Corporation (WTO)
		P23DG07	REMOTE SENSING AND GNSS	CO1:Understand the purpose and importance of RS, GIS & GNSS
				CO2: To provide background knowledge and understanding of principles of RS and GNSS Systems
				CO3: To enhance student's capacity to interpret images and extract information on the earth surface from multi-resolution imagery at multi-scale level.
		P23DG08	PRINCIPLE OF GIS	CO1: Understanding the basic spatial concepts, approaches, history and development ofGIS
				CO2: Obtain an understanding of spatial and non-spatial datamodels
				CO3: Understanding of data capturing methods and data accuracy and accessing publicly available datasets
				CO4 . Teaching basic spatial operations skills necessary to work with GISproject
				CO5 Develop a project requiring GIS as a management, analytical, and/or visualization tool using spatial analysis methods
PGEE	**M.SC Geography**	P23DSEG1	GEOSPATIAL STATISTICS	CO1 To introduce basic statistical procedures to the students
				CO2 To indicate the assumptions, limitations and interpretation of these procedures and results
				CO3: To train the students to handle these statistics towards analysing the geographical problems.
				CO4: To understand the Statistical Techniques, Numerical data in Geography
				CO5: To familiarize about Probabilistic Treatment, Parametric Statistics and Regression Analysis
				CO1Recall ancient scholar's contribution to geography
				CO2 Evaluate contribution of modern geographer to geography and ability to analysis determinism and possibilism in geography k2 ,k5

		P23CG7	GEOGRAPHICAL THOUGHT	CO3 Assessment of dualism concept in geography
				CO4 Apply quantitative revolution in geography
				CO5 Discuss various theories , themes , models in geography and evaluate modern political ideas based on location
		P23CG8	THEORITICAL ECONOMIC GEOGRAPHY	CO1 Develop an understanding of concepts and issues related to the spatial interaction of the economy
				CO2: Understanding the theoretical developments and ability for problem solving
				CO3: Develop the ability to analyse – critically – current issues related to economic geography with spatial references to planning and development
				CO4:. Developing the ability to analyse spatial public policy and solve t spatial problems using geospatial technology
				CO5: Develop an understanding of concepts and issues related to the spatial interactions of the economy
		P23CG9P	PRACTICAL-III GEO-SPATIAL LAB	CO1: A clear understanding in key concepts of cartography ,GIS and the aspects in reading , designing , and evaluating digital cartographic maps.
				CO2: Understand the relationship between map projections, coordinate systems and geospatial layers including map algebra and spatial statistics.
				CO3: Learn the skills in data collection , storage , analysis and interpretation of spatial data in GIS interface
				CO4: Ability to analyse and evaluate the maps and perform spatial operations like overlay analysis, landscape analysis , terrain analysis , suitability analysis and spatial modelling
				CO5: Create tools and models for developing and solving complex geospatial problems in GIS
		P23DG09	POLITICAL GEOGRAPHY	CO1 Developing an understanding of political geography and its influence in politics
				CO2 Able to apply spatial analysis methods to assess physical and human environment to shape and reshape political geographic outcomes
				CO3 Understand the themes of political geography in relation to nation, state, nation-building, frontiers and boundaries.
				CO4 Ability to analyse critically the conflicts in India and geospatial significance of Indian ocean and its importance
				CO5 Ability to describe the contemporary issues, conflicts and challenges surrounding the Indian regions – SAARC, South – east Asia , West and East Asia.
		P23DG10	SOCIAL GEOGRAPHY	CO1 Know the nature and development of social geography – realm of social sciences.
				CO2 Elements of social geography: ethnicity, tribe, dialect, language, religion and caste.
				CO3 Understand the space and society – structure and process – to social theory; power relations and space

				CO4 Explain the social well –beings and human development
				CO5 Understand the public policy and social planning in India
		P23SEG2	GEOGRAPHY OF HEALTH AND WELL BEING	CO1 : To provide a critical understanding of key concepts related to medical geography
				CO2 To examine the role of societal structures and human behavior in creating and sustain health inequalities and differences in access to health care.
				CO3 To understand about the gender and health diseases of the rich and poor and migration diseases
				CO4: The student will develop a working knowledge of several numerical methods and their analytical basis.
				CO5 To understand how national health care systems either reduce or enhance health inequalities and differences in access to health care
		P23S1G1	INTERNSHIP / INDUSTRIAL ACTIVITY	CO1 Develop skills to work effectively and further develop observation , recording and interpretation skills
				CO2 Helps in skill building – improvise skills in specific field of interest
				CO3 Communicate and collaborate effectively and appropriately with different professionals in the work environment through written and oral means
				CO4 Use geospatial tools and techniques for hazard mitigation and resources planning
				CO5 Pursue research and develop capabilities to handle multi-disciplinary field projects and work in teams and demonstrate leadership skills professional ethics.
		P23CG11	GEOGRAPHY OF INDIA AND PLANNING	CO1: Understand the physical, cultural, economic, and demographic aspects with references to India and pursue it for further research
				CO2: To analysis soil types and variation of vegetation
				CO3: Acquaint with the distinctiveness of geographic regions as the field of learning in geographical studies
				CO4: To evaluate various transport network system of India
				CO5: To apply sustainable concept to natural resource
		P23CG12	REGIONAL PLANNING	CO1: Acquire a general understanding of the major concepts and theories in the fields of regional development and planning.
				CO2: Identify, appreciate and use models and principles for policy formulation
				CO3: Evaluate regional development planning policies
				CO4: Acquire ability to prescribe appropriate strategies for regional development at appropriate level of governance

				CO5: Comprehensive understanding on contemporary issues and challenges in relation to regional development	
		P23GPW	PROJECT WORK WITH VIVA VOICE	CO1: Gaining ability to capture, analyze and present geospatial data for visualization	
				CO2: Demonstration of depth of technical understanding and application skills.	
				CO3: Demonstration of ability to critically analyze other work and come up with original ideas with creative contribution	
				CO4: Ability to analyze the result and draw conclusions from the research work.	
				CO5: Ability to write academic / scientific report for a specific topic to solve the spatial problems.	
		P23DG11	NATURAL HAZARDS AND DISASTER MANAGEMENT	CO1 Students will learn different disasters and measures to reduce the risk due to these disasters	
				CO2 Students will learn institutional frame work for disaster management national as well as global level	
				CO3 The students will get familiarized with eco system and issues related to the environment system.	
				CO4 Students can act as First Respondent and can handle Onsite situations.	
				CO5 Will help students in building a safe environment through sustainability development.at the end of this course, students are expected to carry out pre and post-disaster damage assessment, understand disaster recovery and the role of different agencies in the rehabilitation	
		P23SEG3	PROFESSIONAL COMPTETENCY SKILL- GEO SPATIAL PROJECT PLNNING AND MANAGEMENT	CO1 Recall identification of research problem and develop research design	
				CO2 Apply bibliographic tools in research and use various writing style manual	
				CO3 Plan for data collection and construct class intervals methods to classify the data	
				CO4 Develop skill for use various statistical software for hypothesis testing	
				CO5 Prepared for writing and publishing a research report and manuscript editing, apply new techniques and use different research tools.	
		P23CN1	**APPLIED HUMAN PHYSIOLOGY**	**CO1**	Develop insight of normal functioning of all the organ systems of the body and their interaction. Understand the current state of knowledge about the functional organization of Human Cell and Histology.
				CO2	Understand the structural and functional organization of Blood and Cardiac system.
				CO3	Understand the structural and functional organization of Respiration, Immunity and Endocrine GIT and Urinary System.
				CO4	Comprehend the structural and functional organization Digestive System and Reproductive System.
				CO5	Understand the structural and functional organization of Skin, Nervous and Excretory System.

		P23CN2	ADVANCED FOOD SCIENCE	CO1	Overview the relationship between the chemical structure and the properties of the main components in food like starch, protein and lipids.
				CO2	Understand the Composition and characteristics of various food commodities.
				CO3	Explain the cooking quality of foods and apply food science knowledge in food industries
				CO4	Identify and understand the nutrients and functions of foods in maintaining health
				CO5	Analyze the proper use of food colors and food additives in safe food preparation.
		P23CN3P	FOOD SCIENCE AND QUALITY CONTROL PRACTICAL	CO1	Perform the tests for identifying food adulterants
				CO2	Evaluate quality of milk, fats and oils based on its physical components
				CO3	Determine the quality check for edible oils and fats
				CO4	Apply the study of egg white stability in preparations of food emulsions
				CO5	Perform the sensory evaluation tests for different foods
				CO6	Integrate the evaluation techniques in food quality assessment
		P23CN4	PRINCIPLES OF NUTRITION	CO1	Interpret RDA to meet nutritional requirements for Indians and determine energy requirements for all age groups based on BMR and activity levels
				CO2	Distinguish carbohydrates and dietary fibre; identify their role in promoting health
				CO3	Evaluate protein quality and protein deficiency
				CO4	Compare dietary fatty acids based on composition transport and absorption
				CO5	Analyze factors affecting bioavailability of minerals and vitamins in foods
				CO6	Assess the role of nutrition policies and programmes
		P23CN5	DIET IN METABOLIC DISEASES	CO1	Explore new trends in dietary management of weight imbalances
				CO2	Integrate meal planning techniques for nutritional management of diabetes and its complications.
				CO3	Integrate the cardiac, renal and liver functional tests with acute and chronic complications
				CO4	Distinguish the clinical aberrations and medical nutritional management of various organ systems.

				CO5	Familiarize with influences of clinical nutrition on inherited metabolic disorders
		P23CN6P	**TECHNIQUES IN FOOD ANALYSIS**	**CO1**	Understand safety rules for the laboratory and demonstrate various instruments used for food analysis.
				CO2	Acquire skills to prepare and standardise various solutions to conduct experiments for food analysis.
				CO3	Acquire skills in ashing of foods and prepare ash solution to analyse mineral contents in food.
				CO4	Demonstrate quantitative analysis of various nutrients in foods i.e. crude fibre, moisture, Vit -C, calcium, phosphorus, iron, etc.
				CO5	Demonstrate experiments to check estimation of protein, fat content and Pigment Analysis
		P23CN7	**RESEARCH METHODS IN NUTRITION**	**CO1**	Demonstrate knowledge of the scientific method, purpose and approaches to research and become a qualified researcher
				CO2	Identify and selection of the research sampling and scales of measurement
				CO3	Understand the types of tools applicable to research problem and develop skills of preparing outline of research work and construct common data collection tools
				CO4	Assess the numerical data for providing statistical evidences to support the research results and interpretation of data with the use of tables and pictorial representations
				CO5	Present research data in a scientific manner and Understand the key elements of a research report and various applications of computer in Nutrition research
		P23CN8	**CLINICAL NUTRITION AND DIETETICS**	**CO1**	Critique the nutritional screening technique
				CO2	Comprehend the current concepts of therapeutic diets and critically ill
				CO3	Implement the dietary principles on various disorders.
				CO4	Acquire the knowledge of diet counseling skills.
				CO5	Apply the dietary principles to manage the lifestyle disorders in the society
		P23CN9P	**CLINICAL NUTRITION AND DIETETICS PRACTICAL**	**CO1**	Evaluate various therapeutic diets
				CO2	Identify the requirements for disease conditions and critically ill patients.
				CO3	Assess and plan the diets for various disease conditions.
				CO4	Create Knowledge in nutrient calculations and dietary principles
				CO5	Design the personalized diets for different individuals in the society

		P23CN10	**PERFORMANCE NUTRITION**	**CO1**	Analyze and assess the body composition of athlete
				CO2	Comprehend the role of Macro and micronutrients towards athletic performance
				CO3	Emphasize the role of nutrition in competitive performance and for special needs.
				CO4	Retrieving the various sports supplements and Ergogenic aids for the athletes.
				CO5	Apply personalized nutrition guidance in the area of sports nutrition.
		P23CN11	**INSTITUTIONAL FOOD ADMINISTRATION**	**CO1**	Differentiate food service institutions based on the objectives and customers.
				CO2	Integrate management tools for quality assurance in food service
				CO3	Apply the acquired skills in handling food service equipment and procedures
				CO4	Plan layout of food service establishments
				CO5	Manage human resources within a food service organisation
		P23CN12	**FOOD PRODUCT DEVELOPMENT**	**CO1**	Apply a product development process to generate ideas, design, develop and evaluate new products and their markets.
				CO2	Demonstrate skill in the application of standard methods for the measurement and evaluation of sensory differences
				CO3	Evaluate and analyze the different food packaging material
				CO4	Review the appropriate labelling to adhere to standards
				CO5	Gain knowledge on pricing and marketing of food product
		P23NPW	**PROJECT WITH VIVA VOCE**	**CO1**	Develop a research design on a topic relevant to their field
				CO2	Prepare a systematic literature review on the topic selected
				CO3	Select and execute the most appropriate methodology for the studyand provide justification for the choice made.
				CO4	Acquire skill in collecting, analyzing, presenting and interpreting data accurately
				CO5	Present findings of the study in a logical and sequential manner and discuss them against a backdrop of available scientific literature; Cite references in prescribed format and conduct plagiarism check onthe document prepared
				CO1	The concepts and principles of food processing

PHSE 1	**M.Sc. HOME SCIENCE**	**P23DN01**	**FOOD PROCESSING AND TECHNOLOGY**	**CO2**	The various processed food products from plant and animal sources
				CO3	The by-products utilization from food processing.
				CO4	The systematic knowledge of basic and applied aspects in food processing and technology
				CO5	The various post-harvest technologies for different food products
		P23DN02	**FOOD SAFETY AND QUALITY CONTROL**	**CO1**	Identify types of food spoilage and the need for hygiene in food handling
				CO2	Discuss the implications of food adulterants and additives on consumers' health
				CO3	Demonstrate skill in food quality testing career for further career prospects in food industry
				CO4	Describe the process of food quality assurance.
				CO5	Apply the guidelines of food laws and standards to ensure food quality in food industry.
		P23DN03	**FAMILY RESOURCE MANAGEMENT CONCEPTS AND CONTEXTS**	**CO1**	Associate human values in achieving family goals
				CO2	Demonstrate abilities in home management.
				CO3	Analyze effective usage of family resources.
				CO4	Develop skills in personal time and money management.
				CO5	Integrate ergonomics in home and work environment
		P23DN04	**PERSPECTIVIES OF HOME SCIENCE**	**CO1**	Understand the concept of Extension Education and its importance
				CO2	Comprehend the key aspects of human growth and development and realize the importance of mastering developmental tasks of each life span stage
				CO3	Understand the basic concepts of Textile and Clothing
				CO4	List personal goals and values, set living standards
				CO5	Understand the meaning of Guidance and Counselling and Career perspective in HomeScience
				CO1	Describe components of nutraceutical and functional foods. Distinguish between conventional foods vs. functional foods as well as nutraceuticals vs. pharmaceuticals.
				CO2	Critically of different types of evaluate the health nutraceutical.

		P23DN05	**FUNCTIONAL FOODS AND HEALTH**	**CO3**	Distinguish between prebiotic and probiotic foods, their sources, health effects and potential for risk reduction of diseases
				CO4	Discuss the therapeutic potential of functional foods based on the bioactive ingredients present in them
				CO5	Recall the functional properties of Indian super foods and recommend their appropriate usage.
		P23DN06	**NUTRITIONAL BIOCHEMISTRY**	**CO1**	Understand the role of enzymes and co enzymes in biological oxidation.
				CO2	Gain knowledge on metabolism and regulationof carbohydrate.
				CO3	Understand the concept of metabolism and bioenergetics of lipids
				CO4	Discuss the classification, structure, organization and metabolic pathway of protein
				CO5	Comprehend the biological metabolism and functions of nucleic acid and understand recent concepts in biochemistry
		P23DN07	**TRENDS AND ISSUES IN HUMAN DEVELOPMENT**	**CO1**	Apply the acquired knowledge on ante, pre and post natal care to real life situations
				CO2	Connect the milestones of growth and developmental tasks with child rearing practices
				CO3	Integrate the intricacies of early childhood development and behaviour with parenting techniques
				CO4	Promote positive habit formation to solve behaviour problems in late childhood
				CO5	Suggest measures to promote inclusive environment for pre-school education
		P23DN08	**DEVELOPMENTAL DISABILITIES**	**CO1**	The student will understand conceptual approaches to developmental disabilities
				CO2	The student will acquire knowledge of definitions, etiology, diagnosis, andassessment of childhood disabilities
				CO3	The student will understand psychological, biological causes of development disabilities and characteristics of mild and serve intellectual disabilities.
				CO4	The student will understand the prevention of disabilities care and intervention approaches, education and therapeutic strategies.
				CO5	The student will acquire knowledge of the family, community and education will empower the disability children
		P23DN09	**HOME SCIENCE EXTENSION EDUCATION AND COMMUNICATION**	**CO1**	Apply the principles and philosophies of extension education to society
				CO2	Exhibit the qualities and responsibilities of women extension workers.
				CO3	Display the individual, groupp and mass approaches for extension and communication.

				CO4	Plan and execute community nutrition programmes for extension activities.
				CO5	Compare the objectives and implementation of community development programmes in India.
		P23DN10	**PUBLIC HEALTH NUTRITION**	**CO1**	Understand the role of nutrition for national development
				CO2	Acque skill in assessinert of Nutritional status of Community
				CO3	Gain in-depth knowledge on Strategies for Improving nutrition status and health status of the community
				CO4	Evaluate the rule organization in combaning Malnutrition
				CO5	Understand and apply Nutrition education for the community welfare
		P23DN11	**TEXTILES AND CLOTHING**	**CO1**	Classify textile fibres based on origin, properties and uses
				CO2	Familiarize with spinning and weaving
				CO3	Identify fabric processing and finishing methods
				CO4	Exhibit skills in identification, selection and care of clothing for different age groups
				CO5	Choose appropriate methods of dyeing and printing of textiles and clothing.
		P23DN12	**TECHNICAL TEXTILES**	**CO1**	Classify textile fibres based on origin, properties and uses
				CO2	Familiarize safety,chemical and mechanical productivity of textiles
				CO3	Identify fabric processing and finishing methods.
				CO4	Exhibit skills in identification, selection and care of clothing for different age groups
				CO5	Choose appropriate methods of dyeing and printing of textiles and clothing.
		P23SEN1	**EARLY CHILDHOOD CARE AND EDUCATION**	**CO1**	Explain the importance of early childhood years and significance of intervention programs for early childhood development.
				CO2	Describe the historical developments - global and Indian including the current programs and policies in ECCE
				CO3	Analyze curriculum models and pedagogical approaches in early childhood education
				CO4	Identify various indigenous (Indian) models of Early Childhood Education and apply it to understand the current early childhood research, theoretical trends and issues.

				CO5	Create developmentally appropriate programs for young children.
		P23SEN2	**DIET AND NUTRITION COUNSELLING**	**CO1**	Define Dietician and recall the qualities, role and responsibilities of a dietician
				CO2	Describes or explains the steps in diet and nutrition counseling
				CO3	Uses the skills in assessment of nutritional status of normal and diseased people
				CO4	Relate practical skills in dietary counseling of various health and disease conditions
				CO5	Develop teaching aids and uses computer applications and smart phones in diet counseling
		P23SEN3	**HOMESCIENCE FOR COMPETITIVE EXAMINATIONS**	**CO1**	State the dynamics of family relationships and differentiate the theories of human development
				CO2	Enumerate the functions and methodologies of resource management, interior decoration and work place design
				CO3	Classify the types of fibre, yam, weave and design apparel for different age groups
				CO4	Identify the types of communication and ICT for extension activities
				CO5	Apply the good safety regulations and standards in food safety management
		P23SIN1	**INTERNSHIP/INDUSTRIAL ACTIVITY**	**CO1**	Learns how a dietary department functions and the specific roles and responsibilities of a dietitian
				CO2	Acquires training in nutrition diagnoses of each patient assessed
				CO3	Demonstrates the ability to implement nutrition care plans; document nutrition care provided maintain internship logbook and monitor outcomes of the nutrition plan
				CO4	Demonstrates competency in professional presentation, communication and writing skill
				CO5	Acquires training in diet counseling, online counseling and group counseling
		P23CS1	CC1: Paper I: Analysis &Design of Algorithms	CO1	Get knowledge about algorithms and determines their time complexity. Demonstrate specific search and sort algorithms using divide and conquer technique.
				CO2	Gain good understanding of Greedy method and its algorithm.
				CO3	Able to describe about graphs using dynamic programming technique.
				CO4	Demonstrate the concept of backtracking & branch and bound technique.
				CO5	Explore the traversal and searching technique and apply it for trees and graphs.

		P23CS2	CC2: Paper II: Object Oriented Analysis and Design & C++	CO1	Understand the concept of Object-Oriented development and modeling techniques
				CO2	Gain knowledge about the various steps performed during object design
				CO3	Abstract object-based views for generic software systems
				CO4	Link OOAD with C++ language
				CO5	Apply the basic concept of OOPs and familiarize to write C++ program
		P23CS3P	CC3(P) Elective – II Practical II: Algorithms And OOPS Lab	CO1	Understand the concepts of object oriented with respect to C++
				CO2	Able to understand and implement OOPS concepts
				CO3	Implementation of data structures like Stack, Queue, Tree, List using C++
				CO4	Application of the data structures for Sorting, Searching using different techniques.
		P23DS01P	DSEC1 :Practical -I: Python Programming Lab	CO1	Understand the basic concepts of Python Programming
				CO2	Understand File operations, Classes and Objects
				CO3	Acquire Object Oriented Skills in Python
				CO4	Develop web applications using Python
				CO5	Develop Client Server Networking applications
		P23DS02	DSEC2: Python Programming	CO1	UnderstandthebasicconceptsofPythonProgramming
				CO2	UnderstandFileoperations,Classesand Objects
				CO3	AcquireObject OrientedSkills inPython
				CO4	Developweb applicationsusingPython
				CO5	DevelopClientServerNetworking applications
				CO1	Understand the basic data mining techniques and algorithms
				CO2	Understand the Association rules, Clustering techniques and Data warehousing contents

		P23CS4	CC4:Paper IV: Data Mining And Warehousing	CO3	Compare and evaluate different data mining techniques like classification, prediction, Clustering and association rule mining
				CO4	Design data ware house with dimensional modeling and apply OLAP operations
				CO5	Identify appropriate data mining algorithms to solve real world problems
		P23CS5	CC5: Paper VI Advanced Java Programming	CO1	Understand the advanced concepts of Java Programming
				CO2	Understand JDBC and RMI concepts
				CO3	Apply and analyze Java in Database
				CO4	Handle different event in java using the delegation event model, event listener and class
				CO5	Design interactive applications using Java Servlet, JSP and JDBC
		P23CS6P	CC6(P) Elective –IV Practical Advanced Java Programming Lab	CO1	Understand to the implement concepts of Java using HTML forms, JSP &JAR
				CO2	Must be capable of implementing JDBC and RMI concepts
				CO3	Able to write Applets with Event handling mechanism
				CO4	To Create interactive web based applications using servlets and jsp
		P23DS03	DSEC3: Elective – III Artificial Intelligence and Machine Learning	CO1	Demonstrate AI problems and techniques
				CO2	Understand machine learning concepts
				CO3	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning
				CO4	Analyze the impact of machine learning on applications
				CO5	Analyze and design a real world problem for implementation and understand the dynamic behavior of a system
		P23DS04	DSEC4: Advanced OS	CO1	Understand the design issues associated with operating systems
				CO2	Master various process management concepts including scheduling, deadlocks and distributed file systems
				CO3	Prepare Real Time Task Scheduling
				CO4	Analyze Operating Systems for Handheld Systems

PCSE	M.SC Computer Science			CO5	Analyze Operating Systems like LINUX and iOS
		P23SES1P	SEC1: VB.NET Lab	CO1	To learn BasicOperations
				CO2	To able to know WorkingwithHOTSPOT images
				CO3	To able to know Workingwith files
				CO4	To able to know Workingwith AJAX
				CO5	Workingwithcookies in real time application
		P23CS7	CC7: CloudComputing	CO1	Understand the concepts of Cloud and its services
				CO2	Collaborate Cloud for Event & Project Management
				CO3	Analyze on cloud in –Word Processing, Spread Sheets, Mail, Calendar, Database
				CO4	Analyze cloud in social networks
				CO5	Explore cloud storage and sharing
		P23CS8	CC8: Digital ImageProcessing	CO1	Understand the fundamentals of Digital Image Processing
				CO2	Understand the mathematical foundations for digital image representation, image acquisition, image transformation, and image enhancement
				CO3	Apply, Design and Implement and get solutions for digital image processing problems
				CO4	Apply the concepts of filtering and segmentation for digital image retrieval
				CO5	Explore the concepts of Multi-resolution process and recognize the objects in an efficient manner
		P23CS9P	CC9(P): Digital Image Processing Lab using MATLAB	CO1	To write programs in MATLAB for image processing using the techniques
				CO2	To able to implement Image Enhancements & Restoration techniques
				CO3	Capable of using Compression techniques in an Image
				CO4	Must be able to manipulate the image and Segment it
				CO1	To understand the concepts of Correlation

		P23CS10	CC10 : Core industry Module Statistical Computing	CO2	To able to know the Regression Analysis
				CO3	To make understand the Probability Distribution and mathematical Expectation
				CO4	To know the Sampling and Sampling Distributions
				CO5	To understand the Statistical Inference
		P23DS05	GEC/ DSEC5 Network Security and Cryptography	CO1	Understand the process of the cryptographic algorithms
				CO2	Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
				CO3	Applyandanalyzeappropriatesecuritytechniquestosolvenetworksecurity problem
				CO4	Explore suitable cryptographic algorithms
				CO5	Analyze different digital signature algorithms to achieve authentication and design secure applications
		P23SES2P	SEC2 :NME-Multimedia Tools Lab	CO1	To understand the basic functionalities of pagemaker
				CO2	To Learningand working with coral DRAW
				CO3	To Learningand understanding the concept of the flash
				CO4	Learning and understanding the concept of the Photoshop
		P23CS11	CC11 :DataScience& Analytics	CO1	understand the building blocks of Big Data
				CO2	articulate the programming aspects of cloud computing(map Reduce etc)
				CO3	understand the specialized aspects of big data with the help of different big data applications
				CO4	represent the analytical aspects of Big Data
				CO5	know the recent research trends related to Hadoop File System, MapReduce and Google File System etc
		P23CS12	CC12: Internet of Things	CO1	Understand about IoT ,its Architecture and its Applications
				CO2	Understand basic electronics used in IoT & its role
				CO3	Develop applications with Cusing Arduino IDE

				CO4	Analyze about sensors and actuators
				CO5	Design IoT in real time applications using today's internet & wireless technologies
		P23DS06P	GEC/DSEC6 : Practical III: Data Analytics with R, Mongodb & Technical Documentation using Latex Lab	CO1	Able to implement using data mining concepts
				CO2	To understand the concepts of preprocessing.
				CO3	Implementation of association rule mining, classification and clustering
				CO4	To implement the basic programs of R
				CO5	To import CSV data into R
		P23CU1	**Discrete Mathematics**	CO1	To understand the concepts of relations and functions, distinguish among normal forms K2
				CO2	To analyze and evaluate the recurrence relations K4,K5
				CO3	To distinguish among various normal forms and predicate calculus K5
				CO4	To solve and know various types of matrices K1
				CO5	To evaluate and solve various types of graphs K5
		P23CU2	**Linux and shell programming**	CO1	To understand, apply and analyze the concepts and methodology of Linux shell programming
				CO2	To comprehend, impart and apply the fundamentals of control structure and script controls
				CO3	To understand, analyse and evaluate the functions, graphical desktop interface and editors
				CO4	To collaborate, apply and review the concepts and methodology of regular expression and advanced gawk
				CO5	To comprehend, use and illustrate the advanced concepts such as alternate shell scripts, data connectivity and bash scripting using python
		P23CU3	**Python Programming**	CO1	Comprehend the programming skills in python and develop applications using conditional branches and loops
				CO2	Create python applications with strings and functions
				CO3	Understand and implement the Object Oriented Programming paradigm with the concept of objects and classes, Inheritance and polymorphism
				CO4	Evaluate the use of Python packages to perform numerical computations and data visualization

				CO5	Design interactive web applications using Django
		P23DU01	**Data Engineering and Management**	CO1	Comprehend the Data Management concepts and analyse the relationship with the enterprise
				CO2	Analyze Data Modelling concepts and assess its quality
				CO3	Understand and implement business modelling techniques
				CO4	Evaluate the use of Artificial Intelligence and Machine Learning in CRM
				CO5	Develop CRM applications in cloud
		P23DU02P	**Data Engineering and Management Lab**	CO1	Comprehend the scripting knowledge in MongoDB and perform basic operations in a shell prompt
				CO2	Implement, Create, Read, Update and Delete Operations on MongoDB database CO3 CO5
				CO3	Analyze MongoDB using DbVisualizer
				CO4	Assess Zoho CRM features for managing customer relationships
				CO5	Create a customized application in Zoho CRM
		P23DU03	**Architecture and Frameworks**	CO1	Understand, analyze and evaluate the purpose of Software architecture and development methodologies with consideration of risk management
				CO2	Comprehend, apply and evaluate the domain knowledge for software development process and determine the impact of quality attributes
				CO3	Understand, track and examine the systematic approach for various software design models with effective document process
				CO4	Illustrate and summarize the functions of orthogonal systems with complexity, design principles and design pattern for software architecture
				CO5	Comprehend, analyze and evaluate the performance and security measures for Server, Web and Database applications in order to create the secure software systems for various domain applications
		P23DU04P	**Architecture and Frameworks Lab**	CO1	Comprehend the programming skills of Software architecture tools and packages
				CO2	Understand and implement the user profiles and authentication with recovery mechanism. notifications, friends, and follower list of social application protocols.
				CO3	Comprehend and evaluate the access control and content representation use of FTP server
				CO4	Understand and implement reading and writing resources for various applications
				CO5	Identify and examine the

		P23DU05	**Software Development Technologies**	CO1	To understand, apply and summarize the basic concepts of Micro services communication Microsoft Azure and Dev Ops for software development life cycle :
				CO2	To illustrate, and implement Azure Kubernetes Service tools for software development life cycle
				CO3	To recognize, analyse and summarize the functionalities of .NET Dev Ops for Azure applications
				CO4	To understand, design and evaluate the principles and architecture service tools for software development life cycle.
				CO5	To comprehend, implement and review the functionalities of API and API gateways for cloud and Azure applications
		P23DU06P	**Software Development Technologies Lab**	CO1	To Understand and analyse the importance of Jenkins to Build, Deploy and Test Software Applications
				CO2	To synthesis and summarize the importance of Software Configuration Management in DevOps
				CO3	To identify, analyze and illustrate the Containerization of OS images and deployment of applications over Docker
				CO4	To design, analyze and develop the Pull based Software Configuration Management
				CO5	To design, analyze and develop Puppet Manifest
		P23DU07	**Soft Computing**	CO1	To provide an introduction to the basic principles, techniques, and applications of soft computing
				CO2	To get familiar with Neural network architectures and supervised learning algorithms IO
				CO3	To understand the architectures and algorithms of Unsupervised Learning techniques HO
				CO4	Develop the skills to gain a basic understanding of fuzzy logic theory and fuzzy inference systems IO
				CO5	Ability to learn traditional optimization and search techniques and genetic programming HO
		P23DU08P	**Soft Computing Lab**	CO1	To apply supervised learning algorithms for real datasets K- 1K2 LO
				CO2	To implement Unsupervised Learning techniques K3 IO
				CO3	To apply fuzzy based arithmetic and logical operations K3- K4 HO
				CO4	To find solutions for problems using Genetic algorithm K4 IO
				CO5	To implement DeMorgan's Law K5 HO
				CO1	Understand various ADT concepts

		P23CU4	**Data Structures and Algorithms**	CO2	Familiar with implementation of ADT models with Python language and understand how to develop ADT for the various real-time problems
				CO3	Apply with proper ADT models with problem understanding
				CO4	Apply and Analyze right models based on the problem domain
				CO5	Evaluate modern data structures with Python language
		P23CU5	**Big Data Analytics**	CO1	To understand, illustrate and evaluate the concepts and techniques of Data Science, Big Data Analytics and its tools
				CO2	To collaborate,apply and review the computing for big data in Hadoop, and NoSQL environment.
				CO3	To comprehend, implement and review the concepts of data science and big data analytics projects using MapReduce, and MongoDB
				CO4	To understand, use and analyze the concepts of big data analytics projects using HIVE database.
				CO5	To illustrate, develop and review the concepts of PIG database in Hadoop environment.
		P23CU6P	**Data Structures and Algorithms Lab**	CO1	Strong understanding in various ADT concepts K1-K6
				CO2	To become a familiar with implementation of ADT models
				CO3	Apply sort and tree search algorithms
				CO4	Evaluate the different data structure models
				CO5	Learn how to develop ADT for the various real-time problems
		P23DU09	**Internet of Things**	CO1	Comprehend the IoT evolution with its architecture and sensors K1- K6
				CO2	Understand the networking concepts for communication and underlying IoT protocols
				CO3	Assess the embedded technologies and develop prototypes for the IoT products
				CO4	Evaluate the use of Application Programming Interface and design an API for IoT in realitime
				CO5	Recognize the ethics of business models and perform security analysis
				CO1	Implement IoT programs to turn ON/OFF LED
				CO2	Develop IoT programs for object detection

PCAE	M.C.A	**P23DU10P**	**Internet of Things Lab**	CO3	Create IoT programs for agricultural purpose
				CO4	Implement web server program for local hosting
				CO5	Design IoT application for health monitoring
		P23DU13	**Network security and Cryptography**	CO1	Understandtheprocessofthecryptographicalgorithms
				CO2	Compareandapplydifferentencryptionanddecryptiontechniquestosolveproblems related to confidentiality and authentication
				CO3	Applyandanalyzeappropriatesecuritytechniquestosolvenetworksecurity problem
				CO4	Exploresuitablecryptographicalgorithms
				CO5	Analyzedifferentdigitalsignaturealgorithmstoachieveauthenticationand design secure applications
		P23DU11	**Computer vision**	CO1	To understand and recall computer vision and its application areas K1-K6
				CO2	To develop build a computer vision system
				CO3	To apply and analyze a design range of algorithms for image processing and computer vision
				CO4	To develop incorporate machine learning techniques with computer vision system
				CO5	To apply and analyze image segmentation and image registration
		P23DU12P	**Computer Vision Lab**	CO1	To develop and implement the image loading and exploring
				CO2	To Evaluate the image transforms
				CO3	To apply and analyze for image processing denoising algorithms
				CO4	To design and develop the Image Segmentation using Edge detection and Histograms
				CO5	To apply and analyze image clustering and classification algorithms
		P23DU14	**Cyber Security**	CO1	Understand, describe, analyze and examine the basics of Cyber security concepts and its implementation in India
				CO2	Comprehend and demonstrate the security tips in browsers, WLAN, social networks, Email security and Smart phone. Apply the investigations in post mortem and Forensics
				CO3	Understand, apply and evaluate the various investigation roles and Wi Fi protecting mechanisms.

				CO4	Understand, illustrate and evaluate the method of seize the digital information and evidence forensics data and evaluate the forensics reports
				CO5	Comprehend, apply and appraise the methods digital forensics with cybercrime prevention techniques
		P23DU15P	**Cyber Security Lab**	CO1	Comprehend the programming skills in Change the wireless device mode as monitor mode
				CO2	Understand and implement multiple vulnerabilities webserver
				CO3	Evaluate the use of different wireless device modes
				CO4	Design to Solve related to find the subdomains of webpage
				CO5	Create and applyopen ports in the network
		P23DU16	**Block chain technologies**	CO1	Understand, apply and examine the characteristics of blockchain,bitcoin and consensus algorithm in centralized and decentralized methods.
				CO2	Comprehend and demonstrate the application of hashing and public key cryptography in protecting the blockchain.
				CO3	Understand and analyse the elements of trust in a Blockchain: validation, verification, and consensus.
				CO4	Comprehend and evaluate the alternate coin, Ethereum and smart contract.
				CO5	Grasp and apply the knowledge of Tools and languages for applications
		P23DU17P	**Block chain Technologies Lab**	CO1	Enable to setup your own private Blockchain and deploy smart contracts on Ethereum.
				CO2	Gains familiarity and implement with cryptography and Consensus algorithms. K1-K6
				CO3	Create and deploy projects using Web3j. K1-K6
				CO4	Recall and deploy the structure and mechanism of Bitcoin, Ethereum, Hyperledger K1-K6
				CO5	Implement Blockchain for various use cases K1-K6
		P23SEU1	**Fundamentals of Human Rights**	CO1	Remember the concept of natural rights. K1-K6
				CO2	Understand the historical growth of the idea of human rights. K1-K6
				CO3	Assess the importance of Human Rights and respect the rights of others. K1-K6
				CO4	Analyze the issues and challenges of Human Rights. K1-K6

				CO5	Evaluate the role of various organization in protection of Human Rights. K1-K6
		P23CU7	**Advanced Java Programming**	CO1	Understand the Object Oriented Program including classes and methods; inheritance and exception handling K1-K6
				CO2	Complete comprehension of String functions and I/O Streams K1-K6
				CO3	Creation of graphical representation using Applet K1-K6
				CO4	Application of Servlets for designing Web based applications K1- K6
				CO5	Usage of JDBC connectivity and implementation of the concept to get desired results from database K1-K6
		P23CU8	**Web Technology**	CO1	Design dynamic web pages using Javascript, Jquery and Angular Java scripts K1 LO
				CO2	Develop Web pages using HTML, CSS and XML K2 IO
				CO3	Create web application using PHP and MySQL K3, K4 HO
				CO4	To design dynamic web pages using Angular JavaScript K2,K3 HO
				CO5	Develop interactive web pages using Jquery K4,K5 HO
		P23CU9P	**Advanced Java Programming lab**	CO1	Implement classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem K1, K2 LO
				CO2	Apply Applets and Swing programs K3 IO
				CO3	Develop Servlets and JSP for creating Web based applications using JDBC K4, K5 HO
				CO4	
				CO5	
		P23CU10	**Advanced Machine Learning (AML)**	CO1	To understand, impart and analyze the concepts and of Machine Learning Techniques and types of data K1-K6
				CO2	To comprehend, apply and evaluate the classification techniques for real-world applications K1-K6
				CO3	To understand, use and perform evaluation of Regression methods K1-K6
				CO4	To recognize, implement and analyse the unsupervised techniques for real-world applications K1-K6
				CO5	To understand, identify, implement and review the deep learning techniques for real-time applications K1-K6

		P23DU18P	**Web Technology Lab**	CO1	Design dynamic web pages using JavaScript, Jquery and Angular Java script K1 LO
				CO2	Develop Web pages using HTML, CSS and XML K2 IO
				CO3	Create web application using PHP and MySQL K3, K4 HO
				CO4	Develop interactive web pages using Jquery K2,K3 HO
				CO5	To design dynamic web pages using Angular javascript K4,K5 HO
		P23SEU2	**Integrated Technology (AML)**	CO1	To understand and implement the mathematical and statistical prospective of machine learning algorithms through python programming K1-K6
				CO2	To recognize and develop the machine learning models through python in built functions K1-K6
				CO3	To understand, impart and develop the machine learning models for real-time dataset K1-K6
				CO4	To comprehend , impart and implement the deep learning models for real-time applications K1-K6
				CO5	To identify and evaluate the performance machine learning models for real-time dataset K1-K6
		P23CU11	**Mobile Computing**	CO1	Understanding the basic concepts of Mobile and Wireless Communication K1, K2 LO
				CO2	Understanding the basic concepts of Spread Spectrum. Analyzing the concepts of Medium Access Control. K3 IO
				CO3	Analyzing the concepts of Global System for Mobile Communication and Satellite Communications. Understanding the basic concepts of Wireless LAN K4 HO
				CO4	Understanding the basic concepts of Wireless LAN. Evaluate the performance of Mobile Network Layer K2, K5 HO
				CO5	Understanding the basic concepts of Wireless Application Protocol and create a MoileApp with real-time application. Analyzing the concepts of Routing Protocols in MANET K2, K4, K6 HO
		P23CU12	**Software Project Management**	CO1	Understand the fundamentals of Software Project Management K2/ K4
				CO2	Understand the ProjectEvaluation by Strategic, Technical and Cost analysis K2/ K4
				CO3	Understand the fundamentals of Software effort estimations K2/ K4
				CO4	Understand the Risk Management, risk analysis and monitoring. K2/ K4
				CO5	Understanding the various types of contracts and the Organizational Behavior Background
				CO1	To understand, impart and summarize the concepts of Social media, Social networking and Webcasts K1-K6

		P23DU19	**Social Networks**	CO2	To comprehend, design and develop a Word Press Powered Website K1-K6
				CO3	To understand, implement and perform evaluation of Social Networking and MicroBlogging K1-K6
				CO4	To collaborate, implement and analyse the Widgets and Badges in social networking environment K1-K6
				CO5	To understand, illustrate and perform evaluation of web optimization for social networks K1-K6
		P23DU20P	**Social Networks Lab**	CO1	To understand , implement and review the fundamental techniques and principles for social networks. K1-K6
				CO2	To design and develop the programs using the tools required to develop and manage social network like Facebook, LinkedIn, Google+, GitHub K1-K6
				CO3	To create and explore the functionality of social networking tools such as GitHub K1-K6
				CO4	To understand , implement and review the fundamental principles for social network graphs. K1-K6
				CO5	To comprehend and critically analyse the existing API for social networks K1-K6
		P23DU21	**High Performance Computing**	CO1	Understand of the HPC and ccNUMA concepts K1 - K6
				CO2	Design and develop a parallel programming with modern C, C++ and new version of FORTRAN
				CO3	Apply with parallel computing
				CO4	Develop an efficient OpenMP programming
				CO5	Evaluate an efficient MPI programming
		P23DU22P	**High Performance Computing Lab**	CO1	Apply and Evaluate the HPC Programs K1 - K6
				CO2	Design and Develop a MPI Programs
				CO3	Design and Develop a different programming concepts of OpenMP
				CO4	Develop an efficient PB and Slurm programming
				CO5	Evaluate an efficient CUDA programming