COURSE OUTCOMES PG MASTERS IN ECONOMICS			
SUBJECTS	**CONTENT**	**OBJECTIVES/ OUTCOME DESIRED**	**HOW ARE THE OUTCOME ACHIEVED?**
MICRO ECONOMICS	**(SEMESTER 1)** Central ideas of Economics,Methodology of Economics as a Social Science,Equilibrium,Types,Stability Analysis,Analysis of consumer choice under Certainty,Consumer Surplus,Application of Indifference Curve,Market demand,Analysis of Consumer Choice under Uncertainty,Analysis of Consumer Behaviour under Asymmetric Information,Theory of production and costs,Multiple Input	The objective of the paper is to rigorously and comprehensively equip the students with theoretical concepts, methodology and process of reasoning involved in analysing economic behaviour of individuals, firms and markets using, in general, a static and partial equilibrium framework.	To achieve the desired outcomes apart from lecture methods teachers uses audio visual clips ,PPT presentations and mass media tools. Extension lectures by eminent personalities and veterans in the field are organised. For topics requiring more pragmatic exposure field trips and workshops are arranged ,group discussions, debates and quizzes and article writing also encourage deep insight into the curriculum. Many of the students have been able to carve a niche for themselves in business world with start -up and others have been placed well in jobs. Students have been able to crack competitive exams like Indian Economic Services, UGC-NET, Bank P.O.'s and clerical and TET. In last 5 years ,more than 15 students have cleared UGC-NET, one cleared Indian Economic Services and 2 Bank P.O's and 10 have cleared clerical. Also our 3 students are doing higher degree's in the subject from foreign universities. The understanding of the curriculum has been able to equip the students to be productive and employable for the society. Students are well settled across the world. Many of them are pursuing higher studies i.e. doing M.Phil and PHD in India also and are working as the lecturers , school teachers, bank employees, research scholars and are on administrative

	decisions,Economies and Diseconomies of Scale		posts. Thus the grasp on the subject and application of acquired knowledge regarding market dynamics is being fruitful.
	(SEMESTER 2) Analysis of Competitive Markets, Monopoly, Monopolistic Competition ,Oligopoly, Markets for Factor Inputs(Factor Pricing under Perfect Competition: Factor Pricing under Imperfect Competition), Welfare Economics(Social Welfare Function, General Equilibrium and Efficiency, Externalities & Efficiency)		
INTERNATIONAL ECONOMICS	**(SEMESTER 1)** **International Trade Theory:** Trade Based on Absolute Advantage: (Adam	The course intends to provide a deep understanding about the broad principles and theories, which tend to	

	Smith), Comparative Advantage (David Ricardo) Advantage and Opportunity Costs (Haberler's theory, Gains from trade under constant cost as well as increasing costs). Resources and Trade: Heckscher-Ohlin Model, Leontief Paradox. Imperfect Competition and International Trade (Intra-industry trade), Trade Based on Dynamic Technological Differences (Technological Gap and Product Cycle Models) , **International Trade Policy:** Theory of Tariffs: Partial Equilibrium analysis of Tariff (both small country and large country case),General	govern the free flow of trade in goods, services and capital – both short-term and long-term –at the global level. The contents of the paper spread over different modules, lay stress on the theoryand nature of the subject which, in turn, will greatly help them to examine the impact of the trade policies followed both at the national and international levels as also their welfare implications at macro level and the distribution of gains from trade.	

	Equilibrium analysis of a Tariff (both small country and large country case). Optimum tariff. Non-Tariff Barriers and Neo-protectionism. Economic Integration: Theory of Customs Unions. Static effects (Trade creation and trade diversion). Dynamic effects of custom unions,**The Balance of Payments:** Concept and Components of Balance of Payment. The Price Adjustment Mechanism with Flexible and Fixed Exchange Rates, Marshall-Learner conditions, J-curve effect, Gold Standard (Price-Species Flow Mechanism). The Income Adjustment		

	Mechanism, Foreign Trade Multiplier. Open-Economy Macroeconomics and Adjustment Policies: Equilibrium in the Goods Market, in the Money Market and in the Balance of Payments (Mundell-Fleming Model),**Foreign Exchange Markets and International Monetary System:**Foreign Exchange Rates, Arbitrage, Spot and Forward Rates, Currency Swaps, Futures and Options, Foreign Exchange Risks, Hedging and Speculation. Euro currency Markets. The International Monetary System: Past, Present and		

	Future.		
PUBLIC FINANCE	**(SEMESTER 2)** Comparison of Provision of Private Goods and Public Goods in General Equilibrium (Pareto's Optimality criteria.) Equity in Distribution. Various approaches to distributive Justice. Public Choice and Fiscal Policies. Voting rules. Various Approaches of Equity in Taxation: Benefit Principle including Lindahl Theory. Ability to Pay Approach. Incidence analysis of taxation in various markets. Effects of Taxation on Work Effort, Savings and Investment, Deficit Financing: Concept and its relation with	Role and functions of the Government in an economy have been changing with the passage of time. The term 'Public Finance' has traditionally been applied to the package of those policies and operations which involve the use of tax and expenditure measures while budgetary policy is an important part to understand the basic problems of use of resources, distribution of income etc. Thereare vast array of fiscal institutions – tax systems, expenditure programmes, budgetary procedures, stabilization instruments, debt issues, levels of government etc., which raise a spectrum of issues arising from the operation of these institutions. Further, the	

	Inflation, Deficit Financing in India. Issues relating to Public Debt: Debt Burden Analysis and Management of Public Debt, Domar's concept of Debt Sustainability Public Debt in India. Need for rule based fiscal consolidation. Fiscal Responsibility and Budget management (FRBM) act, 2003. Recent amendments to FRBM act.Theories of Public Expenditure: Wagner's Law and Peacock - Wiseman Hypothesis. Structure and Classification of Public expenditure in India. Principles of Multiunit Finance (Central. State and regional level) Centre – State Financial Relations in	existing of externalities, concern for adjustment in the distribution of income and wealth, etc. require political processes for their solution in a manner which combines individual freedom and justice. This paper combines a thorough understanding of fiscal institutions with a careful analysis of the issues which under line budgetary policies in general and Indian experience in particular	

	India: Assessment of Horizontal and vertical imbalances. Role ofFinance commissions		
ECONOMICS OF GROWTH AND DEVELOPMENT	**(SEMESTER 3) Understanding Development:**Measuring Inequalities in a heterogeneous World – Islands of Prosperity and how the other half Lives. Dividing the World and levels of development. Development as an evolving concept. Goulet's Three Core Values of Development. Sen's Conception of Development. Income based Measures and their Inadequacies. PQLI and HDI as indicators of development,	As a sequel to the post-second war developments, the study of Economic Development gained impetus because three-fourths of humanity was experiencing wretched conditions of existence. There was a pressing need in those countries for uplifting their economic conditions by restructuring their economies to acquire greater diversity, efficiency and equity, in consonance with their priorities. Since a variety of perspectives were available, the policy makers were eager to acquaint themselves with various policy options in their bid to re-construct	

	Common Characteristics of Developing Nations: The Vicious Circle of Poverty (Nurkse), Low Level Equilibrium Trap (Nelson), Critical Minimum Effort Theory (Lebenstein). Dualism (Social and Technological). Institutions and Economic Development (D.C. North). Development in Historical Perspective: Dependency theory: its forms and effects. Neo Imperialism and Neo colonialism, **Theories and Models of Development:** Classical, Karl Marx, Schumpeter, Rostow's Theory of stages of Economic growth. Harrod-DomarModel ,	their dilapidated economies. In addition, various international bodies were also keen to help and guide the laggards. Consequently, the study of development economics assumed greater significance.In recent times, the resurgence of marketism and greater focus on areas like education, health, sanitation, energy and environment, and infrastructure development, hithperto relegated to the background, have reopened some of the old debates besides opening up new areas of investigation. Growth and Development economists are making earnest efforts at theorizing to break fresh grounds. Consequently, study of this discipline continues to be	

	Solow Model, Endogenous growth models.**Population Growth, Economic Development and Environment:** Theory of Demographic Transition, Interrelation between Population Growth and Economic Development, Urban Development and Environment. Natural resources, Environmental degradation and Sustainable Economic Development.	of prime importance. Modules incorporated in this paper are devoted to the theories of growth and development, importance of agriculture, and the rational and pattern of industrialization in developing countries. The other important issues in the context of development such as infrastructure – linkages, role of international trade, importance of economic policies and relevance of planning have been included in the modules of this paper. The time-tested method of imparting verbal instructions through lectures would be used. Examples, in so far as possible, would be selected from everyday life/experience.	
	(SEMESTER 4) Economic Growth and	The main objective of this course is to look at the	

	Structural Change: Structural Changes in the Composition of Gross Domestic Product and Occupational Structure. Exploring the Relationship between Economic Development and Income Distribution: Kuznets' inverted U–Shaped Curve and Augmented Kuznets'Curve, **Agriculture-Industry Interface:** The Models of Lewis, Fei and Ranis and Todaro. The Balanced Growth Doctrine (Rosenstein Rodan), Unbalanced Growth (Hirschman's version), **Investment Criteria:** Investment Criteria; Choice of Technique.**Economic Isolation and**	process of growth and development in terms of its characteristics such as structural transformation, pattern of distribution of income, its inter sectoral interface. In addition, it also aims to take up issues pertaining of the emerging lobal scenario and the debate concerning the planning vs marketism which is so vital for development theorists and practitioners.	

	Integration with the Global Market: International Trade and Economic Development; Foreign aid and Economic Development ; Role of Foreign Direct Investment (FDI) and Multi-National Corporations (MNCs) in the Emerging Scenario. **Market and State:** An Overview of the Economic Functions of the Market and State. Planning and Market: Planning by direction, Planning by market, Planning in backward areas. From Washington to post-Washington consensus.		
ECONOMICS OF INDUSTRY	**(SEMESTER 3)** Constraints of	In the contemporary world with globalization and	

	Proprietorship. Advantages of Modern Corporation. Critiques of Profit Maximization Hypothesis. Non-profit Maximization models: Boumol, Williamson, Marris and Cyert and March. Critical overview of Non-Profit Maximization Hypothesis, Monopoly Power and Oligopolistic Market Structure. Measures of Sellers' Concentration and advantages of the HHI index. Deterministic Explanation of Sellers' Concentration: Economies of Scale, Barriers to Entry, Mergers, Size and Growth of Markets; Stochastic Explanation, Market Conduct under	liberalization, more and more attention is being given to industry. Since industry performance critically depends on firms' behaviour allowing equilibrium outcome, the course intends to provide a rigorous knowledge of different long-run equilibrium outcome of firms under different conditions from the point of view of public policy. The students are also equipped to deal with debates involved in the industrial development in a cogent and analytical manner, particularly in the Indian context. However, it should be noted that Game Theoretic approach to any topic/problem is outside the scope of the present syllabus	

	Oligopoly: Concepts and Overview of Outcomes under Interdependence: Concepts of Cournot and Bertrand Rivalry, Collusive Conduct and Dominant Firm Behaviour and Potential Competition. Limit Price and Contestable Markets. Non-Price Competition with Reference to Advertising: Dorfman-Steiner Condition and its Critique. Evolution of Structure-Conduct-Performance Hypothesis, Market Performance: Market Structure and Profitability; Collusion versus Efficiency. Issue of Allocative Efficiency. Issues of Productive Efficiency and Sub-Optimal		

	Capacity; factors explaining sub-optimal capacity		
	(SEMESTER 4) Rivalry; Conditions Facilitating and Hindering Collusive Conduct. Potential Competition: Limit Price versus Strategy by Dominant Firm. Direct costs based strategy: rising Rivals Costs; Indirect Strategies: capacity and marketing. Rivalry with Efficiency and Product Differentiation Relationship between Market Structure and Technological Progress: Economics of innovation; Arrow and Schumpeter. Timing of Innovation and Innovation as a strategic Conduct,		

	Market Power and Efficiency Related Causes of Different Types of Merger: Horizontal; Vertical and Conglomerate. Causes of different types of Takeovers. Evaluation of Merger Policy: US experience, Macro Economic Issues: Means Thesis on Administered Pricing by Firms; The Kinked Demand Curve and Full Cost Pricing; Transaction Costs and Price Rigidity, Issues of Price Discrimination: Nature of Price Discrimination. Effects of Price Discrimination: welfare, Efficiency and Competition,Public Policy towards Market Structure, Conduct and Performance.		

	Optimality of Perfect Competition. Costs of Monopoly: Theoretical Issues and Empirical Measurement of Social Welfare Loses. Evolution of Govt. of Indian Policy towards Monopolistic and Restrictive Practices: Theoretical issues.		
ECONOMICS OF POPULATION	**(SEMESTER 3)** Theories of Population; Malthus, Marxian, Liebenstein, Becker. Demographic Transition Theory and Optimum Population Theory. Population and Economic Development. Population as "Limits to Growth and as Ultimate Source", Population Structure and Characteristics : Impact of Population	The main objective of this paper is to make the students aware of the importance of population in economic development and the various theories that explain the growth of population in a country. 43 The study of Quantitative and Qualitative composition of population is also required to understand the dynamics of population growth. Migration and urbanization are the	

	Growth on Age and Gender Structure. Aging of Population. Concept of Fertility Transition. Measurement of Fertility and Fertility Differentials in India. Mortality : Components and Measurement. Mortality Differentials in India: Rural-Urban, Age and Gender, Migration : Concepts, Measurement, Migration Selectivity, Causes and Consequences of Migration. Migration in India : Causes and Trends. Migration Differentials in India : Rural-Urban, Male-Female. Estimation of Population in India : Census, Sampling Vital Registration Methods.	characteristics of structural changes taking place in the economy	

	Growth and Structure on Indian Population since Independence. Population Policy in India since Independence.		
MACRO ECONOMICS	**(SEMESTER I)** Income and Employment Determination: Integrated Classical and Keynesian Models of Income and Employment Determination; commodity, money (including bond market of Keynes), and labour markets. Wage-Price Flexibility and Automatic Full Employment: Classical Versus Keynesian Approach. Consumption and Consumption Function: Keynes Consumption and	Macroeconomics or aggregative economics analysis establishes the functional relationship between the large aggregates. The aggregate analysis has assumed such a great significance in recent times that a prior understanding of macroeconomic theoretical structure is considered essential for the proper comprehension of the different issues and policies. Macroeconomics now is not only a scientific method of analysis; but also a body of empirical economic knowledge. The paper entitled “Macro-Economics-I” equips the	

	saving functions under Psychological law of consumption, Consumption Puzzle: Absolute Income hypothesis, Relative Income hypothesis, Permanent Income hypothesis and Life Cycle Hypothesis. Consumption under Uncertainty: Random Walk Hypothesis; Interest Rate and Saving; Consumption and Risky Asset: Consumption CAPM. Investment and Investment Function: Type of Investment, Role of investment using Investment Multiplier, Classical and Keynesian Theories of Investment, Accelerator Theory of Investment, Neo-	students at the postgraduate level to understand systemic facts and latest theoretical developments for empirical analysis. The students would be evaluated at the end of each semester through subjective type questions/answers (both short and essay type). The scripts would be evaluated by the examiners having adequate postgraduate teaching experience in the paper/option concerned.	

	Classical Theory of Investment and Tobin's-q Theory of Investment. Effects of Uncertainty, Kinked and Fixed Adjustment Costs, Investment in the Housing Market. Supply of Money: Theoretical Debate and Empirical Attempts to define money; Components of Supply of Money, Credit Creation by Commercial Banks, Money Multiplier. Demand for Money: Classical Quantity Theory, Keynesian Theory, Baumol and Tobin's Contributions. Friedman's Restatement of Quantity Theory of Money. **(SEMESTER-II)**		

	IS and LM Framework: Derivation, Properties, Shifts and Rotations of IS and LM Curves under closed and open economy systems. Derivation, Properties, Shifts, and Rotations of BP Curve. Simultaneous Equilibrium in Money and Product Markets. Impact of Opening-up on simultaneous equilibrium (i.e., IS-LM-BP simultaneous equilibrium). Monetary and Fiscal Policies: Objectives, Conflicts among Objectives. Relative Effectiveness of Monetary and Fiscal Policies under Different Situations in IS-LM-BP Framework. International Trinity and Quadrilemma		

	choices under IS-LM-BP framework. Inflation: Effects of Inflation. Theories of Inflation: Quantity Theory, Keynesian Theory, Monetarist views on Inflation, Modern theory of Inflation, Structural Theory. The menu of policy choices: Philips Curve Analysis –Short Run and Long Run views. The Monetarist-Keynesian Debate and the Phillips Curve. (Trade Cycle Models/Theories) Trade Cycle: Hansen–Samuelson Accelerator–Multiplier Interaction Model, Hicks Model, Kaldor Model, Goodwin model of endogenous cycles. The New Classical		

	School: Rational Expectations Hypothesis: Dynamic Time Inconsistency, Policy Ineffectiveness Proposition. The Random Walk of GDP: The Relative Importance of AD and AS. Real Business Cycle Model: Disturbances and Propagation mechanism. Macroeconomic Policy in Real Business Cycle Model. The New-Keynesian School: Real and Nominal Wage-Price Rigidity Models - Menu Costs Model, Implicit Wage Contract Models, Efficiency Wage Models, Insider-Outsider Models.		

	MA GEOGRAPHY		
MA-I	**Paper-I**Contributions of the Greeks and Romans with special reference to Herodotus, Eratosthenes, Strabo and Ptolemy, Geography in the Middle Ages, Geography and the Renaissance, Pre-Classical and Classical Geography, Darwinism in Geography, Environmental Determinism and Possibilism, Regional Geography, Positivism, Schaefer and Geography as a Spatial Science, Quantitative Revolution, Scientific Method in Geography Criticism of Positivism, Radicalism, Humanism, Behavioralism, Recent Trends and Ideas. **Paper-II**Important Concepts in Geomorphology, Nature, Scope, Approaches and Recent Development, Morphogenetic Region, Volcanic Topography, Fluvial and Aeolian Landforms and Processes, Glacial and Marine Landforms and Processes, Models of Landscape Evolution and Slope Development **Paper-III**Nature, history and recent trends of Cartography, . Landform Mapping and Analysis, Profiles, Calculation of Gradient, scales of slopes, Methods of slope analysis, Representation of Population data & Agriculture data. **Paper-IV**Definition, scope and importance of Political Geography, Recent developments in political geography, Elements of Political	To enable them to understand the development of Geography in the context of developments in the larger arena of knowledge. To understanding of important geomorphic concepts, processes and mechanisms that control the development of landscapes. To awareness the students of the various cartographic techniques available for graphic representation of relief, population, agriculture, industrial and transport data, the steps of construction of the techniques−their merits and demerits. To create awareness about the role of geographical factors in influencing political character of individual countries/regions.	

	Geography Elements of Political Geography, Special themes in Political Geography, Place of electoral study in political geography.		
MA-II	**Paper-I**Climatology, The earth's atmosphere, Atmospheric energy and terrestrial radiation, Temperature, Atmospheric pressure and winds, Atmospheric moisture and precipitation, Air masses, Fronts, **Paper-II**Unity in diversity of India, Role of language, religion and culture in the formation of regions, Regionalisation schemes of India, Northwest India as a Geographic Entity, Land, people, Economy. **Paper-III**Remote Sensing, Radiation Principles, Energy-Atmosphere Interaction, Energy-Earth Interaction, Image Processing and Interpretation, Aerial Photography and Photogrammetry, **Paper-IV**Introduction to Hazards & Disasters, Hazard Mechanisms and Processes, Hazards and Disasters in India, Disaster Management Mechanism	To foster comprehensive understanding of atmospheric phenomena, their dynamics and global climates. The geographic dimensions of India in terms of its political and administrative characteristics. The physical and climatic attributes and their interface with developmental strategies. To expose the students to geospatial technology and develop their skills of interpretation and map making using remote sensing. To introduce students with the idea of natural hazards and disaster management.	
MA-III	**Paper-I**Human Settlement, Settlement System, Town Planning, Preparation of town plan, Problems of town planning in India, Country Planning, Rural Land use and its determinants, Rural development in India during Five Year Plans, Planning for the following problems of rural India i.e. Drinking water, Floods and Soils, Public utility services, Poverty and employment **Paper-II**Meaning and objectives of research, Research problem, Research Design, Measurements in research, scale, Data collection Methods, Processing and Analysis of data, . Hypotheses, Interpretation and Report Writing. **Paper-III**Introduction, Overview & History of GIS, Map Concept, Map Projection, Data Input,	To understand the ways data are collected, classified, tabulated and analyses. To expose the students to fundamental principles of Geographical Information Systems and Global Positioning System including basic concepts and definitions, methods and techniques. To train the students to look at Indian political scenario, issues and challenges from geographical lenses	

	Storage and Editing, Concept of Vector and Raster based Models, GPS, Cartography and Map Production, Presentation of GIS Output. **Paper-IV**Geographical Bases of the Indian State, Geographical Factors in India's Political History, Geography of Electoral support and Representation, Geography of International Relations.		
MA-IV	**Paper-I**Regional planning, Preparation of a regional plan, Planning regions, Surveys for planning, Role of Remote Sensing, GIS and GPS, The process of regional development, Case studies from selected countries. **Paper-II**Field Based Project Report in Geography **Paper-III**Quantification in Geography, Measures of central tendency, Measures of dispersion, Correlation and Regression. **Paper-IV Introduction of** Urban Geography, Attributes and Processes of urban geography, Urban Systems, City-Region Relations, Contemporary Urban Issues	To understand and evaluate the concept of region in geography and its role and relevance in regional planning. To acquaint the student with the importance of field work as one of the methodologies in Geography. To provide knowledge of statistical techniques and their application in geography. To provide an understanding of evolutionary, morphological, and functional attributes of urban places at different scales.	

PG DEPARTMENT OF HINDI

2.6 Student Performance and Learning Outcomes

Paper/ unit-content wise Course outcomes: most course objectives are given in the syllabus. An example is attached for you in an adobe file

Class: MA

Subject : HINDI

attainment of course outcomes:

Semester	Title of the paper	Course content	Objectives of the course/	How were the objectives met

		content		
SEM-1 (PAPER-I)	**HINDI SAHITYA KA MADHYKAAL (HSM)**	**PART-1** 1. Importance of Hindi Literature, Philosophy of Hindi Literature: Historical point of view, Tradition of History writing of Hindi Literature, Basic facts for the History of Hindi Literature, Problems in Re-writing of History of Hindi Literature 2. History of Hindi Literature, Time Division, Time limits, Naming of Time Period 3. Historical Environment & background of Aadikaal,	1. To develop critical and analytical thinking enabling the students to solve the problems of life through their understanding of literature. To increase the intensity of cognition. 2. Preservation of Indian culture and tradition by studying Hindi language and literature. 3. To develop the creative potential among the	Objectives are achieved by: offline and online classes, video lectures, oral presentation, assignments, online guest lectures, extension lecture, seminars, conferences, group discussions, celebration of birth and death anniversary of writers, visiting historical places during educational trips, by encouraging participation in

Literary Feautures, Different trend of Hindi Poetry, Leading Poets
4. Siddha literature, Naath literature, Jain literature & Raaso literature.

PART-2
1. Historical Environment of Bhaktikal, Bhakti Movements, Sagun & Nirgun Bhakti-Kavya, Different trends and features of Bhakti-Kavya
2. Sant-Kavya, Important & Leading Sant-Kavi & his contribution
3. Soofi-Kavya, Important Poets, Indian culture and

scholars by motivating them to write and publish research papers.
4. To inculcate human values in the students.
5. To develop the quality of acting in the students through the study of dramas.

youth festivals and farewell- and welcome parties,

traditional elements in Soofi-Kavya
4. Raam-Kavya, Important Poets and their writing features
5. Krishan-Kavya, Important Poets and their writing features
6. Reeti-kaal: Naming of this writing period, features, different trends in Reeti-Kaal, Important Poets & their Writings

SCD Govt College Dept. Of Geography organized Extension Lecture entitled with "Map Projection and Map Symbology" Delivered by Dr. Simrat Kahlon Chairperson Punjab University Chandigarh Dated on 18.11.201

COURSE OUTCOME: M.COM BI			
1.	MCBI 101: MANAGERIAL SKILLS AND PERSONALITY DEVELOPMENT	Unit-I Management defined – Basic Principles and process of Management. The evolution of Management Science. Planning: – Basic techniques of Planning – Basic factors involved in planning – Key planning points – Strategic consideration in planning. Policy Making: Policy making as a guide to action in the organization – General policies– Basic areas of policy making. Concept of control – Application of the process of control at different levels of management (top, middle and first line). Performance standards – Measurements of performance – Remedial action. An integrated control system in an organization. Motivation – determination of behaviour- Employee as a "Total Person" – Primary incentives. Management by objectives – Management by exception – Decision making theory in management. Unit-II Managerial Skills-Classification: Technical Skills, Human Skills, conceptual skills. Understanding Management and Leadership-Differentiating the roles of managing people – leading, managing, supervising, coaching and performance management Understanding the responsibility of being a manager and a role model. Personal strategies to establish yourself as the new manager or team leader. Management and personal development: Self-assessment and planning for personal development aimed at managerial effectiveness. Managing stress: Symptoms of stress, coping approaches, Major skills needed to initiate, manage and sustain personal development – the skills involved in managing stress. Communication skills, Negotiation skills, Engaging employees for superior Performance, Leadership skills. Self Esteem and Confidence Building, Unit III Managerial Personality Development: Find out how you think, determine what you value, be clear what drives you, audit your	The purpose of this subject is to give the students the knowledge of the basic managerial skills. It also helps in not only development of oral and written communication skills but also to enhance the overall personality of students.

		skills, and describe your personality. Take a process view of your life, paint your figure, define your goals, make choices, identify your developmental needs, and overcome resistance. Build Your Network, develop a positive self-image, empowerment, use a mentor, learn how to learn, measure yourself, Increase Your Professionalism, Group Discussion on current social, cultural and popular topics. Unit-IV Interpersonal Skills: Negotiations, social skills, assertive skills, cross-cultural communications. Leadership Skills: Concepts of leadership, leadership styles, insights from good leaders. Be assertive, aim for win-win, consult effectively, be a team player, help other achieve, use power and influence, look good, sound good. Career management – selfassessment, moving forward. Managing ethically. Managing diversity, coaching skills	
	MCBI 102: BUSINESS ENVIRONMENT	Unit-I Theoretical Framework of Business Environment: Concept, significant and nature of business environment; elements of environment – internal and external; changing dimensions of business environment; techniques of environmental scanning and monitoring. Economic Environment of Business: Significance and elements of economic environment; Economic systems and business environment; economic planning in India; Unit-II Industrial Policies: A brief review of industrial policies since independence, Industrial policy of 1991 and recent developments, Policy on foreign direct investment in Indian industry. Fiscal Policy: Public revenues, public expenditure, public debt, development activities financed by public expenditure, an evaluation of recent fiscal policy of Government of India – Highlights of Budget. Monetary Policy: Demand for and supply of money, Objectives of monetary and credit policy, recent trends-Role of Finance Commission. Unit-III Balance of Payments: Structure, Major components, causes for dis-equilibrium in Balance of Payments, correction measures, Impact of New Economic Policy on Balance of Payments, Recent trends. India's Trade Policy – Magnitude and direction of Indian International	This subject is taught to the students to provide them insights about various environmental factors and their repercussions on business. This will help the students to remain vigilant about various changes in the business environment.

		trade, bilateral and multilateral trade agreements, EXIM Policy, Role of EXIM Bank. WTO: Nature and scope - Organisation and structure – trading blocks – role and functions of WTO in promoting world trade – Principles followed- Agreements reached in the Uruguay round including TRIPS, TRIMS and GATS, Disputes settlement mechanism- Dumping and Anti-dumping measures – Critical review of WTO functioning. Unit-IV Money and Capital market: Features and components of Indian Financial system, objectives, features and structure of Money market and capital market, recent developments- Stock Exchanges, Investor Protection and Role of SEBI. Legal Framework: Special features of The SICA (Special Provisions) 1985.	
	MCBI 103: ORGANISATION BEHAVIOUR	Unit-I Introduction, emergence of O.B. as a discipline, Contributing disciplines to the O.B. field, Organisational Behaviour Trends, the changing workforce, challenges and opportunities for O.B..Personality: Determinants of personality, measurement and various dimensions of personality development Perception: concept and meaning; factors influencing perception, link between perception and individual decision making; managerial application of perception Attitude: Types of attitude, Management of attitudes and work- force diversity in business organization Values: significance of values in business management. Unit –II Motivation: Concept and definition Theories of motivation Leadership: Theories of leadership style . Contemporary issues in leadership learning: concepts and theories. Leadership – Trait theories, cognitive theories, inspirational approaches to leadership, emotional intelligence and leadership challenges to the leadership, construct power, policies and leadership. Unit-III Individual decision making and problem solving Group dimensions of organizational behaviour: Understanding and managing group processes, Nature and Concept of group, Group development process; Interpersonal and group dynamics: Meaning and	OB is directly concerned with the understanding, prediction and control of human behaviour in organisations. This area of study that investigate the impact that individuals, groups and structure have on behaviour within organisation for the purpose of applying such knowledge help towards improving an organisation's effectiveness.

		Applications of emotional Intelligence in organization; Understanding work teams. Unit-IV Conflict and negotiation. Conflict and inter-group behaviour, types and sources of conflict, functional and dysfunctional aspects of conflicts, approaches of conflict management. Organization culture, functions of organization culture, creating and sustaining organization culture, development and implications of organization culture.	
	MCBI 104: QUANTITATIVE SKILLS FOR BUSINESS INNOVATION	Unit-I Mathematical basis of managerial decision: Functions-Applications of Functions-Some special Functions. A.P. & G.P. and their managerial Application, Matrices, Matrices: Simultaneous equations by Cramer's rule, Matrix Inversion method, Guass Elimination method. Markov Chains & their applications. Frequency Distribution and their Analysis; Unit-II Mathematics of Finance Limits and Continuity, Differentiation. Applications of Differentiation, Integration. Unit-III Algebra Refresher, Applications of Equations and Inequalities, Functions and Graphs, Lines, Parabolas, and Systems, Exponential and Logarithmic Functions. Unit-IV Measures of Central Tendency, Standard Deviation, Variance, Correlation and Regression Analysis, Time Series Analysis and Forecasting. Probability Theory and Probability Distributions - Binomial, Poisson, Normal and Exponential, ANOVA.	This course provides an introduction to use of quantitative tools and techniques to analyse corporate/business situations in current market scenario.
	MCBI 105: ENTREPRENEURSHIP, CREATIVITY AND INNOVATIONS IN BUSINESS	Unit-I Entrepreneurship definition, framework models, entrepreneurship as a process, importance for the society and economy, entrepreneurial attitudes. Entrepreneurial personality: Personality characteristics, skills, motivation, and attitudes of entrepreneurs. Analysis of own strengths and weaknesses related to business foundation and management. Unit-II Creativity development: Methods supporting creative thinking and innovations and their application. The creative process in new product, service and organisational development Entrepreneurial opportunities recognition and development: Coming up with new ideas, innovation process. Recognition of unsatisfied market need	This subject provides overview of entrepreneurship and supports entrepreneurial attitude and skills so that they can be used to motivate students to start their own business. This subject will help to inculcate entrepreneurial skills among students.

		and/or ineffectively used resources. Becoming an entrepreneur: Start-up activities and process, steps and challenges. Creativity and innovation in entrepreneurial organisations. Cultural diversity and creativity Unit-III Buying an existing venture. Project validation: Techniques and concepts used for opportunity evaluation. Business idea development, business concept. - Acquisition of an entrepreneurial team and employees: composition and management of an entrepreneurial team, employee selection. Training of sales and negotiation skills. Business idea and intellectual property. Corporate entrepreneurship: the need for entrepreneurship in corporations, barriers and how to overcome them, innovation champion and his/her activities, entrepreneurship support. Unit-IV Managing business growth: growth dimensions and phases. The role change: from an entrepreneur to a manager. Overcoming growth barriers. Self-development and time management, finding balance between business running and personal life. Business succession and exit strategies. Technology, creativity and innovation. Creative talent and the rise of the creative businesses	
	MCBI 106: ACCOUNTING FOR MANAGERS	Unit-I Financial Accounting-concept, importance and scope, accounting principles, journal, ledger, trial balance, depreciation (straight line and diminishing balance methodology), and preparation of final accounts with adjustments. Brief Introduction of International Financial Reporting Standards (IFRS) Unit-II Financial statement analysis, Ratio analysis, Common Size statements, Comparative analysis, trend analysis, cash flow analysis, accounting for price level changes, human resource accounting, social and environmental accounting. Unit-III Management accounting- concept, need importance and scope; cost accounting meaning, importance, methods, techniques and classification of costs, inventory valuation. Unit-IV Budgetary control- meaning, need, objectives, essentials of budgeting, different types of budgets; standard costing and variance analysis	This subject enhances the knowledge of students regarding various concepts, techniques and methods of financial accounting which will further help them in making good managerial decisions.

		(materials, labour); marginal costing and its application in managerial decision making.	
	MCBI 107: WORKSHOP ON INFORMATION TECHNOLOGY	Unit-I Computer Literacy: Understand how a computer works. Components of a computer. Machine language used by computers, the components of the hardware, and how it all fits together low-level workings of computer networks. Artificial intelligence, Creative aspects of Computer, an algorithm and a computer program, what are the underlying structure of a computer network, and computer crime, and the impact of computers on society. Unit-II Basics of the Computer: Navigation of the computer-overview of basics, saving on the computer, A:/drive, Minimize and Maximize, Basic mouse features, Double-click and single-click, Creating folders, Deleting files, Renaming files, Customizing folder views, Keyboard familiarity. Word basics: Opening Programs from Start button Opening existing documents, Editing a document, Creating a new document, Undo , Highlighting shortcuts, Entering and formatting text, Bold, Italic, Underline, Center, right and left aligned, Change font and size , Save and Save as, Print preview and Printing, Find and Replace, Page numbers , Headers and footers, Changing margins, Using preset tabs, Showing hidden characters, Checking spelling, Finding help, Typing a business letter, Formatting the paragraphs, Double-spacing and single spacing , Moving and copying text, Creating a poster, Using word art, Drawing tools, Clipart, Copying a picture from a file Unit-III Excel Basics: What is a spreadsheet and why would I use one?, Create a simple spreadsheet, Common ,Definitions: rows, columns, and cell, Formatting a cell, Demonstration of advanced features (by instructor), charts, graphs, formulas, sort, find, and filter. Basics of Microsoft Power Point. Unit-IV Internet Basics: What's so great about the Internet?, Basic Navigating inside and between web pages, Copying text and graphics from the web, Bookmarks, Search engines and how to perform searches , How to evaluate	This subject gives the knowledge about the basics of computers, its functions, tools and its uses in commerce and management.

		websites?	
	MCBI 108: WORKSHOP ON BUSINESS ETIQUETTES AND PROFESSIONALISM	Unit-I Introduction to Business Etiquette: Business Etiquette-Meaning and Definition, Role of Good Manners in Business, the ABCs of Etiquette. Meeting and Greeting Scenarios: Guidelines for Receptionists, Making Introductions and Greeting People, Introducing a client, Introducing Yourself, The Protocol of Shaking Hands. Unit-II Meeting & Board Room Protocol: Guidelines for Planning a Meeting, Guidelines for Attending a Meeting , Protocol for Chairperson and Members attending the meeting. The costs and benefits of meetings. Post meeting follow up. Entertaining Etiquettes: Objectives, Introduction, Planning a Meal Meeting, Business Meals Basics, Basics of Table Etiquette, Eating the Meal, Issuing Invitations, Choosing the Appropriate Gift in the Business Environment. Office protocol: Office etiquette, Cubicle and office etiquette, Office relationships. Unit-III Professionalism: Meaning and Definition, tips for business owners and career professionals, Trends in Professionalism, Balancing business with professionalism. Presenting yourself professionally, professional appearance, personal organization,, professional communications: Making introductions, Networking skills, active listening. Unit-IV Professional conduct: Creating Impact-A code of Professional conduct, Appropriate use of the Internet, Ethical dilemmas, Personal issues in the workplace. Communicating in the workplace: Introductions, Conversations, Etiquette in meetings. Etiquette in communication: Telephone courtesy, E-mail etiquette, Writing guidelines, Cultural considerations. Traveling for business: The courteous traveler, International travel.	The objective of this course is to equip the students with the fundamentals of business etiquette and teach them to build relationships that create a professional appearance, develop positivity relationship with co-workers and practice cubicle and office etiquette.
2.	MCBI 201: ECONOMICS FOR INNOVATIVE BUSINESS DECISIONS	Unit-I Introduction to Managerial Economics: Managerial Decision Making and Economic Theory, Goals of the firm: Measuring and Maximizing Economic Profit, Economic Cost of Using Resources, Economic Profit versus Accounting Profit, Other Goals (Value Maximization, Revenue Maximization etc.), Forms of Business	The objective of this course is to acquaint the students with the basic economic theory useful for taking innovative business decisions.

		Organization, Separation of Ownership and Control, Pricing decisions under Risk and Uncertainty, The PrincipalAgent Problem, Asymmetric Information, Moral Hazard and Adverse Selection. Demand Analysis: (A) Demand Functions - Law of Demand, Explaining the law of demand, Violations of the Law of Demand, Shifts in Demand; Elasticity of Demand: Price Elasticity (at a point and over and interval), Factors affecting price elasticity, Price elasticity and Change in Total Revenue, AR, MR and Price elasticity, Range of Values of Price Elasticity; Income Elasticity, Inferior, Superior and Normal goods, Income Elasticity and Share in Total Expenditure; Cross- Price Elasticity, Substitutes and Complements; (B) Introduction to methods of demand estimation (C) Indifference curves, budget line and consumer equilibrium, ICC, PCC (idea only) Unit-II Production and Cost Analysis -(A) Production Function, Short Run and Long Run, Production with One Variable Input, Total Product, Average and Marginal Products, Law of Variable proportions, Relationship between TP, AP and MP. (B) Short Run Costs of Production, Fixed and Variable Costs, Short Run Total, Average and Marginal Cost and Relationship between them, Short Run Cost Curves, Relationship between AVC, MC, AP and MP; Long run cost curves, Relationship between LAC and SAC, Economies of Scale and Scope, (C) Production with Two Variable Inputs, Iso-quants – Characteristics, Marginal Rate of Technical Substitution, Laws of Returns to Scale, Isocost Curves, Finding the Optimal Combination of Inputs, Production of a given output at Minimum Cost, Production of Maximum Output with a given level of Cost, Expansion Path, Finding the Long Run Cost Schedules from the Production Function, (D) Law of supply, elasticity of supply, market equilibrium, changes in equilibrium. Unit-III Managerial Decision Making under Alternative Market Structures-(A) Characteristics of Perfect Competition, Profit Maximization in Competitive Markets, Output Decision in the Short Run, Shut	

		Down Point, Short Run Supply for the Firm and Industry; Output Decision in the Long Run, Break Even Point, Long Run Supply for the Perfectly Competitive Industry, Profit Maximizing Input Usage under Competitive Conditions; (B) Profit Maximization under Monopoly, Output and Pricing Decisions in the Short and Long Run, (C) Short and long run equilibrium under monopolistic competition (D) Interdependence of strategic decision making – oligopoly, Collusion – cartels, price leadership. Unit-IV Pricing Decisions-Price Discrimination under Monopoly, Average Cost Pricing, Marginal cost pricing, Peak Load Pricing, Limit Pricing, Multi-product Pricing, Transfer Pricing. Externalities and Market Failure Understanding externalities and market failures, pricing under market failure	
	MCBI 202: FINANCIAL MANAGEMENT	Unit-I Introduction – traditional and modern Concept of Finance Function, nature, Scope and Importance, function and Financial decisions, Financial Environment. Financial Planning – Meaning and Steps in Financial Planning, Capitalization – Over and Under Capitalization, capitalization Theory. Unit-II Capital Budgeting: Evaluation of Projects using DCF and Non DCF methods. Leverage – Meaning, Significance and Types. Cost of Capital: Simple problem based on Computation of Cost of Individual source of finance (Equity, Debt and Preference) and Weighted average cost of capital (WACC) using Book value and Market value Weights. Capital Structure and Cost of Capital, Theories of Capital Structure, Designing Optimal Capital Structure, EBIT, and EPS Analysis. Unit-III Working Capital Management – Concepts, Needs and Nature of working Capital, Methods of determining Working Capital, Requirement, Financing and Control of Working Capital. Management of Earnings, Retained Earnings, and Dividend Policies, Dividend Practice and Dividend Models. Unit-IV Management of long term funds, Source of Long term Finance, Financial Institutions and Term Lending Lease Financing, mergers and Acquisitions.	The objective of this subject is to provide conceptual knowledge of the tools of financial and analysis and management and various long-term source of finance. It also aims at helping them to develop skills for making financial decision in practical business situations.

	MCBI 203: CORPORATE PERFORMANCE MEASUREMENT	MCBI: 203-CORPORATE PERFORMANCE MEASUREMENT Objective: The purpose of this course is to introduce students to the types of managerial information used to effectively and efficiently run the business. The emphasis is on understanding the kind of information to ask for in various decision settings and how to use it (the managerial function) as opposed to the technical details of how to produce the data (the accounting function). Unit-I Corporate Performance Measurement-Need and Importance; Historical Overview; Product Costing in price estimates and profit management; Techniques to measure and enhance profitability and quality of products and services; Activity Based Management, Target and Kaizen costing; benchmarking and environmental costing; Flexible Budgeting, and Activitybased Budgeting. Unit-II Setting of performance goals and incentives, and the use of diagnostic tools and control; systems to achieve the goals; Strategic Profitability Analysis; Measuring performance using Economic Value Added (EVA) methodology; Comparison between Return on Investment (ROI) and EVA methodology of measuring performance. Unit-III Measurement of Corporate Performance through Balanced Scorecard and its value creation potential;. Rationality behind balance score card; performance dimensions of the balance score card; Throughput Accounting; Comparison of Activity Based Costing, Unit-IV Information Systems aspects of management control; Control-needs of Information flow, and its consolidation in multi-locational setting; Management Control System and its applications; Responsibility Accounting-Meaning and Methodology, types of responsibility centres, organizational structure of responsibility centres; objectives and methods of transfer pricing, pricing corporate services and administration of transfer pricing.	The purpose of this subject is to introduce students to the types of managerial information used to effectively and efficiently run the business. The emphasis is on understanding the kind of information to ask for in various decision settings and how to use it (the managerial function) as opposed to the technical details of how to produce the data (the accounting function).
	MCBI 204: PRODUCTION AND OPERATOINS MANAGEMENT	Unit-I Operations management: Concept, Functions. Product Design and development – Product design and its characteristics: Product development process (Technical): Product development	The objective of this subject is to provide conceptual knowledge about the operational aspects of business, modern

		techniques .Process selection- Project, job, Batch, Mass and Process types of Production Systems. Product –Process Mix Unit-II Facility Location – importance, Factors in Location Analysis: Location Analysis Techniques. Facility Layout – Objectives: Advantages: Basic types of layouts. Capacity Planning – Concepts: Factors Affecting Capacity Planning, Capacity Planning Decisions. Production Planning & Control (PPC) –Concepts, Objectives, Functions. Work Study – Productivity: Method Study; Work Measurement. Unit-III Introduction to modern productivity techniques – just in time, Kanban system. Total Quality Management & six sigma. Functions of Purchasing Management – Objectives, Functions: Methods: Procedure. Value analysis – Concepts. Stock control systems. Virtual factory concept. Production worksheets. Unit-IV Inventory Management – Concepts, Classification: Objectives: Factors Affecting Inventory Control Policy: Inventory costs: Basic EOQ Model: Re-order Level: ABC Analysis.	productivity techniques and inventory management.
	MCBI 205: BUSINESS INTELLIGENCE	Unit-1 Business Intelligence Foundation : Background Introduction, Concepts, information storing and retrieval, semantics and ontologies , handling unformatted information, handling information with many different formats, information logistics, interpreting information and learning Unit-II Business Intelligence Techniques: A. Data Warehousing B. Data Mining and Techniques C. OLAP D. Business Intelligence System & Software Unit-III Decision Support System (DSS) A. Concepts B. Basic Tools of DSS C. Process of Building DSS D. Decision Trees (DT) Unit-IV Customer Value Creation: Mapping Customer Value Creation, perceived benefits and perceived costs, new strategies, techniques and technologies to win the customers. Customer Value Management (CVM), CVM Process. Customer relationship: Role of commitment, loyalty and trust in customer relationships; managing customer relationships, customer lifetime value	This subject aims at giving the student an understanding of the area of business intelligence, from both a technical and a person/organization perspective and ways of finding business advantages. The student will have both a theoretical knowledge of relevant concepts of the area, as well as a more practically oriented view of possible tools and experiences of their use.
	MCBI 206: OPERATIONS	Unit – I Development – Definition– Characteristics and Phases –	The basic idea of this subject is to acquaint

	RESEARCH	Types of models – peration Research models – applications. ALLOCATION: Linear Programming Problem formulation – Graphical solution – Simplex method – Artificial variables techniques - Two–phase method, Big-M method – Duality Principle. Unit – II TRANSPORTATION PROBLEM – Formulation – Optimal solution, unbalanced transportation problem – Degeneracy. Assignment problem – Formulation – Optimal solution - Variants of Assignment Problem- Traveling Salesman problem. SEQUENCING – Introduction – Flow –Shop sequencing – n jobs through two machines – n jobs through three machines – Job shop sequencing – two jobs through m' machines. Unit – III REPLACEMENT: Introduction – Replacement of items that deteriorate with time when money value is not counted and counted – Replacement of items that fail Completely, group replacement. THEORY OF GAMES: Introduction – Minimax (maximin) – Criterion and optimal strategy – Solution of games with saddle points – Rectangular games without saddle points – 2 X 2 games – dominance principle – m X 2 & 2 X n games – graphical method. Unit –I V WAITING LINES: Introduction – Single Channel – Poisson arrivals – exponential Service times – with infinite population and finite population models– Multichannel Poisson arrivals – exponential service times with infinite population single channel Poisson arrivals. INVENTORY: Introduction – Single item – Deterministic models – Purchase inventory models with one price break and multiple price breaks – shortages are not allowed – Stochastic models – demand may be discrete variable or continuous variable – Instantaneous production. Instantaneous demand and Continuous demand and no set up cost.	the students with the resource allocation techniques and make them familiar with the methodology of finding the best solution in different managerial situations.
	MCBI 207: WORKSHOP ON BUSINESS RESEARCH METHODS	Unit-I Foundation of Research: Meaning, Objectives, Motivation, Utility.Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific method - Understanding the language of research - Concept, Construct, Definition, Variable.	The plan of this subject is to equip the students with latest tools of research in commerce and management to make them competent to analyse the market

		Research Process; Problem Identification & Formulation Measurement Issues - Hypothesis - Qualities of good Hypotheses –Null Hypothesis & Alternative Hypothesis. Hypotheses Testing - Logic & Importance Unit-II Research Design Concept and Importance in Research - Features of a good research design – Exploratory Research Design – concept, types and uses, Descriptive Research Designs - concept, types and uses. Experimental Design: Causal relationships, Concept of Independent & Dependent variables, concomitant variable, extraneous variable, Treatment, Control group. Qualitative and quantitative research: Qualitative research - Quantitative research – Concept of measurement, causality, generalization, replication. Merging the two approaches. Measurement Concept of measurement – Problems in measurement in management research - Validity and Reliability. Levels of measurement - Nominal, Ordinal, Interval, Ratio. Unit-III Attitude Scaling Techniques Concept of Scale – Rating Scales viz. Likert Scales, Semantic Differential Scales, Constant Sum Scales, Graphic Rating Scales – Ranking Scales – Paired Comparison & Forced Ranking. Types of Data Secondary Data - Definition, Sources, Characteristics. Primary Data - Definition, Advantages and disadvantages over secondary data, Observation method, Questionnaire Construction, Personal Interviews, Telephonic Interview, Mail Survey, Email/Internet survey. Unit-IV Sampling: Concepts of Statistical Population, Sample, Sampling Frame, Sampling Error, Sample Size, Non-Response. Characteristics of a good sample. Probability Sample – Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Non-Probability Sample – Judgment, Convenience, Quota & Snowballing methods. Determining size of the sample - Practical considerations in sampling and sample size. Data Analysis Data Preparation – Univariate analysis (frequency tables, bar charts, pie charts, percentages), Bivariate analysis – Cross	trends and behaviour.

		tabulations and Chi-square test including testing hypothesis of association. Interpretation of Data and Report Writing - Layout of a Research Paper	
	MCBI 208: SUMMER TRAINING REPORT AND VIVA VOCE	After the Completion of Second Semester Examination the students will go on 6-8 Weeks summer training in various Industrial undertakings, banking and financial services institutions, and Retail Sector organizations. There they will undertake a project to study a particular problem and file three copies of summer training report within 15 days completion of the training. The student has to file a certificate of completion of training issued by training organization. A VIVA-VOCE Examination will be conducted by the External examiner appointed by the University on the problems undertaken in the summer training report.	This helps the student to gain practical knowledge by working in the company. It helps in overall development of the students.
3.	MCBI 301: BUSINESS LEGISLATION	Unit-I Law of Contract: Definition, Essentials and Types of Contracts, Offer: definition and essentials, Acceptance-definition and essentials, Consideration- definition and essentials, Exceptions to the rule 'no consideration, no contract,' Doctrine of Privity of Contract, Capacity of Parties, Free Consent, Quasi Contract, Legality of Object, Performance of Contract, Termination of contract, Breach of Contract and Remedies. Law of Agency: Essentials, kinds of agents, Rights and Duties of Agent and Principal, Creation of Agency, Termination of Agency Bailment and Pledge –Bailment, Definition, Essential Elements, Rights and Duties of Bailor and Bailee. Pledge- Essentials, Rights and Duties of Pledger and Pledgee Unit-II Negotiable Instruments Act 1881: Nature and Characteristics of Negotiable instruments, Kinds of Negotiable Instruments-Promissory Notes, Bills of Exchange and Cheques. Parties to Negotiable Instruments, Negotiation, Presentment, Discharge and Dishonor of Negotiable Instruments. Law of Insurance – General Principles of Insurance and Life Insurance. Sale of Goods Act 1930: Definition of sale, Sale	The basic idea of this subject is to acquaint the students with the business laws and its operational knowledge to run the business.

		v/s Agreement to Sell, Goods, Price and Time, Condition and Warranties, Express and Implied Conditions, “Doctrine of Caveat Emptor”, Performance of Contract of Sale, Rights of Unpaid Seller. Unit-III Law of Partnership 1932: Definition, Essentials of Partnership, Formation of Partnerships, Kinds of Partners, Authorities, Rights and Liabilities of Partners, Registration of Partnership, Dissolution of Partnership Firm. Companies Act 1956: Definition, Characteristics and Kinds of Companies, Steps in Formation of Company. Memorandum of Association, Articles of Association and Prospectus. Shares: Kinds of Shares, Kinds of Debentures. Directors: Appointment, Power, Duties and Liabilities of Directors. Meeting and Resolutions: Types of Meetings. Auditor: Appointment, Rights and Liabilities of Auditor. Modes of Winding-up of a Company. Unit-IV FEMA: Meaning, Objectives and Scope. Consumer Protection Act 1986: Objectives, Definition, Consumer Protection Councils. Right to Information Act.	
	MCBI 302: TECHNOLOGY MANAGEMENT AND INNOVATIONS	Unit-I Technology management: Scope, components. Technology and environment, Technology and society, Technology Impact analysis, environmental, social, legal, political aspects, methods or techniques for analysis, steps involved. Technology policy strategy: Science and technology Policy of India, implications to industry. Unit-II Technology forecasting need, methodology and methods. Trend Analysis, Analogy, Delphi, Soft System Methodology, Mathematical Models, Simulation, and System Dynamics. Technology Choice and Evaluation, Methods of analyzing alternate technologies, Techno-economic feasibility studies, need for multi-criteria considerations such as, social, environmental, and political, Analytic hierarchy method, Fuzzy multicriteria decision making, and other methods. Unit-III Technology Transfer and Acquisition Import regulations, Implications of "Uruguay Round", and WTO, Bargaining process, Transfer option, MOU. Technology Adoption and Productivity, Adopting technology-human interactions, Organizational redesign	The intention of this subject is to acquaint the students with various aspects of innovations in technology and its impact on business.

		and re-engineering, Technology productivity. Unit-IV Technology Absorption and Innovation, present status in India, need for new outlook, Absorption strategies for acquired technology, Creating new/improved technologies, Innovations. Technology Measurement. Technology Audit.	
	MCBI 303: INNOVATIONS IN HUMAN RESOURCES MANAGEMENT	Unit-I Concept, Nature and scope of Human Resource Management; Human Capital: Work force Challenges in the 21st Century; Multi-sector workforce: Challenges and effective practices; Growth and development of Human Resource Management in India, Emerging trends of HRM in global economy. Human Resource Management for advanced technology, HR strategies for managing innovations. Unit-II Creating the Human Resource base: Concept of equal employment opportunity, Recruitment & Selection-Concept & Objective Concept of affirmative action (Reservation for priority categories), Selection: Procedure, Tests and Interviews Orientation, Promotion: Bases of Promotion, Transfer: Types of Transfer, Separations, and Outplacement. Unit-III Developing Human Resources: Training & Development-Concept, Training Vs Development, Learning Principle, Training need assessment, Types of training programmes, on-the-job and off-the-job, In basket Training, Transactional Analysis, Sensitivity Training, Grid training, Apprenticeship training; Evaluation of Training Programmes. Unit-IV Monitoring and Evaluation Performance Management- Performance Appraisal – objectives, uses, methods, Traditional vs. Modern Methods, Management by objectives (MBO), Assessment center, 360 Appraisal, BARS, Kaizen, JIT and QC.	The ambition of this subject is to introduce the concept of Human Resources Management and latest innovative aspects in managing the human capital.
	MCBI 304: INTELLECTUAL PROPERTY LAWS	Unit-I Intellectual Property Rights (IPR) Introduction - Invention and Creativity - Intellectual Property (IP) - Importance - Protection of IPR - Basic types of property (i. Movable Property ii. Immovable Property and iii. Intellectual Property). Economic Importance of Intellectual Property. International Scenario: TRIPS and other	The purpose of this paper is to acquaint the students with basic knowledge of Intellectual property laws in India and in international scenario.

		Treaties. Unit-II Copy Right: Introduction to Copyright, The Copyright Act, 1957, Copyright vis-à-vis Digital Technology, Software Copyright. Implication of International Conventions in India. Unit-III Industrial Design: Need for Protection of Industrial Designs, The Designs Act, 2000 International Regime relating to Industrial Design. Industrial Designs and Integrated circuits - Protection of Geographical Indications at national and International levels - Application Procedures. Unit-IV Trademark and Passing Off: Introduction to Trade Mark and its Relevance and Need for Protection, Trade Mark Act, 1999, Passing Off. Exhaustion of Right in Trade Mark Domain Name dispute and cyber-squatting. Introduction to Patents Indian Patent Act, 1970 International Regime relating to Patent: Convention and Treaties, Relevant provisions under TRIPs Drug Patent Vis-à-vis Public Health, Software Patent.	
	MCBI 305: WORKSHOP ON REGULATORY FRAMEWORK FOR BANKS AND FINANCIAL SERVICES	Unit-I Evolution of legislative regulation of banking in India; prudential policy framework for banking regulation and supervision; Banking Regulation Act, 1949; Reserve Bank of India Act, Bank Nationalization Act, 1969; A Study of Negotiable Instruments Act, 1881 based on case law. Unit-II the Regional rural banks act, 1976; Regulatory issues and developments in the financial services sector; Indian Insurance Contract. A Study of Indian Insurance Act, 1938. Principle, Policy Conditions, Policies and Organizations of Life Insurance. Unit-III General Insurance Business Act, 1972. General Insurance Corporation of India Act, 1976. Practice of Fire, Marine and Miscellaneous Insurance General Insurance in India– Organisation and Management of General Insurance Companies in India. Regulatory framework for Non-Banking Finance Companies (NBFC's) in India; Registration of NBFC's; Procedure of Registration of NBFC's with RBI; Types of NBFC's registered with RBI; Regulations relating to acceptance of deposits by NBFC's. Unit-IV the Laws relating to regulation of Housing Finance in India; National Housing Bank Act, 1987.	The objective of this workshop is to make the students familiar with the regulatory frame work of banks and financial services in India.

		Depository Services: [SEBI (Depositories and Participants) Regulations,1996]: Introduction, opening and account, filling of dematerialization and rematerialisation request forms, filling the forms for sale and purchase instructions to DPs. Mutual Funds [under SEBI (MF) Regulations 1996] : Introduction, Studying contents of Trust Deed and Investment Management Agreement of a mutual fund, Computation of N.A.V. considering all relevant provisions.	
	MCBI 308: INNOVATIONS IN INTERNATIONAL BUSINESS	Unit – I International Business: Nature, importance and scope; Framework for analyzing international business environment – geographical, economic, socio-cultural, political and legal environment. Unit-II International Economic Environment: World economic and trading situation; International economic institutions and agreements – WTO, UNCAD, IMF, World Bank; Generalized system of preferences, GSTP; International commodity agreements. Unit – III Multinational Corporations: Conceptual framework of MNCs; MNCs and host and home country relations; Technology transfers – importance and types.Nature of International Business Environment : Forces – Political environment – Legal Environment – Technology – Cultural Environment – Country Classifications – Economic Trade Policies Unit – IV Foreign Investment: Capital flows – types and theories of foreign investment; foreign investment flows and barriers.- Foreign Direct Investment	The intention of this subject is to introduce to the students the concept of international business, its environment, its working and challenges.
	MCBI 309: INNOVATIONS IN MARKETING	Unit-I Marketing Concepts & Challenges: Nature and scope of Marketing Management, Marketing process, Marketing environment, Marketing Organizations, Marketing Challenges, Marketing in 21st Century-Innovative approaches (Concepts of Green Marketing, Social Marketing), and Marketing Mix. Unit-II Marketing Planning & Control: Marketing Planning and Marketing Competitiveness, Customer Value, Marketing Planning Process, Identifying and analysing the competitors, Defining the competitive strategy and Marketing Control- Control process.	The subject will help students understand the major concepts and tools of marketing, the environment and how marketers make quick decisions, make adjustments to rapidly changing market conditions, lower costs and build relationships. In that process, they ensure share of the market, share of the mind and add to the bottom line.

		Unit-III Understanding Customer and Marketing Information System: Types of Consumers, Factors influencing consumer behaviour, Consumer Decision making Process, MISsubsystems, Conducting Marketing Research and Demand forecasting. Unit-IV Marketing Strategy: Market Segmentation, Targeting and Positioning, Brand Equity and Crafting Brand Positioning. Internet Marketing-An innovative approach: terminology, foundations of intenet commerce, Internet micro and macro environment, Consumer behaviour on the internet, Concepts of B2B and B2C market, marketing strategy on the internet especially segmenting, targeting and positioning business models on the web.	
4.	MCBI 401: KNOWLEDGE MANAGEMENT	Unit-I Introduction: Definition, evolution, need, drivers, scope, approaches in Organizations, strategies in organizations, components and functions, - understanding knowledge; Learning organization: five components of learning organization, knowledge sources, and documentation. Unit-II Essentials Of Knowledge Management, knowledge creation process, knowledge management techniques, Knowledge creation process, systems and tools, organizational knowledge management architecture and implementation strategies, building the knowledge corporation and implementing knowledge management in organization. Unit-III Knowledge management system life cycle, managing knowledge workers, - knowledge audit, and knowledge management practices in organizations, few case studies. Unit-IV Futuristic KM: Knowledge Engineering, Theory of Computation, Data Structure.	Knowledge management has become a necessary features of today's organisational culture. The future of knowledge lies in its increasing propensity for value, social networks and knowledge enrichment. The behaviourists have to accept the use of technology for storing and disseminating knowledge.
	MCBI 402: ENVIRONMENTAL LAWS AND MANAGEMENT	Unit-I Introduction to Environmental Law and Policy: Concept of Law & Policy, Environmental Law and the Indian Constitution, Law of Crimes & Tort and Environment, Environmental Justice, Equity and Governance , The Environment (Protection) Act, 1986 and Draft National Environmental, Policy 2006 Unit-II Environmental Audit. Environmental Management Systems Standards: ISO 14000 (EMS). Related Issues in Environmental Management.	The main aim of this subject is to acquaint the students with the current environmental laws and policies of the government. The course will also innovate the students in the field of environment management to make the business environment friendly.

		Environmental Design. Environmental Economics. Basics of Data base Management System (DBMS), Geographic Information System (GIS) and Remote Sensing Geographic Information System (GIS) and Remote Sensing in Environmental Management. Unit-III Principles of Environmental Management. Principles of Ecology, Environment & Environmental Management. Policies and Legal Aspect of Environmental management. Environmental Issues, Policies and regulation Impact of urbanization and industrialization, Environmental Impact Assessment, restoration of degraded ecosystems, bioremediation, environmental pollution, global climatic change. Unit-IV Trade and Environment: Introduction to Trade and Environment, Negotiations on Trade and Environment, GATT, WTO, DOHA and beyond, Committee on Trade and Environment, WTO agreements and its relevance to multilateral, Environmental agreements (MEAs) Green Business: Principles and practices of creating and managing a green business. Strategies for setting business goals for sustainability. Aspects of sustainable business practices. Social Responsibility, Firms and Sustainable Development	
	MCBI 403: BUSINESS ETHICS AND CORPORATE GOVERNANCE	Unit-I Ethics in Business: Ethical Theories and Approaches – Teleological, Deontological, Virtue and system development theories; Conflict between moral demands and interest and Ethics in work. Ethical Aspects in Marketing, Finance, HRM and Ethics in Global Business. Unit-II Corporate Governance: Corporate Governance – Meaning, Definition and role, Historical developments, Introduction to agency concepts and problems, Market model of governance, benefits of good governance to companies. Committees on Corporate Governance, International efforts on Corporate Governance-Cadbury Committee, Hampel Committee, Greenbury Committee, OECD Principles. Corporate Governance in Indian Scenario-Growth and Development. Unit-III Corporate Governance and financial performance. Role Players in Corporate Governance: SEBI, Institute of Companies Secretaries	The intention of this subject is to orient students into the ethical orientation in various functional areas of management decision making.

		of India, Institute of Chartered Accountants of India and Government. Corporate Governance and Companies Act 1956. Role of Directors. Harmonization of Accounting Standards. . Unit-IV Business Ethics and Corporate Governance: Introduction, Importance and need for Business Ethics, Corporate Governance ethics. Roots of unethical behavior and issues, National and International Corporate frauds, role of investors.	
	MCBI 404: BUSINESS PROCESS RE-ENGINEERING AND QUALITY MANAGEMENT	Unit-I Introduction to Business Process Re-Engineering (BPR)-History and Basics of BPR, Need and benefits of BPR. Overview of Business Process Re-engineering: Changing business processes: the importance of technology as a driver for organizational change. Change and the manager: change and the human resource: the cultural web and the past: the cultural attributes of change. Business Process Analysis and Selection- Process Mapping and Process Analysis; Business Process Redesign-Assumption Surfacing § Idea Generation, § Selection and Integration, and Process Validation. Detailed Process Design-Process Structure, Technology Structure and Organization Structure. Unit-II BPR Implementation methodology, Necessary attributes of BPR Methodology, Different phases of BPR methodology, BPR Models, Common steps to be taken for implementation of BPR.BPR in Manufacturing Industry-Enablers of BPR in Manufacturing-Agile manufacturing, Lean manufacturing, Just in Time (JIT), Collaborative manufacturing, Intelligent manufacturing, production planning, product planning and development, supply chain management. Unit-III INTRODUCTION: Definition of quality, dimensions of quality, quality planning, quality costs – Analysis techniques for quality costs, basic concepts of Total Quality Management, historical review, principles of TQM, leadership - concepts, role of senior management, quality council, quality statements, strategic planning, Deming philosophy, barriers to TQM implementation. Unit-IV TQM PRINCIPLES Customer satisfaction - customer	The main purpose of this subject is to introduce students with Business Process Re-Engineering, its methodology and the concept of quality management in Industry.

		perception of quality, customer complaints, service quality, customer retention, employee involvement - motivation, empowerment, teams, recognition and reward, performance appraisal, benefits, continuous process improvement - Juran trilogy, PDSA cycle, 5S, Kaizen, supplier partnership - partnering, sourcing, supplier selection, supplier rating, relationship development, performance measures - basic concepts, strategy, performance measure. QUALITY SYSTEMS Need for ISO 9000 and other quality systems, ISO 9000:2000 quality system - elements, implementation of quality system, documentation, quality auditing, QS 9000, ISO 14000 - concept, requirements and benefits	
	MCBI 407: INNOVATIONS IN INTERNATIONAL FINANCE	Unit-I Foundations of international finance; The importance, rewards and risks of international finance; Some recent innovations in international finance-product innovations, securitization, liberalization of domestic financial market practices, incentives resulting from regulations, improvements in technology, increased financial volatility, competition in financial sector and advances in financial research; different faces of risk management and control; Unit-II International financial markets and institutions: international banking and money market; international bond market; international equity markets; futures and options on foreign exchange; currency and interest rate swaps; international portfolio investment. Unit-III Evolution of The International Monetary and Financial System; Managing Short-Term Assets and Liabilities, Long-Run Investment Decisions – The Foreign Investment Decision, Political Risk Management, Multinational Capital Budgeting – Application and Interpretation, Unit-IV Cost of Capital and Capital Structure of the Multinational Firm Dividend Policy of the Multinational Firm, Taxation of the Multinational Firm, Country Risk Analysis, Long Term Financing.	The objective of this paper is to acquaint the students with the innovations in the financial management in the open economies featured by large volume of international trade and high international mobility of factors of production.
	MCBI 408: INNOVATIONS IN RETAIL AND SUPPLY CHAIN	Unit-I Overview of Retailing Environment and Management: Retailing, Definition and Concept, Functions of Retailing Driving	The intention of this paper is to acquaint the students with the innovations which

	MANAGEMENT	Forces for Retailing, Building and Sustaining Relationships, Strategic Planning, Structural Change, Type of Retail Outlets, Market Structure, Retail Planning, Development and Control. Innovations in the Retail Industry and IT revolution. The Customer and Retail Business: Knowing your Customers, focusing on the Consumer, Mapping Out Society, Learning, Attitude. Motivation and Perception. Unit-II Situational Analysis: Retail Institutions by Ownership. Retail Institutions by Store-based Strategy-Mix, Web, Non-store-based and other Forms of Non-Traditional Retailing. Targeting Customers and Gathering Information. Communicating with Customers. Mobile point of sale, Customer identification using RFID, E-catalogue based selling, Digital signage, Intelligent data base. Promotional Strategies used in retailing. Choosing a Store Location: Trading Area Analysis, Site Selection, Store Design and Layout, the Store and its Image, the External Store, Internal Store, Display, Visual Merchandising and Atmospherics. Unit-III Managing Retail Business: Retail Organization and HRM, Retail Organisation and Operations Management, Financial Dimensions, Managing Retail Services. Service Characteristics, Branding, Perceptions of Service Quality. Delivering the Product: Retail Information Systems, Merchandise Management Retail Pricing, Development and Implementing Plans, People in Retailing. International Retailing: Internationalization and Globalization, Shopping at World Stores, Going International, the Internalization Process. Unit-IV Concept of Supply Chain Management: Difference between retail supply chain and manufacturing supply chain, supply chain and logistics. Category and format specific supply chain issues: Food and Grocery supply chain, Apparel and Footwear retailing supply chain, Consumer electronic retailing supply chain, Jewelry, , Home furnishing, Health and Beauty, pharmacy , books and others retailing supply chain .	are taking place in the field of retail management and expose them to the modern concept of retail and supply chains management.
	MCBI 409: INNOVATIONS IN INFORMATION TECHNOLOGY	Unit-I Fundamentals of Information Systems, Systems approach to Problem Solving, Developing IS Solutions, Case studies. Unit-II	The main purpose of this subject is to familiarize the students with the

	FOR BUSINESS	Corporate Databases: Data Organization, Data Arrangement and Access, Creating the Database, Database Management, DBMS Components, Data Models, Data Security. Case studies. Unit-III Transaction Processing System, Decision Support System, Executive Information Systems, Expert Systems, Information Systems in Marketing, Manufacturing, HRM, Accounting and Finance. Case studies. Unit-IV Information Resource Management, Planning, Implementing & Controlling Information Systems, Computer Crimes, Security, Privacy, Ethics & Social issues. Case studies.	management information system in the business world.
	MCBI 410: INNOVATIONS IN HUMAN RESOURCE DEVELOPMENT	Unit-I Human Resource Development (HRD): Meaning and concept, Human Resource Development Vs Human Resource Management, HRD Philosophy and Goals of HRD, HRD Sub-systems/Process Mechanisms, HRD Intervention Mechanism. The evolution of the theory and practice of HRD; The impacts of globalization on HRD; Shifts in HRD thinking and practice: from training to learning; from formal intervention to informal workplace learning, and others. Unit-II Roles and functions of human resource development: Developing human and social capital Undertaking a training needs analysis (TNA) Key stages in the development of the HRD strategy ; The roles of the HRD practitioner and line manager in integrating learning in the workplace ; Selecting and training trainers and facilitators ; Formal training approaches vs. informal training in the work place;• Effectiveness of Training: Identifying Training Needs, Organizing Training Programmes, Innovative tools of effective evaluation and Follow-up of Training, Recent Development in Training System . Unit-III Performance Appraisal & Management, Potential Appraisal & Development, Feedback and Performance Counseling, HRD Climate and Practices in organizations, HRD Culture, HRD Audit, HRD Culture and Climate in Indian Organizations. Career & succession Planning & Development, Introduction to concept and Processes of Quality Management	The aim of this course is to provide students with the theory and practice of human resource development (HRD) - a framework for helping employees to develop their personal and organizational skills, knowledge and abilities. Students will gain insights into how HRD has evolved over time to ensure that an organization has the most appropriate means to train employees and to fully exploit the organizations store of knowledge.

		and continuous improvement processes. Unit-IV HRD in small and medium sized enterprises; HRD in international offices and with international workforces; The HRD wheel: factors influencing the role, responsibilities, and structure of the HR function; Ethical issues for the practitioner and corporate social responsibility; Continuing professional development and reflective practice. Principle challenges for the future of HRD	
COURSE OUTCOME: M.COM			
1.	MC. 101- MANAGERIAL ECONOMICS	UNIT-I Nature and scope of managerial economics, relationship with economic theory, decision sciences, and functional areas of business; Theory of the Firm: Reasons for existence of the firms & their functions, the objective and value of the firm, constraints on the operation of the firms, limitations of the theory of the firm; Nature & Functions of Profits: Business vs. Economic Profits, theories of profit, functions of profit; Tools of Analysis: Marginal Analysis, Optimization, Decision and Game Theory - Concepts; The International Framework of Managerial Economics. UNIT-II The demand for a commodity: Individual's demand, Market demand, and the firm demand; Price, Income & Cross elasticity of demand; Using elasticities in managerial decisions; Theories of consumer behavior. UNIT-III Pricing Practices and Risk Analysis: Price and Output relationship under different market structures; Pricing Theories; Pricing of multiple products; Price discrimination - International price discrimination & Dumping, Transfer Pricing; Risk and Uncertainties in managerial decision making; Measuring risk with probability distribution; Utility Theory and risk aversion. UNIT-IV Technological change and the global market economy: Impact of technological change on productivity, labor and market structure; Industrial innovation and technology and technological environmental forecasting.	The objective of the course is to acquaint students with the concepts of micro–economic theory and their use in business decision making. The effort is to make them capable of using various concepts to deal with business problems in a global economic environment.
	MC. 102 - QUANTITATIVE METHODS FOR BUSINESS	UNIT-I Probability and Probability Distribution: Definitions - Probability Rules –Application of Probability RulesConditional	The objective of the course is to acquaint students with some of the important

		Probability- Bayes theorem- Random Variable and Probability Distributions; Binomial Distribution- Poisson Distribution and Normal Distribution. UNIT-II Statistical Estimation and hypothesis testing: Introduction to Hypothesis testing – Meaning of Population, sample and sampling distribution - parameters and statistics - Central limit theorem - Concept of Standard Error - Confidential limits - Estimation of population parameters - properties of a good estimator - Point and interval estimation – Hypothesis Formulation and testing procedure - Type I and Type II errors - one tail and two tail tests - Sampling of Attributes - Estimation and testing Number and Proportions of Successes, Difference between two proportions. UNIT-III Sampling Variables : Large Samples - Difference between large and small samples - Estimating population mean - testing the significance of Mean - Significance of the difference between means of two samples - Significance between the standard deviations of two samples - Small Samples -'t' test - fixing fiducial limits to population mean – testing the significance of the mean - testing the significance of the difference between two independent means - testing the significance of the difference between two dependent meansF test - meaning - Applications of F test - ANOVA - Assumptions - Procedure - one way and two-way analysis of variance. UNIT-IV Statistical Quality Control - Introduction - Chance and Assignable Causes of Variation Uses of SQC - Process Control and Product Control- Control Charts - Control Charts for Variables -X: Chart – Range chart – Standard deviation chart - Control charts for attributes - C chart -p chart - np chart. Decision Tree Analysis – Decision Making under Uncertainties	statistical techniques for managerial decision making. The emphasis will be on their applications to business and economic situations.
	MC. 103 - MODERN ACCOUNTING THEORY & REPORTING PRACTICES	UNIT-I The Regulatory and Financial Reporting Framework: The International Accounting Standards Board (IASB)-The role and the standard setting process. Progress towards international harmonization. The IASB-Framework for the Preparation and Presentation of Financial Statements; The first-time adoption of	In view of the convergence of the Indian Accounting Standards with the IFRS, it is desirable to equip the students with the required knowledge of International financial reporting standards and

		international financial reporting standards: Objective of financial statements, Qualitative characteristics of financial statements, Elements of financial statements, Recognition and measurement of elements of financial statements, Fair value basis of measurement, Concepts of capital and capital maintenance. UNIT-II Elements of financial statements as per International Financial Reporting Standards: (a) Property, plant and equipment (b). Intangible assets inventories (c). Construction contracts (d). Liabilities (e). Financial instruments (f). Provisions and contingencies (g). Employment and post-employment benefits (h). Accounting for tax (i). Accounting for agriculture (j). Share based payment (k). IFRS- 6: Exploration for and evaluation of mineral resources. UNIT-III Presentation and additional disclosures as per International Financial Reporting Standards (a). Events after the balance sheet data (b). Earnings per share (c). Related party disclosures (d). Interim financial reporting (e). Effects of changes in foreign exchange rates (f.) Segment reporting. UNIT-IV Preparation of external financial reports for single entities as per International Standards (a) Income statements and discontinuing operations (b) Cash flow statements (c) Statement of changes in equity	practices. The students are expected to achieve a clear conceptual understanding of the IFRS and possess sufficient knowledge expected out of an expert.
	MC. 104 - ORGANISATION THEORY AND BEHAVIOUR	UNIT-I Organizational Theories and Behaviour: Classical, Neo - classical and Contemporary. Authority, Power, status, formal and informal structure. Flat and Tall structures. Bureaucratization of organizations. Organizational Behaviour Concepts, determinants, models, challenges and opportunities of OB. Transaction cost and organizational behaviours. Contributing disciplines to the OB. Individual Behaviour: Foundations of individual behaviour, values, attitudes, personality and emotions. Theory X and Theory Y, Chris Argyris behaviour patterns, Perceptual process. UNIT-II Group Decision making and Communication: Concept and nature of decision-making process, Individual versus group decision making, Nominal group technique and Delphi technique, models of	The objective of the course is to develop a theoretical understanding among students about the structure and behavior of organization as it develops over time. The course will also make them capable of realizing the competitiveness for firms.

		communication, communication effectiveness in organizations. Feedback, TA, Johari Window. Motivation: Need hierarchy, Maslow's Need Hierarchy, Two factor theory, Contemporary theories of motivation (ERG, Cognitive evaluation, goal setting, and equity) expectancy model. Behaviour modification, Motivation and organizational Effectiveness. UNIT-III Leadership, Power and Conflict: Concept and theories, Behavioral approach, Situational approach, Leadership effectiveness, Contemporary issues in leadership. Power and conflict. Bases of Power, power tactics, sources of conflict patterns, levels and conflict resolution strategies. Transactional Analysis (TA) - Work Stress. UNIT- IV Organizational Culture, Organizational Development and Stress Management: Concept and determinants of organizational culture, Organizational Development: Concept and intervention techniques. Individual and organizational factors to stress, Consequences of stress on individual and organization, management of stress. Case Studies: Some cases of real business world are required to be discussed	
	MC. 105 - MARKETING MANAGEMENT	UNIT-I Introduction to Marketing Management; Marketing - Meaning and approaches, Role of Marketing in Organizations, 4Ps & beyond, Marketing Challenges, Marketing Process and Marketing Planning, Marketing information system UNIT –II Analyzing Market Opportunities; Analyzing the Marketing Environment- Economic, Demographic, Social, Cultural, Technical, Political & Legal Buying Behaviour- Consumer, Business & Industrial Measuring and Forecasting Market Demand. UNIT –III Product management: Product - Meaning and Classifications, New Product Development. Managing Product Life Cycles, Brand Strategies and Management. Managing Service - Idea, Institution, Person, Place and Event. UNIT–IV Pricing, Distribution and Promotion Pricing- Influencing factors, Approaches, Strategies and Programmes. Channels of Distribution and Logistics. Promotion Strategies - Advertising, Sales Promotion & Public	The objective of the course is to familiarize the students with the basic concepts and principles of marketing and to develop their conceptual and analytical skills to be able to manage marketing operations of a business firm.

		Relations.	
	MC. 106 - MANAGEMENT INFORMATION SYSTEM	UNIT-I MIS Definition - Characteristics - Evolution of MIS: Concepts; framework for understanding and designing MIS in an organization; MIS and other related disciplines: MIS and Management Accounting, MIS and Computer Science, MIS and OR, MIS and Organizational Behavior, MIS and Management. Concept of information: definition, features, types, process of generation and communication; quality of information; information overload; techniques for managing overload; summarizing; filtering; inferences and message routing. System concepts: definition, types and characteristics of system-control in systems: feedback: positive and negative; negative feedback control system, input, process and output control; law of requisite variety. UNIT-II Structure of MIS: Basic structural concepts: formal and informal information systems; public and private information systems; multiple approaches to the structure of MIS: Operational elements (physical components, process, outputs for users), activity subsystems, functional subsystems and decision support – synthesis of multiple approaches into a conceptual structure for MIS. UNIT-III Information systems: Transaction Processing Systems, Office Automation Systems, Information Reporting Systems, Decision Support Systems, Executive Support Systems, Expert systems. UNIT-IV Systems Development and Implementation: System development methodologies; SDLC approach; prototyping approach and user development approach - Systems Analysis; Systems Design; Concepts of database and database design; system implementation; management of information system projects; system documentation – information system audit. Security of information resources; threats to information resources; security systems for risk management. Enterprise Resource Planning Systems –Features-ERP Modules - implementation of ERP.	The objective of the paper is to offer a comprehensive overview of Management information systems (MIS). It will explore technical, strategic and tactical issues related to MIS. Basic concepts in analyzing and designing information systems will be presented.
	MC. 107 - WORKSHOP ON IT	UNIT-I IT applications in commerce-application areas - An	The objective of the course is to expose

	APPLICATIONS IN COMMERCE	Overview of Management Science and Quantitative Analysis: The Management Science Process - Model development- Steps in modeling- Benefits of Business models. UNIT-II Introduction to Spread sheet- Understanding basic features of Spread sheet – Statistical functions- Database Functions -Finance Functions - Logical statements and formula creation- Creating Charts. UNIT-III Building decision models and data analysis through Spreadsheets - Forecasting Analyzing Financial Statements using accounting ratios - Project Appraisal IRR, NPV, MIRR - Inventory management – EOQ and Quantity discounts- Leasing decisions – Flexible budgets -Break even analysis-goal seek- scenario management and pivot table applications. UNIT-IV Database management systems - Concept of database-features- components of DBMS, Types of databases hierarchical, network, relational, - Normalization- Database administrator- Data warehousing- Data mining. Features of RDBMS -Database design and application development –Tables- creation- relationships- Forms designing forms queries- types of queries- reports- report design-use of RDBMS in business decisions.	the students with the use of IT technologies to solve business problems regarding various functional areas of business.
2.	MC. 201 - BUSINESS ENVIRONMENT	UNIT-I Business Environment: Cultural, social, political, technological, economic and legal environment - scanning - techniques of environmental forecasting - SWOT – Internal environment - their impact on policy formulation. UNIT-II Economic reforms in India - Liberalization - privatization and globalization – Competitive Strength of Indian industry - Impact of liberalization policy on different sectors – Foreign Investments policy in India. Multi-national corporations - Their participation in India – Their strategies, competitive strengths policies and performance. UNIT-III Industrial Policies: A brief review of industrial policies since independence, Industrial policy of 1991 and recent developments, Policy on foreign direct investment in Indian industry. Fiscal Policy: Public revenues, public expenditure, public debt, development activities financed by public	The objective of the course is to acquaint students with the concepts of macro – economics and the macro environment in which a business organization operates. The course would also make the student capable of analyzing and understanding the macroeconomic policies of the government implemented from time to time and assess their impact on business.

		expenditure, an evaluation of recent fiscal policy of Government of India – Monetary Policy: Demand for and supply of money, Objectives of monetary and credit policy, recent trends - Role of Finance Commission. Integration of World's economies and its impact on Indian Business. UNIT-IV Money and Capital market: Features and components of Indian Financial system, objectives, features and structure of Money market and capital market, recent developments - Stock Exchanges, Investor Protection and Role of SEBI. Legal Framework: Consumer Protection Act, 1986, Right to Information and Right to Service Acts and its implications for business.	
	MC. 202 - RESEARCH METHODOLOGY IN COMMERCE	UNIT-I Introduction: - Meaning of the Research – Qualities of a research worker – Scientific Method – Definition – stages of scientific study – Different steps in scientific study – Logical Methods – Inductive & Deductive Methods – Nature of the Phenomena & the use of the scientific methods. Approach to a Research Project:- Purpose of Research – Functions in Research – Research Programme – Problem solving through research /financial aspects of research – Research Design (Selective topic, Coverage, Hypothesis) – Sources of Information – Nature of study – Definition of terms – Techniques of study – Collection, Analysis & presentation of the data – Testing hypothesis – Stating results. UNIT-II Use of the Library: - Finding the correct sources of information – Uses of books, periodicals & encyclopedia – Taking down notes – Collection & organization of Material. Research Method: - Sampling Method – Observation Method – Case Study Method – Interview Method – Survey Method – Experimental Method – Questionnaire Method - Library Method – Documentary Method – Suitable Combination & Selection of Method – advantages, disadvantages & limitations of methods. UNIT-III Presentation of Information: -Analysis of information – Classification, tabulation & interpretation – Presentation of data & its application – Pictorial presentation – Composition of	The objective of this paper is to impart knowledge about various stages of the research processes and their application in Commerce and Management Education.

		information (quotation, footnotes, bibliography - tables, standards, abbreviations) - style of writing. Coordinating contents: - Front matter (blank sheet, title page, dedication, preface, table of contents, list of tables, list of figures, list of appendices etc.) – Text proper (Chapter wise information) – Back matter (appendices, glossary, bibliography, index, blank sheet). UNIT-IV Multivariate analysis – an overview of dependence and interdependence methods (multiple regression, discriminate analysis, conjoint analysis, factor analysis, cluster analysis); research report; ingredients and constructions of research report – procedure of preparation of reference and bibliography. Research Findings and Preparation and writing of a Research Report: - Benefits of implementation of actual research findings – carrying forward the studies – Management of research unit – Preparation and writing of a 'Research Report'.	
	MC. 203 - FINANCIAL MANAGEMENT AND POLICY	UNIT-I Financial management - Scope, finance functions and its organization, objectives of financial management; time value of money; sources of long-term finance. Financial Forecasting: Sales Forecast Preparation of Performa Income Statement and Balance Sheet Growth and External Funds Requirement (EFR). UNIT- II Investment decisions; importance, difficulties, determining cash flows, methods of capital budgeting; risk analysis (risk adjusted discount rate methods and certainly equivalent methods) cost of different sources of raising capital; weighted average cost of capital. UNIT- III Capital Structure decisions - Leverage: Measuring and analyzing the implications of Leverage Operating Leverage, Financial Leverage and Total Leverage; capital structure theories - NI, NOI, traditional and M-M theories; Capital Structure Policy: Business & Financial Risk, A Total Risk Perspective Business & Financial Risk, A Market Risk Perspective Determinants of Capital Structure Decision Approach to Estimating the Target Capital Structure Variations in Capital Structures, EBIT / EPS Analysis and ROI/ROE Analysis. UNIT- IV Determinants of dividend models -	The objective of the course is to acquaint the students with the basic analytical techniques and methods of financial management of business firms. The course also provides students the exposure to certain sophisticated and analytical techniques that are used for taking financial policy decisions.

		Walter, Gordon & M.M. models. Working Capital – Meaning, need, determinants; estimation of working capital need; management of cash; inventory & receivable.	
	MC. 204 - PRODUCTION AND MATERIALS MANAGEMENT	UNIT-I Introduction to Production Management - Nature, Scope, Importance and Functions Materials Management - Evolution, Importance, Scope and Objectives - Interface with other functions. Introduction of Inventory Control, Static Inventory problem under risk. Dynamic Model under risk, policy coordinated, Replacement with discount. Introduction to purchasing, Functions of purchasing, procedure of purchasing, Selection Sources of Supply, Negotiation with Suppliers. UNIT-II Price determination; Price Cost Analysis, Quality determination and control value analysis. Scope & functions of operations management, Forecasting of demand. Delphi. Methods, Statistical Quality Control Technique. UNIT-III Facilities Location & Layout – Strategic importance - Factors affecting location & layout - Installation of facilities – Single location, multi-location decisions. Principles and Types of Facilities Layout. Importance and Functions of Production Planning & Control. Introduction to PERT / CPM - Network Crashing. UNIT-IV Productivity - Work Study - Objectives, Scope and Uses - Methods Study – Flow process chart, Flow diagram & Process mapping - Work Measurement - Elements – Performance Rating - Allowances - Standard Time - Synthetic Time Standards – Work Sampling	To impart knowledge regarding production and management techniques, process, tools, and acquaint the students with the knowledge of marketing functions, techniques and strategies.
	MC. 205 - OPERATIONS RESEARCH	UNIT-I Operations Research: Evolution, methodology and role in decision making; Linear programming: Meaning, assumptions, advantages, scope and limitations: Formulation of Problem and its solution by graphical and simplex methods (Including Big M Method and Two-Phase Simplex Method); special cases in simplex method; infeasibility, degeneracy, unboundedness and multiple optimal solutions; duality. Dual Simplex Method. UNIT-II Transportation problems including transhipment problems; Special cases in transportation problems; unbalanced problems,	Tounderstand the concepts and techniques of Operations Research for business decision making and to acquire required skills to solve various problems in OR.

		degeneracy; maximization objective and multiple optimal solutions; assignment problems including travelling salesman's problem. Special cases in assignment problems; unbalanced problems, maximization objective and multiple optimal solutions. UNIT-III PERT/CPM: Difference between PERT and CPM, network construction, calculating EST, EFT, LST, LFT and floats, probability considerations in PERT, time cost trade off. Decision theory: decision making under uncertainty and risk, Bayesian analysis, decision trees. Replacement problem (Individual and Group replacement problems both). UNIT-IV Game theory, pure and mixed strategy games; principle of dominance; two-person zero sum game; Queuing theory: concept, assumptions and applications; analysis of queue system, Poisson distributed arrivals and exponentially distributed service time model (MMI and MMK); simulation; meaning, process, advantages, limitations and applications.	
	MC. 206 - BUSINESS POLICY & STRATEGIC MANAGEMENT	UNIT-I Strategic Management - An Introduction - Evolution of business policy as a discipline - Strategy and the SYLLABUS OF M.COM. (SEMESTER SYSTEM) EXAMINATIONS 17 Quest for Competitive Advantage: Military origins of strategy – Evolution - Concept and Characteristics of strategic management – Defining strategy – Mintzerbg's 5Ps of strategy – Corporate, Business and Functional Levels of strategy - Strategic Management Process. UNIT-II Strategic Options Porter's Generic Strategies Integration Strategies, Intensive Strategies. Diversification and Differentiation Strategies, Functional Strategy - Manufacturing, Financial, Marketing, Human Resource, Research & Development. Strategic Intent & Strategy Formulation: Vision, mission and purpose – Business definition, objectives and goals – Stakeholders in business and their roles in strategic management – Corporate Social Responsibility, Ethical and Social Considerations in Strategy Development. UNIT-III Strategy implementation - Project implementation – Procedural implementation – Resource	The objective of the course is to help the students develop an understanding of the basic inputs in making and implementing corporate strategic decisions and also familiarize them with the issues and practices involved.

		Allocation – Organization Structure – Matching structure and strategy. Behavioral issues in implementation – Corporate culture – Mc Kinsey's 7s Framework - Concepts of Learning Organization. Strategy Evaluation - Importance - Symptoms of malfunctioning of strategy - Organization anarchies - Operations Control and Strategic Control - Measurement of performance - Analyzing variances - Role of organizational systems in evaluation. UNIT-IV New Business Models and strategies for Internet Economy: Shaping characteristics of E-Commerce environment – E-Commerce Business Model and Strategies – Internet Strategies for Traditional Business – Key success factors in E-Commerce – Virtual Value Chain. Cases in strategic management. A minimum of 10 cases encompassing the above topics to be analyzed and discussed in the class. Cases to be incorporated in the Question Pape	
	MC. 207- SUMMER TRAINING REPORT AND VIVA VOCE	After the Completion of Second Semester Examination the students will go on 6-8 Weeks summer training in various Industrial undertakings, banking and financial services institutions, and Retail Sector organizations, undertake a project there to study a particular problem and file three copies of summer training report within 15 days completion of the training. The student has to file a certificate of completion of training issued by training organization. A VIVA-VOCE Examination will be conducted by the External examiner appointed by the University on the problems undertaken in the summer training report. Principal of the College/Chairperson of the Department must appoint one internal supervisor for the guidance of the student regarding the Summer Training Project. The List of the internal supervisors so appointed must be communicated to the Controller of examination within 10 days from the date of appointment. The Internal supervisor will also be acting as Internal Examiner at the time of Conduct of VIVA-VOCE and sit with External Examiner	This helps the student to gain practical knowledge by working in the company. It helps in overall development of the students.

3.	MC. 301 - BUSINESS PERFORMANCE MEASUREMENT	UNIT-I Corporate Performance Measurement - Need and Importance; Historical Overview; Product Costing in price estimates and profit management; Techniques to measure and enhance profitability and quality of products and services; Activity Based Management, Target and Kaizen costing; benchmarking and environmental costing; Flexible Budgeting, and Activity Based Budgeting. UNIT-II Setting of performance goals and incentives, and the use of diagnostic tools and control; systems to achieve the goals; Strategic Profitability Analysis; Measuring performance using Economic Value Added (EVA) methodology; Comparison between Return on Investment (ROI) and EVA methodology of measuring performance. UNIT-III Measurement of Corporate Performance through Balanced Scorecard and its value creation potential; Rationality behind balance score card; performance dimensions of the balance score card; Throughput Accounting; Comparison of Activity Based Costing. UNIT-IV Information Systems aspects of management control; Control-needs of Information flow, and its consolidation in multi-locational setting; Management Control System and its applications; Responsibility Accounting - Meaning and Methodology, types of responsibility centres, organizational structure of responsibility centres; objectives and methods of transfer pricing, pricing corporate services and administration of transfer pricing.	The objective of this paper is to make the students familiar with the performance measurement techniques for business.
	MC. 302 - TAX PLANNING AND MANAGEMENT	UNIT-I Structure of Direct and Indirect Taxes in India. Concepts, Significance and Problems of Tax Planning, Tax Avoidance and Tax Evasion –Recognized methods of Tax Planning: Ensuring maximum claims for deduction for companies with special emphasis on depreciation allowance, expenses of scientific research, amortization of preliminary expenses and amounts not claimed otherwise. Taking advantages of available reliefs, rebates and tax-free sources of income. UNIT-II Definition of various kinds of companies - Meaning of company under IT Act. Residential status of companies and implications for Tax Planning.	The aim of this course is to familiarize the student with major latest provisions of the Indian tax laws and related judicial pronouncements pertaining to corporate enterprises having implications for various aspects of Corporate planning with a view to derive maximum possible tax benefits admissible under the law.

		Assessment of companies including carry forward and set off of losses. UNIT-III Tax implications in planning of business unit as Proprietorship, Partnership, Pvt. Ltd. & Public Ltd. Tax planning in the context of exemptions, incentives, export promotions & various deductions under Chapter– VI of Income Tax Act. Setting up of a new Industrial Establishment: location aspects; nature of business; planning for tax holiday benefits. Specific management decisions such as (1) make or buy; (2) own or lease, (3) repair or replace; (4) export vs. local sale; (5) shut down or continue; (6) expand or contract. UNIT-IV An overview of goods and service tax: Introduction to GST, reasons for introducing GST, pros and cons of GST. Registration procedure of trader / service provider under GST. Levy and collection of CGST/SGST under GST. Composite levy scheme of GST. Levy and collection of IGST. Input tax credit and relief to consumers and traders under GST. Applicable rates of tax on various goods and services under GST.	
	MC. 303 - INTEGRATED MARKETING COMMUNICATION & BRAND EQUITY	UNIT-I Marketing communication; functional areas of marketing communication; integrated marketing communication; types of advertising agencies; media partners and their role; compensating the advertising agencies; agency evaluation; brands - its meaning; creating and maintaining the brand; selecting desired brand position; developing brand identification; creating a brand image; creating and maintaining brand relationship with customers; brand-customer touch points; prospects and customers; AIDA model; think/feer/do models; brand decision making process; attitude formation and attitude change; brand likeability. UNIT-II Branding concepts; branding challenges and opportunities; brand equity concept; strategic brand management process; customer based equity; building a strong brand and its implications; identifying and establishing brand positioning; defining and establishing brand values; internal branding. UNIT-III Campaign planning; IMC planning process; internal marketing; segmenting and targeting; types of	The objective is to introduce the students to the integrated role of promotion techniques with the special emphasis on advertising.

		segmentation; message and profitability targeting; digitization of brand information; customer database; building relationship through data management; developing creative message strategy; process of developing IMC message strategy; methods of getting creative ideas; brand-message execution; copywriting; writing for point and electronic media; print layout and design; executional and strategic consistency. UNIT-IV Media classification; media strength and weakness; wireless communication; e-mail marketing; website marketing; integrating online brand communication; media planning; consumer sales promotion; sales promotion tools; determining consumer sales promotion strength and limitations of sales promotion; trade promotion; trade promotion for new products and existing brands; trade promotion strategies; objectives of co-marketing communication.	
	MC. 304 - MARKETING RESEARCH	UNIT I Introduction: Meaning, nature and importance of marketing research; Marketing research and scientific method; Research reliability and validity; Problems in conducting marketing research; Marketing Information System (MIS); Ways of conducting marketing research; Syndicated research. Marketing Research Process: Steps involved in conducting marketing research; Problem identification; Determining information needs; Developing marketing research proposal. UNIT II Research Design: Meaning and importance; Types of research designs – explorative, descriptive and conclusive researches; Secondary data – sources, uses and limitations; Primary data collection methods – questioning techniques and observation methods; Online data sources and research; Questionnaire preparation. Sample Design and Field Work: Defining universe and sampling unit; Determining sampling frame; Probability and non - probability sampling methods; Sample size determination; Field work and data collection – sampling and non-sampling errors. UNIT III Data Analysis and	The course aims at exposing the students to the concept, tools and techniques of marketing research and developing their skills to be able to apply research techniques to aid marketing decision making.

		Report Preparation: Data editing, coding tabulation and graphical presentation; Univariate and multivariate data analyses techniques and their applications in marketing research; Report preparation, presentation and follow - up. Marketing Research Applications: Consumer research – behaviour and motivation research, attitude measurement and scaling techniques. UNIT IV Product research; Advertising research; Marketing and sales forecasting; Sales analysis. Marketing Research in India: Status, organization and developments; Ethical issues in marketing research.	
	MC. 305 – HUMAN RESOURCE DEVELOPMENT	UNIT I Human resource development: Concept and evolution, human resource mobilizations, HRD Conceptual base, strategic interventions in HRD sector and target groups, HRD mechanisms, processes and outcomes, HRD instruments, HRD. HRD and Management: Attitude of top management towards HRD, Motivational aspects of HRD, Trends and Practices, Line manager and HRD. UNIT II HRD Activities: HRD culture and climate, Elements of HRD climate, measurement of HRD climate, factors to HRD climate, Determinant needs, developmental supervisor, HRD for Workers: HRD mechanisms for workers, Role of trade unions. UNIT III HRD in Organizations: Government organizations, educational institutions, armed forces, police and industry, private sectors and public sectors units. UNIT IV Emerging Issues in HRD: Creating awareness and commitment to HRD, Industrial relations and HRD, Utilization of HRD efforts, Future of HRD, International comparison of HRD (Commonalities and differences).	The objective of the course is to make student aware of the concepts, techniques and practices of human resource development. This course is intended to make students capable of applying the principles and techniques as professionals in organizations they work for.
	MC. 306 – INDUSTRIAL RELATIONS	UNIT I Industrial Relations: Concepts and scope, Historical development, Unilatarist, Pluralist and Marxist perspective of IR. Trade Unionism: role of trade unions, trade union in India, national level federations, Goals and objectives of unions and union leadership, weaknesses in trade unions, trade unions, politics and government. Theories of trade unionism. Cross	The objective of the course is to make student aware of the concept of industrial relations. The course will make them understand the importance of industrial relations for an organization and how these relations provide dynamics to

		cultural aspects of union management relations. UNIT II Trade Union Act 1926: An overview. Union recognition; de-unionization strategies. Union Management Relations: conceptual framework, union management perspectives, organizational factors affecting union management relations. Public policies and union management relations, role of state, constitution and labour policies, ILO, Major events and international issues, changes affecting HR/IR perspectives, perspectives in India. UNIT III Industrial Democracy: Concepts and scopes of industrial democracy, Worker's participation: Strategy, practices, behavioral science input/contribution and models. Rationale for participation, Issues in participation, strategies for making participation work and making participation more effective. Methods of industrial relation machinery in India; Statutory and non-statutory methods of industrial dispute resolution; Conciliation, mediation, arbitration and adjudication. UNIT IV Comparative Industrial Relations: Principles of comparative analysis, variables of comparative analysis (culture, values, ideologies, politico-economic structure). Experience of UK, Yugoslavia, West Germany, Scandinavian countries and Japan. Managing Industrial Relations: Regulatory mechanisms, employee discipline, suspension, dismissal and retrenchment, employee grievance handling, Collective bargaining, negotiation skills, industrial conflict resolution. Labour Welfare: Rationale need and requirements	organizations.
	MC. 313 - BANK MANAGEMENT	UNIT-I Banking structure in India - banking functions and services - Foreign commercial banks - Private commercial banks - capital adequacy. Principles of lending - financial adequacy assessing the borrower - project appraisal - structural and Infrastructural analysis – legal formalities - follow up loans, asset management companies. UNIT-II Non-Performing Assets (NPAs) - Early Warning Signals - Management of NPAs - Remedies Available - Recent Measures - loan recovery tribunals - Provisions of Revenue	The main emphasis of this subject is on making student well versed with how banks manage their finances, what facilities are provided by banks and how they deal with their loans.

		Recovery Act. UNIT-III Investment management - priorities in allocation of bank funds - investment in governments securities - maturity and yield - quality and diversification, profitability management - profit planning. UNIT-IV Traditional Banking vs. E-Banking - facets of E-Banking - Internet Procurement - E - Banking Transaction - Electronic Delivery Channels - Truncated Cheque – Complete Centralized Solution - Features of CCS - Advances of E-Banking - Constraints in E-Banking - Security Measures	
	MC. 314 - INSURANCE MANAGEMENT	UNIT-I Conceptual Framework: Risk, Peril and hazard, classification and burden of risk. Insurance as a device to hedge risk. Elements of insurable risk. Development life. Functions of Insurer, Government as Insurer and a regular. Structure of Indian Insurance Industry. Principles and Practices of General Insurance: Meaning, Functions and Scope of Fire, Engineering, Accident, Marine and Aviation Insurance. Fire Insurance – Types of Policies – Floating Policies and Declaration Policies; Endorsements and Clauses – Fire Protection System, Discounts – Special Rating of Large Industrial Risks. UNIT-II Industrial Risk Insurance. Consequential Loss Insurance – Standard Consequential Loss Policy Form – Conditions. Engineering Insurance: Machinery Breakdown Insurance – Contractors All risks Insurance and various other policies – Miscellaneous Annual Policies – Advance Loss of Profits Insurance. Motor Insurance – type of: Vehicles and their Policies – Rules & Regulations – Policy Forms. Public Liability Policy: Professional Indemnities – Employers' Liability Insurance. Personal Accident: Scope of Various covers. Miscellaneous (Accident) Insurance: Fidelity Guarantees and Bonds – Burglary Insurance – Money-in-transit Insurance, Banker's Indemnity Insurance and other important insurance covers. UNIT-III Aviation insurance: Special Features – types of Cover, Marine Insurance including Inland Rail/Road transit insurance. Life and Health Insurance: Life Insurance and annuities broad classification of Life insurances, special purpose policies; Family income, Family	This course aims at a familiarizing the participants with the concept of insurance, the risk and its management, various insurance policies and their structure along with the legal dimensions involved. This course also aims at providing the knowledge of Insurance Company's Management.

		maintenance, Family policy, Joint Life Policies, Classes of life insurance, Health Insurance: Medical Insurance Types of Health Insurance Coverages, types of losses covered. Health insurance contract. Buying a health insurance policy. UNIT-IV Legal frame work of Insurance: Insurance and Law of Contracts, characteristics of an Insurance Contract, Interpretation of the Contract, Doctrine of informal Warranties and beneficent interpretation, Exclusion of Coverage's. Organization and Administration of Insurance: Management Organization: Departmentalisation, marketing, Claims, and loss control, underwriting and pricing of insurance, retention and re-insurance; Financial Structure, reserves of property and liabilities of insurer, earned surplus and profitability, Insurer's Investments, Financial Reporting	
	MC. 315 - WORKSHOP ON FINANCIAL MARKETS & INSTRUMENTS	UNIT – I Indian Financial System: Constituents, Functions of the Financial System Inter-relationship between Financial System and Industrial Development Efficiency Indicators of Financial System, Financial Development Ratios RBI and Financial System Monetary Policy and Stability of Financial System, Financial Sector Reform in India, Globalisation of Indian Financial System. UNIT – II Financial Markets: Major Segments of Financial Markets: Money Market, Capital Market, Foreign Exchange market and Govt. Security Market, Money Market: Call Money Market, Bill Market, Repo Market, T Bill, Commercial Paper, Certificate of Deposits, Capital Market: Primary and Secondary Market, Cash/Spot Market and Derivative Market, and Equity and Debt Market. UNIT – III Securities Market: Methods of Issue of securities, Securities trading and Settlement, and Listing of securities, Functions of Stock Exchanges: Operations of OTCEI, and NSE Role of SEBI: Fair market practice and Investor Protection Recent Trends and developments in Security market. UNIT – IV Innovative Financial Instruments and Financial Services: Bonds, features and innovations : Ex-interest debentures, Deep discount bonds, and Secured premium notes. Hybrid Securities: Convertible	To provide an overview of the financial system in India and functioning of various segments of the financial markets and the financial instruments traded in those markets.

		Debentures and bonds Derivatives: Options, Futures and Swaps and other contemporary bond instruments. Innovative financial services: Factoring, Angel financing, Securitisation, and mergers and acquisitions.	
4.	MC. 401 – PROJECT PLANNING AND CONTROL	UNIT – I Project Identification, Formulation and Planning: Understanding environment for business opportunities Idea generation, short listing and selection of product/service stages in Venture Appraisal- Technical, Financial, Economic and Social Appraisal Location, Factory Design and Layout. Commercial vs. National Profitability Social Cost - Benefit Analysis (broader concept only). Feasibility Report Preparation for new Enterprise - format and contents. UNIT – II Market and Financial Appraisal : Market Survey – Design, Data Sources and Methodology, Market Segmentation and product differentiation, Forecasting Future demand and Distribution Analysis, Preparation of the Sales Plan and Report Estimation of Financial Requirement. UNIT – III Application of Capital Budgeting Techniques, Risk and Uncertainty Analysis for the new enterprise, Planning Capital Structure and Financing Project Financial viability Study. UNIT – IV Project Implementation and Management : Project Organisation and Control Network Analysis – PERT & CPM Cost and Time Over-run Project Follow up and Monitoring	The objective of the course is to provide the student with skills necessary to create, plan and control a new Enterprise.
	MC. 402 - KNOWLEDGE MANAGEMENT	UNIT-I Concept of knowledge, Major Philosophical Schools, Knowledge in economic and management theories, Knowledge as competitive resource, Knowledge intensive organization, Knowledge value chain. UNIT-II Knowledge management systems, Barriers to knowledge sharing, Expert systems. UNIT-III Knowledge creation as a tool of excellence, tacit and explicit knowledge, Models of knowledge creation process, Critical enabling conditions, Cross leveraging knowledge. UNIT-IV Knowledge management strategy and business strategy, Knowledge architecture, Organizational design for knowledge management, Role of Top and Middle management, Knowledge	The main aim of the course is to create awareness amongst the students to know the details of Knowledge Management in the changing scenario and its significance in framing the business strategy.

		based reward systems	
	MC. 403 – BUSINESS ETHICS AND CORPORATE GOVERNANCE	UNIT-I [Business Ethics: Introduction to Business Ethics, Ethics, Morals & Values, Concepts of Utilitarianism and Universalism – Theory of rights, theory of Justice – Virtue ethics – ethics of care – Law and Ethics. The Nature of Ethics in Management Business Standards and Values, Value Orientation of the Firm. Typical Problems in Business Ethics: Environmental Pollution & Society, Marketing Ethics (in Products, Pricing, Promotion and Place) and Consumer protection – Ethics in Human Resources management (Recruitment and promotion policies, Working Conditions,, Down Sizing Workforce), Ethical issues at the top management, Ethics in financial markets and investor protection – Ethical responsibility towards competitors and business partners. UNIT-II Complexity of Ethical Issues: Conflicts in decision making from ethical and economic point of view, Ethical Dilemma, Solving ethical dilemma Managerial integrity and decision making. Ethical Leadership: Personal Integrity and self development – wisdom based leadership. Corporate Governance: History of Corporate form and models, Corporate Objectives and goals, Ownership pattern – Issues in managing public limited firms – Agency problems. Nature & Evolution of Corporate Governance: Global and National Perspectives – Global Corporate Governance models, Anglo American and Relationship model (Germany, Japan and France) Claims of Various Stakeholders, Why governance – Changes in eighties Cadbury Report, Hampel Report and OECD Committee Recommendations – SOX Act. UNIT-III Internal Corporate Governance Mechanism: Board of Directors— Functional Committees of Board; Code of conduct, whistle blowers. External Corporate Governance Mechanism: Regulators, Gate keepers, Institutional Investors, Corporate raiders, Corporate Governance Ratings Corporate Governance in India: corporate form in India 50s to 90s – developments in Corporate Governance in India in nineties and 2000s – CII,	The main aim of this subject is to introduce students with ethics that need to be followed while carrying out nay business and the role of corporate governance in today's business scenario.

		Kumaramangalam, Narayanamoorthy, Naresh Chandra, JJ Irani Committee reports – Legal and Regulatory Changes – introduction and modification of Clause 49, Corporate governance in practice in India . UNIT-IV Cases: 1. A Dent in Wal Mart's Public Image - The PR Strategy. 2. China Aviation Oil's Collapse: Singapore INC's challenges. 3. Child labor in Coca Industry. 4. Obesity Concerns: Burger Kings Product Revenges. 5. Bhopal Gas Tragedy	
	MC. 404 - ADVERTISING AND SALES MANAGEMENT	UNIT-I Advertising: Communication Basics: Role of communication; Communication process and flows; Planning the promotion mix; Advertising: Nature and importance; Advertising and the economy; Advertising and publicity; Advertising management process – an overview; Determining target audience; Advertising objectives and positioning decisions; Advertising budget decisions. Message Decision: Determining advertising message; Developing advertising copy – Headline main copy, logo, illustration, appeal, layout, creativity in advertising. UNIT-II Advertising through the internet; Media selection; Media scheduling. Organization of Advertising Operations: In -house vs. advertising agency arrangements; Managing advertising agency relations; valuation of advertisement and campaign effectiveness –Before - and – after advertising tests and techniques. Advertising in India; Social and regulatory aspects of advertising. Recent developments and issues in advertising. UNIT-III Sales Management: Fundamentals of Personal Selling: Nature and importance of Selling; Types of selling; Personal selling, salesmanship and sales management; Process of effective selling; Strategic Sales management. Sales Planning: Setting personal selling objective; Market analysis and sales forecasting; Sales budget; Sales territory; Sales quota. UNIT-IV Sales Organization: Organization structure; relationship of sales department with other departments; Distribution networks relationship. Sales Force Management: Recruitment and selection; training and development; motivating, supervising and	The course aims at enabling the students to develop an in-depth understanding of the modern concepts and latest techniques of advertising and personal selling and sales force Management which constitute a fast -growing area of marketing.

		compensating sales personnel; Controlling the sales effort; Evaluation of sales personnel; Sales and cost analysis. Ethical and legal aspects of selling.	
	MC. 405 - SERVICES MARKETING	UNIT-I Introduction to services marketing: role of services marketing; consumer behaviour in service encounters; customer interaction, purchase process, needs and expectations of customers; positioning services in competitive markets; search for competitive advantages; market segmentation, positioning vis-à-vis competitors. UNIT-II Creating the service product: Identifying and classifying supplementary services, planning and branding service-products, new service development; designing communication mix; branding and communication; effective pricing objectives and foundations for setting prices; distributing services; options for service delivery, place and time decisions, delivery in cyberspace, role of intermediaries. UNIT-III Designing and managing service processes; service process redesign, customer misbehavior; balancing demand and capacity: fluctuations in demand, capacity constrain, planning the service environment; consumer responses to and dimensions of service environment; managing people for service advantage: service leadership and culture. UNIT-IV Managing relationship and building loyalty; customer-firm relationship, analyzing and managing customer base; customer management relationship system in services marketing; customer feedback and service recovery; customer complaining behaviour, principles and responses to effective service recovery, service quality and the gap model, measuring and improving service quality, defining, measuring and improving service productivity; organizing for service leadership; search for synergy in service management, creating a leading service organization.	To understand the service product and key elements of services marketing mix. Another objective deals with managing the service delivery process and the implementation of services marketing.
	MC. 406 - CONSUMER BEHAVIOUR	UNIT-I Consumer Behaviour: Importance and nature of consumer behaviour; Types of consumers and their role; Consumer buying process and determinants; Changing profile of Indian consumers.	Knowledge of consumer behaviour is a prerequisite for developing effective marketing strategy. The purpose of the

		UNIT-II Individual Differences in Consumers: Needs and motivation; Perception; Attitude and attitude change; Learning and learning theories; Personality and life style analysis. UNIT-III External determinants of Consumer Behaviour: Family and its influence on consumer buying behaviour; Group and their influences; Social class; Culture and sub-culture. UNIT-IV Models of consumer behaviour; Business buying behaviour. Cross-cultural dimensions of consumer behaviour; Consumer research – complexities and issues.	course is to provide an in-depth understanding of the consumer and industrial buying processes and their determinants as relevant for marketing decision making.

2.6 Student Performance and Learning Outcomes

Paper/ unit-content wise Course outcomes:

Class - Master of Science

Subject -Mathematics

Attainment of course outcomes:

Semester	Title of the paper	Course content	Objectives of the course/ content	How were the objectives met
I &	1. Real Analysis	Basic Topology, Sequences and serier, Continuity, The Riemann-Stieltjes integral, Sequences and series of functions. Differentiation, Functions of several variables, Lebesgue measure, The Lebesgue integral and Differentiation and Integration.	Logical and critical thinking	*
	2. Abstract Algebra	Groups, permutations, Direct products, Normal and subnormal series, composition series, the theorems of Schreier and Jordan Holder. Factorization Theory in Integral Domains,	Abstract and critical thinking	

II Semester		Rings and Hilbert Basis Theorem.		
	3. Differential Equations, Vectors & Mechanics	Solution of first order equations, BVP, Strum-Liouville Theory, ODE in more than 2-variables and PDE. Differentiation and integration of vectors, Green's and Stoke's theorems, Gauss' divergence theorem, Curvilinear co-ordinates. Generalized co-ordinates. Lagrange's equations. Hamilton's canonical equations, The Viral theorem. Rigid body motion about an axis. Moving axis.	Reflect surrounding critically, modelling differential equations and techniques to solve these	
	4. Complex Analysis	Complex plane, Topology on the complex plane, connected and simply connected sets, Complex valued functions, Analytic functions, Cauchy-Riemann equations, Power series. Complex Integration, fundamental theorem of Algebra. Maximum Modulus principle, Schwarz' Lemma, Taylor series and Laurent series, Calculus of residues, conformal mappings, Mittagleffer's theorem, Canonical product, the Gamma function and Riemann Zeta function.	Abstract and critical thinking,	
	5. Number Theory	Divisibility, The Fundamental Theorem of arithmetic, Chinese remainder theorem, Fermat's little theorem, Wilson's theorem, residue classes, cryptography, Arithmetic functions, Primitive roots and indices,	Inductive and deductive thinking, Problem solving techniques	

		Diophantine equations. Farey sequences, Continued fractions, Minkowski's theorem in Geometry of Numbers. Partitions, Order of magnitude and average order of arithmetic functions.		
III Semester	1. Field Theory	Fields, field extension, Adjunction of roots, splitting fields, finite fields, existence of algebraic closure, algebraically closed fields. Separable, normal and purely inseparable extensions. Perfect fields, primitive elements. Langrange's theorem on primitive elements. Galois theory, Cyclotomic extensions, and Cyclic extensions, Solvability of polynomials by radicals.	Applications of Algebra to solve polynomial equations, relate the study with certain geometrical problems.	
	2.Topology	Topological Spaces, the subspace topology, Connected spaces, connected subspaces of the real line, Compact spaces, compact space of the real line, The countability axioms, the separation axioms, Normal spaces, the Urysohn Lemma, the Urysohn Metrization Theorem, the Tietze Extension Theorem, the Tychonoff Theorem.	Study of geometry of figures of abstract nature	
	3.Linear Programming	Linear Programming, Convex Sets, Hyperplane, Open and Closed half-spaces, Feasible, Basic Feasible and Optimal Solutions, Simplex method, Charnes-M method, Two phase method, Determination of Optimal solutions, Dual linear	Mathematical modelling of real life problems & Application of linear algebra to solve these.	

		Programming Problems. Revised Simplex method, Transportation Problems, Assignment problems, Travelling salesman problem		
	4.Probability and Mathematical Statistics	Nature of Data and methods of compilation, Representation of data, Measures of central tendency, Measuring variability of data, Correlation & Regression Analysis, Probability, Random Variables and Distributions and Distributions.	Reflect on surroundings and abstraction of the study	
	5.Tensor Analysis	Tensors, Curves with Torsion, Envelopes and Developable Surfaces.	Application of multilinear algebra and geometry to get a useful way to organize data and their applications in problems faced by physicists.	
IV Semester	1.Linear Algebra	vector spaces, linear dependence and independence, basis and dimensions, linear transformations, dual spaces, matrix representation of a linear transformation, rank and nullity of a linear transformation, invariant subspaces. Characteristic polynomial and minimal polynomial, eigenvalues and eigenvectors, Jordan and Rational canonical forms, bilinear forms, symmetric bilinear forms, Sylvester's theorem, quadratic forms, Hermitian forms, Inner product spaces, Gram-schmidt orthonormalization process.	Develop theories to solve linear equations and quadratic equations	

	2.Functional Analysis	Banach Spaces, open mapping theorem, closed graph theorem, Baire Category theorem, Banach Steinhauns theorem, Dual Spaces, embedding in second dual. Hilbert space, orthonormal basis, Bessel's inequality, Riesz Fischer theorem, Parseval's identity, bounded Linear functionals; projections, Riesz Representation theorem, adjoint operators, self adjoint, normal, unitary and isometric operators.	Study of certain topological-algebraical structures and applications to analytic problems	
	3.Non-linear Programming	Nonlinear Programming: Convex functions, Concave functions, Differentiable convex functions. Unconstrained problems, First order necessary and sufficient Fritz John conditions and Kuhn-Tucker conditions for Constrained programming problems with inequality constraints, with inequality and equality constraints. Duality in Nonlinear Programming, Quadratic Programming, Linear fractional programming and Game theory.	Mathematical modelling of real life optimization Problems with nonlinear constraints and application of algebra to solve these	
	4.Integral Transforms	Laplace Transforms, Applications of Laplace Transform to Solve/Evaluate, Finite Laplace Transforms, Hankel Transforms, Fourier Transforms, Applications of Fourier Transform to Solve/Evaluate, Finite Fourier Cosine and Sine Transforms, Mellin Transforms	To use Fourier series for solving boundary value problems appearing in scientific & engineering problems.	

	5.Differential Geometry	Curves on a Surface, Equations of Gauss and of Codazzi, Quadric Surfaces	Geometric description of curves and surfaces to establish basic properties of study of geodesics , evolutes etc.	

2.6 Student Performance and Learning Outcomes MA ENGLISH

Semester	Title of the paper	Course content	Objectives of the course/ content	How were the objectives met
Sem I	**British Lit 1**	**Unit I** 1. Martin Luther, "Freedom of a Christian", *Luther's Works: Career of a* *Reformer*, Vol. 31, Ed. Harold. J. Gimm, (Muhlenberg Press, 1957)327-377. 2. Francis Bacon, "Of Seditions and Troubles" & "Of Atheism", *Essays* (London: Penguin Books, 1985).(Courier Corporation, 2012) 42-51 **Unit II** 1. Christopher Marlowe, *Edward II* (London: Bloomsbury, 2014). **Unit III** 1. Geoffrey Chaucer**,** "Wife of Bath's Prologue", *Canterbury Tales*. Ed. Jill Mann (Penguin Classics, 2003), 1-52. 2. John Milton, *Paradise Lost.* Book I (London: Penguin Classics, 2003), 1-26. **Unit IV** 1. William Shakespeare, *Hamlet*. Ed. Ann Thompson and Neil Taylor (Bloomsbury, 2017). **Unit V** 1. John Dryden, *Absalom and Achitophel*, 5th Edition. (Leopold Classic	The objective of the paper is to provide an overview of the literature of the English Renaissance, Reformation and Restoration times. The paper also focuses on the political, social and cultural impact of the Reformation in England and the literature of the time in addition to covering the English Restoration Period (1660-1700). The objective is to familiarize the students with the major trends, ideas, genres, poetic forms and prose of these periods.	The students are given thorough knowledge of the period /age prescribed. The key cultural and political, and artistic transformations are dealt with in detail.At the end of the course the students are well versed with the iconic writers and representative texts of the time. They are also critically aware of the important intellectual shifts that occurred in the human thought during the period.

		Library, 2017)		
	British literature 2	Unit I 1. Mary Shelley, Frankenstein Unit II 1. William Wordsworth, Preface to Lyrical Ballads Unit III 1. William Blake, “The Chimney Sweeper” & “The Tyger”, Songs of Innocence and of Experience 2. William Wordsworth, “Lines Written in Early Spring”, “Ode: Intimations of Immortality” &“London 1802” Unit IV 1. John Keats, “Ode on Grecian Urn”, “Ode to a Nightingale” & “Ode to Autumn” 2. Samuel Taylor Coleridge, “Rime of the Ancient Mariner” Unit V 1. Charles Lamb, “Dream Children: A Reverie” & “The Praise of Chimney-Sweepers” 2. William Hazlitt: • ‘On Reading Old Books’ • ‘On Gusto’	During the course, students are introduced to major English poets and prose writers of English Romantic period. The end of the eighteenth century and early nineteenth century saw a momentous shift in philosophical, artistic and literary movement in Europe - Romanticism. It flourished until the mid-nineteenth century. It celebrated imagination and intuition in the enduring search for individual rights and liberty. It marks a shift from objectivism to subjectivism, from reason to power of imagination and emotive response. The objective of the paper is to introduce students to these tenets of Romanticism in general and to English Romanticism in particular. Students are made to study Romanticism as a reaction against the philosophical rationalism and neoclassicism of the Enlightenment. Through the critical analysis	

			and study of poets like William Blake, William Wordsworth, John Keats , Coleridge and great essayists Charles Lamb and William Hazlitt, the students are familiarized with the English Romantic imagination, its stress on Nature, poetic inspiration, freedom, individualism and spontaneity; and the role language plays in it. Gothic fiction is also explored in the paper through Mary Shelley's Frankenstein. At the end of the course the students become well versed with major themes, ideas and concepts of Romanticism and English Literature. They are cognizant of the historical, cultural, political and aesthetic milieu of the time. At the end of the course, they have in-depth knowledge of a movement that not only captured the imagination of people with their ideas of liberty and freedom but also fuelled the avant-garde movements well into the twentieth century	

SEM2	**BRITISH LITERATURE 3**	**Unit I** 1. Robert Browning,"Grammarian's Funeral" & "The Last Ride Together", *The Poems of Robert Browning* (Wordsworth, 1994). 2. Alfred Lord Tennyson, "Defense of Lucknow", **"**The Higher Pantheism" [available online <www.bartleby.com/297/629.html> and <https://www.poetryfoundation.org/poems/45323/the-higher-pantheism>] 3. Christina Rossetti, "Better Resurrection" & "Amor Mundi", *Complete Poems* (Penguin, 2001). **Unit II** 1. Charles Dickens, *Hard Times* (Penguin Classics, 2003). **Unit III** 1. Mathew Arnold, 'Barbarians, Philistines and Populace' (Chapter 3), *Culture and Anarchy* (Oxford UP World's Classics, 2009). 2. John Ruskin, "Unto this Last", *Unto this Last and Other Writings of John Ruskin*, ed. Clive Wilmer (Penguin Books, 1985)155-228. **Unit IV** 1. H G Wells,*The Time Machine* (New York: Signet Classics, 2007). **Unit V**	The Victorian Period (1832-1901) covers the long and successful reign of Queen Victoria. It was a period of colonial expansion, strengthening of the British Empire, industrial revolution, and scientific and technological progress. The objective of the paper is to explore the major writers and texts of the time and focus on the ideological, political, social and cultural impact on Victorian culture as a consequence of industrialization, urbanization, class conflict, Darwin and religious crisis, issue of gender, empire and imperial expansion and much more. The paper will also analyze the Victorian Gothic novel and its impact and continued popularity. Students will explore the creation of 'other' in Gothic writing and the monstrosity associated with it. The paper will furthermore familiarize the students with the genre of science fiction. At the end of the course the students will	

		1. Bram Stoker, *Dracula* (Wordsworth Classics, 2000).	be conversant with the major writers, representative works and will be able to engage critically on the issues regarding empire, race, class, gender, impact of science, 'the woman question' and other significant events of the period.	
	BRITISH LITERATURE 4	Unit I 1. T.S. Eliot, "The Burial of the Dead" Canto I, The Waste Land; "Love Song of Alfred J Prufrock". 2. W.B. Yeats, "Easter 1916", "A Prayer for My Daughter" &"Sailing to Byzantium". 3. W.H. Auden, "The Shield of Achilles", "September 1, 1939" & "Musée des Beaux Arts". 4. D. H. Lawrence, "Mosquitoes" & "Snakes". Unit ll Samuel Beckett, *Waiting for Godot* Unit III James Joyce, *Portrait of An Artist as a Young Man* Unit IV Aldous Huxley, *Brave New World*	The objective of the paper is to make students study and understand the ways in which political, historical, economic, scientific, intellectual, environmental, social and cultural events have shaped the art and literature of the twentieth century as it marked a break from the preceding Victorian period. It was a period of shifting	

		Unit V 1. George Orwell, “Notes on Nationalism”, “The Prevention of Literature” & “Reflections on Gandhi”. 2. Virginia Woolf, *A Room of One’s Own*	perspectives, class struggle, gender equality, devastating wars, and collapse of traditional notions of culture and aesthetics. Students studied the profound changes society underwent during this era of conflict and uncertainty through the texts prescribed in their course .They became aware of conflict between nature and culture in modern times. They are also introduced to the innovative literary techniques ,the inner workings of consciousness, intellectual trends and change in themes of this turbulent period	

			of World Wars. At the end of the course they become familiar with the representative texts, literary terminology, and the socio-political and cultural events that shaped twentieth century literature.	

Literary Movements (Sem I)

Unit	Name of the Unit	Course Outcomes	Remarks
1	**What is a Literary Movement?**	The students will learn about the relevance of dividing literary history into different movements right from ancient times to the very contemporary. They will also gain knowledge about the distinctive features of the major literary movements of European literature with special emphasis on British Literature.	The students would be enabled to identify the underlying features of literary texts and be able to place them in the context of the literary movement / movements they belong to.

2	**Classicism**	The students would learn that Classicism is one movement that refuses to be contained in a particular time frame, its aesthetic features find expression in almost all literatures of the world, and across languages. Classicism is relevant to all ages, all people and all times.	The students would gain knowledge about the aesthetic features of what constitutes a classic, apply them to the texts that they may be studying and discern whether they qualify to be a classic or not.
3	**Renaissance**	This unit would enable the students to understand the fiery spirit of inquiry that characterized the work of literary artists of this movement in the broader perspective of Art due to which this movement is also known as the Revival of Classical Learning.	The students would gain appreciation of the vast range and vision of the literary artists of this movement - the Renaissance figures.
4	**Neo-classicism**	This unit would enable the students to form an understanding of the aesthetic principles of literature belonging to neo-classicism period vis-a-vis the tenets of Classicism.	This unit would enrich their understanding that the historical perspective of this movement actually served to limit the scope of the neo-classical literature. It would enhance their knowledge, through comparison, of what truly constitutes a classical work of art.
5	**Romanticism**	Also termed as A Return to Nature, this unit would equip the students with the historical background of the growth of Romanticism, the socio-cultural conditions in which it took birth and how it went on to negate their very existence.	They would learn about the very broad connotation of the term Romanticism and appreciate the range of emotions that it can embrace and convey.

Course Outcomes of MA I Paper II Approaches to Literary Criticism (Semester I)

Unit	Contents of the Unit	Course Outcomes	Remarks
1	Orientation of Critical Theories: A general overview of different literary	The students would gain an understanding about the different approaches to literature and the particular worldviews they are based on. They would also realise that there is no one way to understand a text and that a	With the methodology thus provided the students can navigate through the texts and are enabled to relate the different literary texts to their lives in terms of their own times and location.

	theories.	text can yield multiple meanings if it is accessed through different worldviews.	
2	Historical & Biographical Approaches; Moral & Philosophical Approaches	This unit teaches the students how to examine a text from the perspective of that point of history in which it was located by the writer and to search historical and biographical pointers / elements in it.	The students learn to form a sense of history by the application of this approach and identify to what extent the text is a reflection of the time and live of the author.
3	The Formalist Approach	Also known as New Criticism, this approach focusses upon a close and in-depth reading of the text. The students would learn to evaluate a text as a work of art with an independent existence of its own.	The students would gain a working knowledge of the different constituents of form like texture, image, symbol, point of view, etc. for unearthing the meaning of the text without relying upon external factors.
4	The Psychological Approach	Students would learn about the psychoanalytic theories propounded by Sigmund Freud, Jacques Lacan and Carl Jung to explain how different mental processes form our psyche. These theories when applied to literary texts help in understanding the behavioural patterns of the characters.	The students learn to identify the conscious & unconscious motives behind the actions and the behaviours of the characters in literary texts.
5	Mythological & Archetypal Approach	Mythology represents a people's fundamental and instinctual life. Every community has their own distinctive set of mythology reflected in legends, folktales, archetypes and ideology. This approach takes us back to the beginning of a humankind's oldest rituals, beliefs and consequently into our own individual hearts.	This approach enhances the students' understanding of the cultural environment hopes, values, aspirations, etc. Since, mythology is a very vast and complex field, it offers students the opportunity to explore myths and archetypes on their own.

Semester	**Title of the**	**Course content**	**Objectives of the course/**	**How were the objectives met**

	paper		content	
Sem3	**Paper X** **(1) Indian Writings (in English) – I**	**Unit 1 Non-Fictional Prose** 1. Rabindranath Tagore, "Nationalism in India", *Nationalism*, (BoD, 2018)41-55. 2. Arvind Krishna Mehrotra, "From "The Emperor Has No Clothes," ed. Amit Chaudhuri, *The Picador Book of Modern Indian Literature* (New Delhi: Picador, 2001) 456-477. 3. Amit Chaudhuri, "The Construction of the Indian Novel in English," ed. Amit Chaudhuri, *The Picador Book of Modern Indian Literature* (New Delhi: Picador, 2001) xxiii –xxxi. **Unit 2 Fiction I** □ Raja Rao. *Kanthapura,* New Delhi: Orient, 1971 **Unit 3 Fiction II** □ Githa Hariharan. *The Thousand Faces of Night.* New Delhi: Penguin, 2008. **Unit 4 Poetry** 1. A.K. Ramanujan: "Extended Family" and "Small Scale Reflections on a Great House", *The Collected Poems of A.K.Ramanujan* (Delhi:OUP, 1995) 2. Arun Kolatkar: "Meera" (26-33) and "Knucklebones" (66-69), *Kala Ghoda Poems* (Mumbai, Pras Prakashan, 2004) 59 3.Agha Shahid Ali: "The Dacca Gauzes", "Beyond English" from *The Veiled Suite- The Collected Poems.* WW Norton &Company, 2009. **Unit 5 Drama** □ Mahesh Dattani. *Final Solutions*. Oxford	The present course aims at presenting a sweep of Indian writing in English, representative in multiple genres and voices in a diverse range of Indian writing in English. The course aims to raise **questions against the colonial enterprise, to acquaint them with themes of disillusionment of post-Independence India. From the difficulty of writing in English to the 'coming into their own' along with the definitive fillip in the 1980s, the course aims to acquaint students with a convoluted terrain of Indian Writing.**	After Completion of this Course, Students will be able for a thorough contextual discussion as the genre has grappled with contentious issues of authenticity, language, nation, identity and idiom. They will also be able to interpret the works of great writes of Indian writers in English. In the process, they learn to demonstrate, through discussion and writing, an understanding of significant cultural and societal issues presented in Indian English literature

		University Press, 2005.		
Sem 4	**Paper XV (1) Indian Writings (in Translation) – II**	**Unit 1 Fiction** Gurdial Singh. *Marhi da Deeva* (*The Last Flicker)*. New Delhi: National Book Trust, 2017. **Unit 2 Life Writing** Urmila Pawar, *The Weave of My Life: A Dalit Woman's Memoirs*. Trans., Maya Pandit. New York: Colombia University Press. 2009. **Unit 3 Short Story/ Short Fiction** 1. Prem Chand: "Kafan", "The Thakur's Well", Trans. David Rubin in *The World of Prem Chand: Selected Short Stories,* Delhi, Oxford University Press, 2001. 2. Mahashweta Devi: "Draupadi" and "The Breast Giver", Trans. Gayatri Chakarvarty Spivak. *Breast Stories*. Calcutta: Seagull, 1997. 3. Vaikom Muhammad Basheer "Walls" (47) and "The Card Sharper's Daughter" (27) both stories from *Basheer Katha Classics.* New Delhi: Katha, 1997. **Unit 4 Poetry** 1. Surya Kant Tripathi Nirala: "Beggar", "Breaking Stones", from *A Season on the Earth*. Trans. David Rubin, New Delhi, Oxford University Press, 2003. 2. Faiz Ahmed Faiz: "A Letter from Prison" "Don't Ask Me for that Love Again" , " A Prison Daybreak." available in *The Rebel's Silhouette* Trans. Agha Shahid Ali. New Delhi: OUP, 2005. 3. Namdeo Dhasal. "Hunger" from *Poet of*	The objective of the course is to familiarise students with the bewildering array of languages and sub-cultures as this diversity has been flowering since millennia and has led to profusion of writing in multiple languages. In the present course, an attempt is made to bridge the gap by offering an array of linguistically diverse texts in translation. .Through the extra textual and critical readings, the course aims to provide a context for the contentious issues of identity and authenticity, as are presented in translated texts.	After Completion of this Course, Students will be able to acquire a deeper understanding of the varied influences on the terrain of Indian writing in a tangible way. They will properly understand the socio-political scenario which spawned writings in English from India and difficulties in making sense of such works. They will also be able to chart the qualitative evolution of various genres of Indian writing in English though a critical study of poems, plays and short fiction. They will start examining how old and new writers have sought to invent the idea of a free and fair democratic India through their output. They start discussing those salient features of English writing in India that set it apart from other postcolonial literary practices and conventions.

		the Underworld. Delhi: Narayana, 2007. 101 **Unit 5 Play** Girish Karnad: *Tughlaq.* New Delhi: Oxford University Press, 2005.		
Sem 3	**Paper XI** 3 **World Literature – I**	**Unit I Theory** □ Johann Wolfgang (von) Goethe, "On World Literature" (1827), *World Literature- A Reader* (Routledge, 2013) 9-16. □ Milan Kundera, "Die Weltliteratur*"* (2005), *World Literature: A Reader* (Routledge, 2013), 289-301. **Unit II Play** □ Kalidasa, *Abhijnana Sakuntalam* (The Recognition of Shakuntala) ed and trans. by Somadeva Vasudeva (New York: The Clay Sanskrit Library & New York University Press, 2006). **Unit III Tales/ Fables** □ "The Tale of Ox and Donkey", "The Tale of the Husband and the Parrot", & "The Tale of Hunchback", *The Arabian Nights*, trans Husain Haddawy (Norton, 1990) □ "How the Moon Became Beautiful", "The Animals' Peace Party" & "The Widow and Her Son", *Chinese Fables and Folk Stories*, trans., Mary Hayes Davis & Chow-Leung (New York, Cincinatti & Chicago: American Book Company, 1908) **Unit IV Poetry** □ Rig Ved, "Creation" and "Speech". *The Rig Veda: An Anthology: One*	The present course aims at helping the students understand the concept of world literature. It is designed around classical and canonical ancient and medieval and modern texts and as such offers opportunities to re-map one's literary horizons at a global scale	After Completion of this Course, Students will be able to develop a comparative perspective and inculcate in themselves an awareness of the best in world literature. They will also be enabled to transfer and apply the acquired concepts and principles to study different branches of World literature that is fiction, short story, essay and poetry.

		Hundred and Eight Hymns. (Penguin Books,1981). □ Dante Aligheri, Canto IV-VI, *Inferno* (Penguin Classic, 2013). **Unit V Novel** a. Cervantes, *Don Quixote* (Penguin Classics, 2011).		
Sem 4	**Paper XVI (3) World Literature in Translation – II**	**Unit I Theory** 1. Selected chapters from *World Literature in Theory* by David Damrosch, 2014 ("World Literature in Theory and Practice," "Conversations with Eckermann on Weltliteratur 1827" and "What is World Literature"). 118 2. Franco Moretti, "Conjectures on World Literature", *Debating World Literature*, Christopher Pendergast, ed. (Verso, 2004, pp 148-163). **Unit II Non-Fiction** 1. M.K. Gandhi, *The Story of My Experiments with Truth* (Maple Press, 2011). **Unit III Play** 1. Bertolt Brecht, *Mother Courage and her Children.* (Bloomsbury Academic, 2009). **Unit IV Novel** 1. Gabriel Garcia Marquez, *One Hundred Years of Solitude* (Harper, 2003). **Unit V Poetry** 1. Pablo Neruda: 'A Song of Despair,' 'Enigmas' 'Brown & Agile Child' [*The Poetry of Pablo Neruda* (Farrar, Straus and Giroux, 2005)]. Also available onlne.	The present course aims to help understanding the concept of world literature. It is designed around modern canonical texts and offers an opportunity to widen one's literary horizons. .	After Completion of this Course, Students will be able to read and understand about the rich classical texts from Greco-Roman literatures as well as Indian literatures written in Sanskrit, in translated versions. They would also be able to trace the nature of influence that all the classical texts have on modern English literatures both in British and Indian writings in English. In this manner, they will be able to appreciate these texts as a source of great wisdom. They can also interpret these texts from contemporary points of view.

		2. Octavio Paz: 'A Tree Within,' 'No More Cliches' 'Tomb of Amir Khusru' [*Collected Poems of Octavia Paz*, (New Directions; Bilingual ed. edition, 1991)]. Also available online. 3. Joseph Brodsky: 'Elegy,' Odysseus to Telemachus,' 'Folk Tune' [*Collected Poems in English* (Farrar, Straus and Giroux, 2002)]. Also available online. 4. CP Cavafy: "Waiting for the Barbarians," "Ithaka," "The City", [*C.P. Cavafy: the Collected Poems* (Oxford World's Classics, 2007). 5. Anna Akhmatova: "He Did Love," "You will hear Thunder," "Lot's Wife", [Available online at <https://www.poemhunter.com/poem/he-did-love>, <https://www.poets.org/poetsorg/poem/lots-wife>, and <https://www.poemhunter.com/poem/you-will-hear-thunder/comments/>]		
Sem3	**Critical theory 1**	**Unit I** 1. M.H. Abrams, "What's the Use of Theorizing about the Arts?",*Doing Things with Texts* (London & New York: Norton Paperback, 1991) 31-72. **Unit II** 1. Roman Jakobson, "Two Aspects of Language", *Literary Theory: An*	With the changing contours of power dynamics and a sustained emphasis on representational politics, a reassessment of the methodology of the literature classroom has been effected. The tools of analysis have also	

		Anthology, eds. Julie Rivkin and Michael Ryan (Blackwell, 2004, 2nd Ed.) 76-80. 2. Roland Barthes, "The Death of the Author",*Image/ Music/ Text.* Trans. Stephen Heath (Hill and Wang,1977) 142-147. **Unit III** 1. Jacques Derrida,"Letter to a Japanese Friend",*Derrida and Differance.* Eds. David Wood and Robert Bernasconi(Evanston III: Northwestern University Press, 1988) 1-6. 2. Jean Francois Lyotard,"Answer to the Question, What is the Postmodern?" (1-16)& "Note on the Post- in Postmodern" (75-80), *ThePostmodern Explained*: *Correspondence 1982-85*(Minnesota & London: University of Minnesota Press, 1992) **Unit IV** 1. Michel Foucault, "Panopticism" from "Discipline & Punish: The Birth of the Prison",*Race/Ethnicity: Multidisciplinary Global Contexts*, Vol. 2, No. 1, The Dynamics of Race and Incarceration: Social Integration,	witnessed a shift. Critical Theory represents a wide spectrum from literary benchmarks to extra literary- to progressively borrowing from diverse fields, viz., economics to psychology, history to sociology, theory. This eclectic field is thoroughly aligned to the purposes of the study of literature and collected under the rubric of "theory." The effect of literary theory on study of literature has clearly transcended the original impulse of text analysis and is witnessing a more integral role, with theory asserting a tangible influence on the production of literature itself. This course represents a historical progression of literature analysis as well as the ideological impulses that have	

		Social Welfare, and Social Control (Autumn,2008)1-12. 2. Giles Deleuze, "Postscript on the Societies of Control",*October*, Vol. 59 (Winter, 1992), 3-7. **Unit V** 1. Jean Baudrillard, "The System of Objects" (10-28) &"Simulacra and Simulations" (166-184), *Jean Baudrillard: Selected Writings*, ed. Mark Poster (Stanford: Stanford University Press, 1988)	modified the practice of literary studies. It focuses on theoretical understanding of history, ideology, gender and colonialism.	
SEM4	**Critical theory 2**	**Unit I** Hayden White: "Historical Text as Literary Artifact", *Tropics of Discourse: Essays in Cultural Criticism* (The John Hopkins University Press, 1986), 81-100. **Unit II** Raymond Williams, "From Reflection to Mediation" (95-100), "Dominant, Residual and Emergent" (121-127), *Marxism and Literature* (Oxford and New York: OUP, 1977) **Unit III**	Post-1980, the gap between literary theory and cultural theory has narrowed down. Literary theory is no longer contained to our thinking about the production or reception of literary works alone; rather it has brought about changes in the ways in which we conceptualize larger discourses of history, colonialism, gender and ideology. The ambit of theory has further widened due to a strident inner questioning. This paper, to be seen in conjunction with Literary Theory – I, maps the subsequent development and new interrogations in the field. The collation of texts is with the intent	

		Judith Butler, "Performative Acts and Gender Constitution: An Essay in Phenomenology and Feminist Theory", *Theatre Journal*, Vol. 40, No. 4 (Dec., 1988), 519-531. **Unit IV** Homi Bhabha, "Of Mimicry and Man: The Ambivalence of Colonial Discourse", *October*, Vol. 28, Discipleship: A Special Issue on Psychoanalysis (Spring, 1984), 125-133 **Unit V** Aijaz Ahmad, "Literary Theory and Third World Literature", *In Theory: Classes, Nations, Literatures* (London & New York: Verso, 1992) 2000 rpt. 43-71 & 327-330.	of exposing students to later developments in the field of literary theory.The paper focuses on essays that deal with theoretical understanding of history, ideology, gender and colonialism.	
Sem 3 &4	**POST COLONIAL LITERATURE 1&2.**	**Unit I** 2. M.H. Abrams, "What's the Use of Theorizing about the Arts?",*Doing Things with Texts* (London & New York: Norton Paperback, 1991) 31-72. **Unit II** 3. Roman Jakobson, "Two Aspects of	The Course/paper in Postcolonial Literatures aims to examine some key concepts and debates in postcolonial writing, theory and criticism. It attempts to move beyond an introductory study of colonialism/postcolonialism to focus on the enormous	

		Language", *Literary Theory: An Anthology*, eds. Julie Rivkin and Michael Ryan (Blackwell, 2004, 2nd Ed.) 76-80. 4. Roland Barthes, "The Death of the Author",*Image/ Music/ Text*. Trans. Stephen Heath (Hill and Wang,1977) 142-147. **Unit III** 3. Jacques Derrida,"Letter to a Japanese Friend",*Derrida and Differance*. Eds. David Wood and Robert Bernasconi(Evanston III: Northwestern University Press, 1988) 1-6. 4. Jean Francois Lyotard,"Answer to the Question, What is the Postmodern?" (1-16)& "Note on the Post- in Postmodern" (75-80), *ThePostmodern Explained*: *Correspondence 1982-85*(Minnesota & London: University of Minnesota Press, 1992) **Unit IV** 3. Michel Foucault, "Panopticism" from "Discipline & Punish: The Birth of the Prison",*Race/Ethnicity: Multidisciplinary Global Contexts*, Vol. 2, No. 1, The Dynamics of Race	minefield Postcolonial Studies has become. It endeavours to both analyse the meanings and implications of postcolonialism today as well as critique the discipline and interrogate its wide-ranging scope. This course begins with the British Raj and its accompanying literature, leading to an understanding of some conceptual categories of postcolonial studies—its assumptions, contexts, pitfalls. In the initial stage, the course explores the origins and meaning of the history of colonialism and postcolonialism to understand the effect of imperialism on the colonized world. Gradually, the focus shifts to self-representation and resistance, to postcolonial	

		and Incarceration: Social Integration, Social Welfare, and Social Control (Autumn,2008)1-12. 4. Giles Deleuze, "Postscript on the Societies of Control",*October*, Vol. 59 (Winter, 1992), 3-7. **Unit V** 2. Jean Baudrillard, "The System of Objects" (10-28) &"Simulacra and Simulations" (166-184), *Jean Baudrillard: Selected Writings*, ed. Mark Poster (Stanford: Stanford University Press, 1988)	activism and to theories of language and nationalism in the formerly colonized societies. The emphasis in Semester III is on texts rather than simply on theories. Literary texts are primary to the discussions so that all theoretical insights can be seen as emerging from these significant texts. Effort has been made to place theory and texts in a dialogue so that theory will act as an accompanying method for understanding the writing of the texts. In semester IV, students move on to examine more contemporary essays and texts, ranging from issues of history-writing to hybridity, from decolonization to rapidly globalizing third-world	

			economies, and finally to blackness, terror and migration. Focus now is on considering how postcolonialism has changed its agendas by transcending national boundaries. This course in postcolonial literatures incorporates an inter-textual and interdisciplinary approach that provides a variety of academic tools and perspectives to study the social, cultural, and psychological aftermath of colonialism and the identity crisis generated in the wake of decolonization. Independence efforts in the Indian subcontinent following the World War II as well as the grassroots movements targeting colonial regimes in Northern Africa have paved the way towards a	

		Unit I Hybridity and Diaspora 1. Robert J. C. Young, "Hybridity and Diaspora", *Colonial Desire: Hybridity in Theory, Culture and Race*. London and New York: Routledge, 1995: 1-28. 2. Jean Rhys: *Wide Sargasso Sea*. London: Penguin, 1968. **Unit II Gender, Subalternity and Marginality**	rethinking of the power dynamics by challenging Eurocentric and orientalist ways of defining the other. Postcolonial theory disrupts western cultural and political hegemony by giving natives the permission to tell their own stories. To this end, efforts are made in the classroom to sensitize the students to the contemporary issues and how they are an outcome of a colonised past. They are also made aware of how concepts of racial identity, language and culture have been misrepresented through oppressive colonial practices. Through discussions, films, documentaries and other such interactive activities, students are involved actively so as to help them	

		1. Sharmila Rege, "The Significance of Dalit Testimonios", *Writing Caste/Writing Gender: Narrating Dalit Women's Testimonies*. New Delhi: Zubaan, 2006. 2. Bama, *Karukku*. Trans. Lakshmi Holmstrom. New Delhi: Oxford India Paperbacks,1992. **Unit III Race and Counterculture** 1. Paul Gilroy, "The Black Atlantic as a Counterculture of Modernity." *The Black Atlantic*, Cambridge, Mass: Harvard University Press, 1994: 1-40. 2. Toni Morrison, *Beloved*. New York: Knopf, 1987. **Unit IVGlobalization** 1. Eduardo Galeano, "Introduction: 120 Million Children in the Eye of the Hurricane", *Open Veins of Latin America: Five Centuries of the Pillage of a Continent*, trans. Cedric Belfrage. New York: Monthly Review Press, 1977: 1-8. 2. Margaret Atwood, *Surfacing*. Canada: McClelland and Stewart, 1972. **Unit V Post 9/11 Writing**	understand colonialism and its practices in the contemporary contexts and come out with their own narratives.	

		1. Samuel P. Huntington, "The Clash of Civilizations?" *Foreign Affairs*, Vol. 72, No. 3 (Summer 1993): 22-49. 2. Mohsin Hamid, *The Reluctant Fundamentalist*. Harmondsworth: Penguin, 2008.		

Semester	Title of the paper	Course content	Objectives of the course/ content	How were the objectives met
Sem 3	**American Literature-1 Poetry and Drama:1900to the Present.**	**The course contains 5 units . each unit carries equal marks.** **UNIT-1** **Langston Hughes: Selected Poems** **UNIT-2** **Allen Ginsberg :selected poems** **UNIT 3** **Adrienne Rich: selected poems** **UNIT 4** **Sam Shepard: The Burried Child** **UNIT-5** **August Wilson:**	**This paper focusses on various literary and cultural movements such as Harlem Renaissance, Depression Era, Beat Movement, Feminism, Post Modernism, in relation to American literary history. This course explores the immense variety and vitality of of American literature over the course of 20th century through the transformative works of acclaimed writers who have shaped the contours and development of the American literary tradition. The texts in the syllabus are representative of a dynamic literary tradition that emerges from multiple perspectives such as those of race , gender, ethnicity, sexuality, socio-economic**	**The department holds extension lectures , talks and seminars by eminent scholars. Teachers use blended mode of teaching and make use of various e resources, they make use of various platforms like whatsapp , google classroom, zoom meetings, You tube videos , you tube downloads, organising movie shows and Power Point Presentations. Students participate in discussions in class room and submit assignments.**

		The Piano Lesson	**class, and historical period.**	
Sem -4	**American literature -2 Multicultural American Fiction: 1980 to the Present.**	**The course is divided in 5 units . UNIT-1 God Help the Child by Toni Morrison UNIT-2 Ravelstein by Saul Bellow UNIT -3 The Round House by Louise Erdrich UNIT-4 House on Mango Street by Sandra Cisneros UNIT -5 A History of Multicultural America by Ronald Takaki**	**The course aims at testing of the students' comprehension of the formal and aesthetic aspects of specific texts as well as a grasp of literary movements / trends/ concepts and terms related to the historical and cultural aspects that distinguish the text within American literary history. By the end of the course the students get insights into the rich heterogeneity of American writers whose works serve as literary landmarks in American history and deal with the dynamics of race, ethnicity, socio-economic class, sexuality and gender. The students are thus sensitized about the issues of gender, sexuality, class consciousness and race and this helps them to emerge as better beings.**	

SEM3	**DISSERTATION WORK**	Research, in the field of literature, aims at serving the purpose of exploring and expanding knowledge in literary, cultural and social worlds. The dissertation work is carried out under the guidance of an academic supervisor. Every student submits a dissertation (4000-6000 words) on a topic of his/ her choice. This short research project introduces the mechanics and techniques of the field and paves the way for further research avenues. The students are enabled to identify and discuss the issues and concepts salient to the research process. With the guidance of the supervisor the research topic is identified and after applying appropriate methodology the research project is carried out. While maintaining the academic		Students work under the guidance of their mentors and embark on the journey towards fruitful completion of the chosen task. During the period of this process, they undergo a major learning experience and hone their language as well as interpersonal skills. The students emerge more confident and better equipped with language skills than earlier. The work done brings out the efficiency and excellence in them. It also improves their critical thinking.

		integrity this course aims at developing advanced critical thinking skills and enhanced writing skills.		
SEM4	**SKILL ENHANCEMENT**	The students will have to opt **one** of the six options given below. 1. **Drama in Practice**: Those who opt for this paper shall have to stage a play or take part in some other form of performance. Videos of the production and rehearsals are to be preserved by the department(s). 2. **Creative Writing**: The students will have to give at least 5-7 poems, two short stories or one chapter of a novel or write in some other genre of his/her choice. The department shall invite creative writers and experts to train students through at least a weeklong workshop. The writings produced by the students shall have to be maintained and placed in the library of the department. 3. **Translation**: The student shall be asked to translate 15-30 pages of an	The students choose one from the pool of six options given in the paper. The paper focuses on practical training/field exposure/creativity, entailing mastery in use of language in real life contexts and thereby learn and exemplify effective communication. Each student is allotted a teacher supervisor who would guide him towards the successful completion of the undertaken task. One of the primary objectives of the course is skill enhancement in a particular field which boosts their confidence and contributes towards	

		untranslated text either from Hindi to English or from Punjabi to English. The department shall invite practicing translators and experts to train students through at least a weeklong workshop. The translations produced by the students shall have to be maintained and placed in the library of the department. 4. **Film-making**: The students are expected to make short a filmof duration about 3-5 minutes on a theme of his/her choice. The department shall maintain the record of the films produced. The screening of the films shall be video graphed. 5. **Community Outreach**: The students would be expected to go to interiors of the region to collect/ record oral narratives/ biographies of marginal sections of society in any language. The department shall organize a short-term field trip, and the department would maintain the narratives thus collected. 6. **Classroom Teaching for Weak Students in Local Schools**: The	their overall personality development besides enhancing their language proficiency.	

		students will take classes of weak students in local government schools for the duration of at least a week (five working days). The Department shall facilitate and coordinate this outreach activity. The activity would be video graphed for record.		

Semester	Title of the paper	Course content	Objectives of the course/ content	How were the objectives met
Sem 3	**Research Methods**	**The course is divided into 5 units: Unit I Basics 1. Research Basics 2.Research Ethics**	**This paper has been designed keeping in view the increasing importance of research for Master's students in the emerging contexts, as research involves systemic exploration of subject-matter for creating**	**The department holds extension lectures , talks and seminars by eminent scholars. Teachers use blended mode of teaching and make use of various e resources, they make use of various platforms like whatsapp , google classroom, google meet, zoom meetings,**

		Unit II Theory **1. Theoretical concepts: abduction, deduction, induction,, empiricism,, idealism, pragmatism, realism, positivism, relativism, constructivism , essentialism, hermeneutics,** **Unit III Sources** **1.Tools and techniques for literary research: using online and printed sources** **Unit IV Research Proposal** **Unit V**	**new knowledge or extending the frontiers of existing knowledge. The paper is of introductory nature. It aims to impart the basic understanding of research tools and techniques, research ethics, research theory, online and print sources and documentation to the students.**	**You tube videos , you tube downloads etc.Students participate in discussions in class room and submit assignments. to accomplish the outcome of the course.**

		Documentation		
Sem 4	**Creative Writing and Soft Skills**	**UNIT I Creative Writing** **UNIT II Art of Description** **UNIT III Translation and Paraphrase** **UNIT IV Content Writing** **UNIT V Writing a CV**	**The objective of the paper is to impart a keener understanding of the finer aspects of creative writing, translation and other soft skills. Though in each unit of the paper, there are theoretical essays, yet the emphasis is on the practical application of the ideas related to the use of language in different situations. The students would be examined in terms of their skills of writing creatively on given situations and also translating paragraphs from one language to another. The essays are of introductory nature and have been prescribed to provide the students general guidelines in dealing with questions of applied nature**	

MA PUNJABI

Post Graduation in Punjabi is two year course divided into four semesters. It comprises of different Punjabi Literary form/Genres like medieval literature, criticism , drama, fiction, history of literature etc. students holding PG Degree in Punjabi are eligible for all the posts meant for Graduate pass outs. Apart from luring careers for PG Degree holder are language Officers , Translators , Editors, Announcers, News Readers, Electronic Media, Print Media, Regional Language experts etc.

PROGRAMME OUTCOME:

1. **Students can pursue B.Ed. which will make them eligible to get teaching jobs in schools .**
2. **They can appear in UGC-NET exam and by clearing it they can pursue career of college lecture.**
3. **Students can appear for State and National level exams for Government jobs**
4. **Students can also opt this subject as full-fledged paper for prestigious exams like U.P.S.C. or P.P.S.C .**
5. **They can also go for other competitive exams like Banking, F.C.I. etc.**

PROGRAMME SPECIFIC OUTCOME

1. **Students become eligible to persue M.Phil. and Ph.D. .They can also appear for N.E.T. to persue their career in teaching.**
2. **Students can also go for the job of Tranlator in various departments and in press media.**

COURSE OUTCOME

1. **Students learn History of Punjabi Literature and various genres like poetry, fiction**

   and it helps in developing an analytical and critical point of view among themselves.

2. **Students come to know about emergence of different genres in different time periods and it helps in understanding our Culture and Folklore .**

Student Performance and Learning Outcomes MSC CHEMISTRY

Paper/ unit-content wise Course outcomes: See **Table 1** below.

Class: M.Sc. Chemistry (Two Year course)

Subject: Inorganic Chemistry, Organic chemistry, Physical chemistry, Spectroscopy and its applications, Photochemistry and solid state, Orgnaotransistion Metal chemistry, Organic Synthesis, Environmental Chemistry, Heterocyclic Chemistry, Biophysical Chemistry

Attainment of course outcomes:

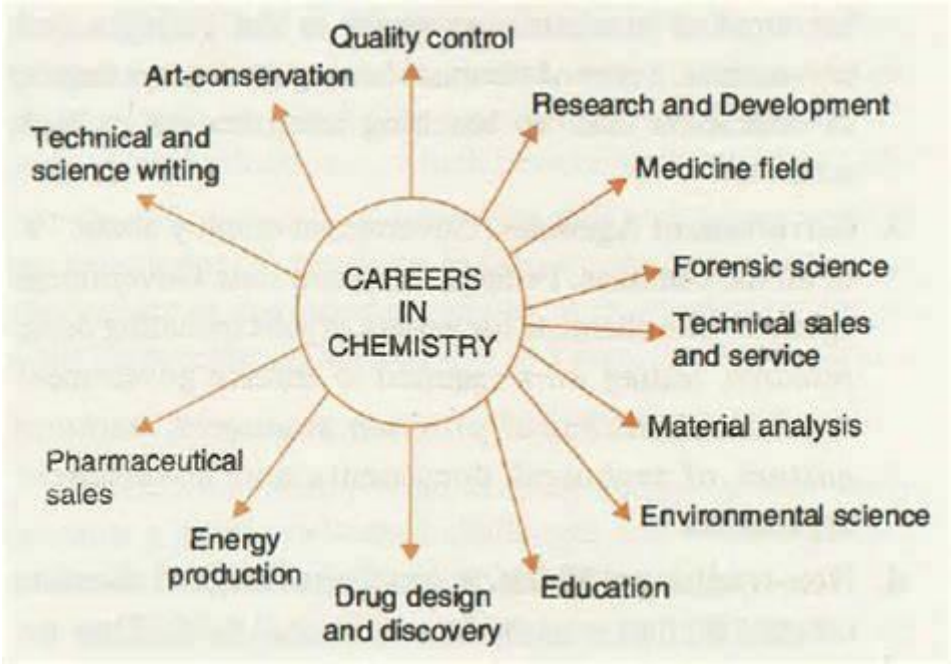

Table 1: Semester wise details of M.Sc. Chemistry Course

Semester	Title of the paper	Content	Learning Outcome	How were objectives met
1	**Inorganic Chemistry**	Unit- I : Stereochemistry And Bonding In Main Group Compounds: VSEPR, Walsh diagrams (tri and tetra-molecules), dπ-pπ bonds, Bent rule and energetics of hybridization, some simple reactions of covalently bonded	Students learn about structure and geometry of inorganic compounds using various theories. Students become expert in Reactivity of coordination compounds and hydrolysis.	Objectives of present course were achieved by regular classes. Course books are available in college library in good number for students. Students are given assignments unit/subject wise and their performance was evaluated. College conducts mid semester exams (MST) every semester based on which students' assessment is sent to the university. Weekly interaction sessions are organised with students in class itself to understand difficulties faced by them. There also exists student feedback system in college.

		molecules.		Students concerns are resolved time to time by teachers and head of the department. In the pandemic time, online groups have been created where students can share their doubts and ask question anytime. -do-
1	**Inorganic Chemistry**	Unit-II : Metal Ligand Bonding: Limitations of crystal field theory, molecular orbital theory, octahedral, tetrahedral and square planar complexes, π bonding and molecular orbital theory.		
1	**Inorganic Chemistry**	Unit-III : Metal-Ligand Equilibria In Solution: Stepwise and overall formation constant and their interaction, trends in stepwise constants, factors affecting the stability of metal complexes with reference to the nature of metal ion and ligand, chelate effect and its thermodynamic origin, determination of binary formation constants by pH spectrophotometry. Reaction Mechanism of Transition Metal Complexes-I: Energy profile of a reaction, reactivity of metal complexes, inert and labile complexes, kinetic application of valance bond and crystal field theories, kinetics of octahedral substitution.		
1	**Inorganic Chemistry**	Unit- IV: Reaction Mechanism of Transition Metal Complexes –II: Acid hydrolysis, factors affecting acid hydrolysis, base hydrolysis, conjugate base mechanism, direct and indirect evidences in favour of conjugate mechanism, reactions without metal-ligand bond		

		cleavage. Substitution reactions in square planar complexes, the trans effect, mechanism of substitution reaction, Redox reactions, electron transfer reactions, mechanism of one electron transfer reactions, outer sphere type reactions, cross reactions and Marcus Hush Theory, inner sphere type reactions.		
1	**Organic Chemistry**	Unit- I Nature of Bonding in Organic Molecule: Delocalized chemical bonding, conjugation, Cross conjugation, resonance hyper conjugation, Bonding in fullerenes, Tautomerism, Aromaticity in benzenoid and non benzenoid compound. Alternant and non alternant hydrocarbons, Huckel's rule. Energy level of π M.O., Annulenes, anti aromaticity, aromaticity, Homo aromaticity, PMO approach. Bonds weaker than covalent, addition compound, crown ether complexes and cryptands, Inclusion compound, cyclo dextrins, Catenanes & rotaxanes. Effect of structure on reactivity-resonance and field effects, steric effect, quantitative treatment. The Hammett equation and linear free energy relationship, substituent and reaction constants. Taft equation.	Students learn about basic organic chemistry, aromaticity of higher ring structures in organic. They acquire knowledge of stereochemistry and substitution reactions.	
1	**Organic**	Unit- II: Stereochemistry:		

	Chemistry	Conformational analysis of cyclo alkanes, decalins, effect of confirmation on reactivity. Confirmation of sugars, Steric strain due to undesirable crowding of resolution, entatiotropic and diasterotropic atoms. Stereo specific and stereo selective synthesis, chirality due to helical shape. Stereochemistry of compounds containing N,S,P.		
1	**Organic Chemistry**	Unit- III: Aliphatic Nucleophilic Substitution The SN2, SN1, mixed SN1 and SN2 and SET mechanisms. The neighbouring group mechanism, neighbouring group participation by π and σ bonds, Classical and non-classical carbocations, norbornyl system. common carbocation rearrangements. The SNi mechanism. Nucleophilic substitution at an allylic, aliphatic, trigonal and a vinylic carbon. Reactivity effects of substrate structure, attacking nucleophile, leaving group and reaction medium, phase transfer catalysis, ambident nucleophile, regioselectivity. Aliphatic Electrophilic Subsitution: Biomolecular mechanisms-SE2 and SEi. The SE1 mechanism, electrophilic substitution accompanied by double bond shifts.		

		Effect of substrates, leaving group and the solvent polarity on the reactivity.		
1	**Organic Chemistry**	Unit- IV: The arenium ion mechanism, orientation and reactivity, energy profile diagrams. The ortho/para ratio, ipso attack, orientation in other ring systems. Quantitative treatment of reactivity in substrates and electrophiles. Diazonium coupling, Vilsmeyer reaction, Gattermann-Koch reaction. Aromatic Nucleophilic Substitution, The SNAr, SN1, benzyne and SRN1 mechanisms, Reactivity-effect of substrate structure, leaving group and attacking		
1	**Physical Chemistry**	Unit- I Quantum Chemistry: Application of Schrodinger wave equation to particle in three dimensional box, simple harmonicoscillator and rigid rotator. Approximate Methods: The variation theorem, Linear variation Principle, perturbation theory (first order, second order and Non degenerate), Applications of variation method and perturbation theory to the Helium atom. Self-Consistent-Field theory	Students learn about quantum chemistry and its applications.	
1		Unit- II: Angular Momentum: Ordinary ang. momentum, generalized angular momentum,eigenfunctions for		

		angular momentum, eigenvalues of angular momentum, operator using ladder operators, addition of angular-momenta, spin, anti-symmetry and Pauli exclusion principle.Molecular Orbital Theory :Huckel theory of conjugated systems, bond order and chargedensity calculations, application to ethylene, allyl, butadiene, cyclopropenyl system, cylobutadiene.		
1		Unit- III: Thermodynamics: Classical Thermodynamics: Partial molal proporties, partial molal free energy, volume & heat content and their significance, Determination of these quantities, concept of fugacity and determination of fugacity. Non ideal systems, excess functions for non ideal solutions, Activity, Activity coeff, Debye huckel theory for activity coeff. electrolyte solutions, determination of activity & activity coeff, ionic strength. Application of phase rule to 3-component system, second order phase transitions. Statistical Thermodynamics: Concept of distribution, thermodynamic probability & most probable distribution, ensemble averaging, postulates of ensemble averaging, canonical, grand canonical & micro canonical		

		ensembles.		
1		Unit- IV: Statistical Thermodynamics: Corresponding distribution laws (using Lagrange's method of undetermined multipliers) Partition functions: Translational, Rotational, Vibrational, Electronic partitions functions. Calculation of Thermodynamic properties in terms of partition functions. Heat capacity, behaviour of solids chemical equilibria and equilibrium constant in terms of partition function, F.D. statistics, distribution law and application to metals. Bose Einsteins statistics. Distribution law & application to Helium.		
1	**Mathem-atics for Chemists**	Unit- I: Vectors: Vector, dot, cross and triple products etc. The gradient, divergence and curl. Vector calculus. Matrix Algebra Addition and multiplication; inverse, adjoint and transpose of matrices, special matrices (Symmetric, skew-symmetric, Hermitian, unit, diagonal, unitary, etc.) and their properties. Matrix equation: Homogeneous, non-homogenous linear and conditions for the solution, linear dependence and independence. Introduction to vector spaces, matrix eigen values	In this part students learn application of mathematics in chemistry.	

		and eigenvectors, diagonalization, determinants (examples from Huckel theory). Elementary Differential Equations, Variables-separable and exact, first-order differential equations, homogenous, exact and linear equations. Applications to chemical kinetics, secular equilibria, quantum chemistry, etc. Solutions of differential equations by the power series method, second order differential equations and their solutions.		
		Unit- II: Differential Calculus: Functions, continuity and differentiability, rules for differentiation, applications of differential calculus including maxima and minima (examples related to maximally populated rotational energy levels, Bohr's radius and most probable velocity from Maxwell's distribution etc), exact and inexact differentials with their applications to thermodynamic properties. Integral calculus, basic rules for integration, integration by parts, partial fraction and substitution. Reduction formulae, applications of integral calculus. Functions of several variables, partial differentiation, co-ordinate transformat-ions (e.g. Cartesian to spherical polar), curve		

		sketching. Permutation And Probability Permutations and combinations, probability and probability theorems, probability curves, average, root mean square and most probable errors, examples from the kinetic theory of gases etc., curve fitting (including least squares fit etc.) with a general polynomial fit.		
1	**Biology for Chemists**	Unit- I: Cell Structure and Functions: Structure of prokaryotic and eukaryotic cell, intracellular organelles and their functions, comparison of plant and animal cells. Overview of metabolic processes –catabolism and anabolism. ATP-the biological energy currency. Origin of life – unique properties of carbon, chemical evolution and rise of living systems. Introduction to biomolecules, building blocks of bio-macromolecules. Carbohydrates: Conformation of monosaccharides, structure and functions of important derivatives of monosaccharides like glycosides, deoxy sugars, myoinositol, amino sugars. N-acetylmuramic acid, sialilic acid, disaccharides and polysaccharides. Structure and biological functions of glucosaminoglycans or muco-	In this part students learn application of biology in chemistry.	

		polysaccharides. Carbohydrates of glycoproteins and glycolipids. Role of sugars in biological recognition. Blood group substances. Ascorbic acid. Carbohydrate metabolism-kreb's cycle, glycolsis, glycognesis and glycogenolysis, gluconeogenenis, pentose phosphate pathway.		
1		Unit- II: Lipids: Fatty acids, essential fatty acids, structure and function of triacylglycerols, lyerophosphplipids, cholesterol, bile acids, prostaglandins, lipoproteins-composition and function, role in atherosclerosis. Properties of lipid aggregates micelles, bilayers, liposomes and their possible biological functions. Bioligical membrans. Fluid mosaic model of membrane structure. Lipid metabolism - beta oxidation of fatty acid. Amino-acids, Peptides and Proteins: Chemical and enzymatic hydrolysis of proteins to peptides, amino acid sequencing. Secondary structure of proteins forces responsible for holding of secondary structures. Alpha helix, Beta sheets, secondary structure, triple helix structure of collagen. Tertiary structure of protein-folding and domain structure. Quaternary structure. Amino acid metabolism-		

		degradation and biosynthesis of amino acids, sequence determination chemical enzymatic mass spectral, racemization detection. Chemistry of oxytocin and tryptophan releasing hormone. Nucleic Acids: Purines and pyrimidines bases of nucleic acids, base pairing via H-bonding. Structure of ribonucleic acids RNA and deoxyribonucleic acids DNA, double helix model of DNA and forces responsible for holding it. Chemical and enzymatic hydrolysis of nucleic acids. The chemical basis for hereditary, an overview of replication of DNA, transcription, translation and genetic code. Chemical synthesis of mono and trinucleoside		
1	**Computer for chemists**	Unit- I: Introduction To Computers And Computing: Basic structure and functioning of computers with a PC as an illustrative examples. Memory I/O devices secondary storage. Computer languages. operating system with DOS as an example. Introduction to UNIX and WINDOWS. Data processing, principles of programming, Algorithms and flow charts. Use of Computer To Programmes: The students will learn how to operate a PC and how	In this part students learn application of Computer in chemistry.	

		to run standard programmes and packages. Execution of linear regression, X-Y plot, numerical integration and differentiation as well as differential equation solution programmes. Programmes with data preferably from Physical laboratory. Word processing Software such as WORDSTAR/MS-WORD / EXCEL.		
		Unit- II: Programming in Chemistry: Development of small computer codes involving simple formulae in chemistry, such as Vander Waals equation, pH titration, kinetics, radio active decay evaluation of lattice energy and ionic radii from experimental data. Linear simultaneous equations to solve secular equations within the Huckel theory elementary structural features such as bond lengths, bond angles, dihedral angles etc. of molecules extracted from a data base such as Cambridge data base. Computer Programming In FORTRAN/C/BASIC Elements of the computer language. Constants and variables operators and variable symbols expressions. Arithmetic assignment statement. Statement Input and output. Format		

		statements Termination statements. Branching statement such as IF or go to statement. Logical variable Double precision variables. Subscripted variables and DIMENSION. DO statement. Function and SUBROUTINE. COMMON and DATA statements.		
1	**Laboratory Course (Inorganic Chemistry)**	Gravimetric Estimation of two constituents when present together in a given complex. Analysis of two cation-system using EDTA.	Students learn to find percentage of ions in an sample.	
1	**Laboratory Course (Organic Chemistry)**	Organic Lab.(i)Safety: Eye, Fire and Chemicals (ii) Glassware (iii) Non-glass equipment (iv) Heating devices (v) Cleaning Glassware 2. To determine corrected melting points of an unknown organic compound (calibration of thermometer). 3. Adipic acid from cyclohexanol (oxidation). 4. p- Iodonitrobenzene from p-nitroaniline. 5. Preparation of benzyl alcohol and benzoic acid (Cannizzaro's reaction). 6. N- Bromo succinimide (Bromination).	Students learn to prepare common organic compounds using standard reactions.	

		7. Dibenzal acetone from benzaldehyde (Claisen-Schmidt reaction). 8. Cinnamic acid from benzaldehyde (Knoevenaegal reaction). 9. Acetanilide, bromoacetanilide, bromoaniline. 10. Diphenylmethane from benzylchloride (Friedel Craft's reaction). 11. Benzanilide (Schotten-Baumann reaction). 12. o-Benzoylbenzoic acid (Friedel Craft's reaction).		
1	**Laboratory Course (Physical Chemistry)**	Viscosity: (i) Determination of percentage composition of a liquid mixture by viscosity measurement. (ii) Determination of molecular weight of a high polymer (say polystyrene) by viscosity measurement. 2. Surface Tension: (i) Determination of Parachor value of >CH2 group. (ii) To measure interfacial tension and to test the validity of Antonoff's rule. (iii) To compare cleansing power of two detergents. (iv) To determine the critical micelle concentration of a soap by surface tension method. 3.	Students learn to find physical parameters like viscosity, mol. Wt., surface tension.	

		Solubility: (i) Determination of solubility of an inorganic salt in water at different temperatures and hence to draw the solubility curve. (ii) To study the effect of addition of an electrolyte on the solubility of an organic acid. (iii) To study the variation of solubility of Ca (OH)2 in NaOH solution and hence determine the solubility product. 4. Colloidal State:(i) To compare the precipitation power of Na+, Ba +2 & A1+3 ions for As2S3 sol. (ii) To study interaction between arsenious sulphide and ferric hydroxide sol. 5. Density: Determine the partial molar volume of ethanol in dil. aqueous solution at room temperature.		
2	**Inorganic Chemistry**	Unit- I: Electronic Spectra and Magnetic Properties Of Transition Metal Complexes-I Spectroscopic ground states, correlation, Orgel and Tanabe-Sugano diagrams for transition metal complexes (d1-d9 states), calculations of Dq, B and β parameters, charge transfer spectra and Heteropoly Acids And Salts	Students learn inorganic spectra of coordination compounds. Pi-bonding ligands, their bonding, structure and synthesis add to the knowledge of students.	
1		Unit- II: Electronic Spectra and Magnetic Properties Of Transition		

		Metal Complexes-II Spectroscopic method of assignment of absolute configuration in optically active metal chelates and their stereo chemical information, anomalous magnetic moments, magnetic exchange coupling and spin crossover		
1		Unit- III: Metal Π–Complexes: Metal carbonyls, structure and bonding, vibrational spectra of metal carbonyls for bonding and structure elucidation, important reaction of metal carbonyls. Preparation, bonding structure and important reactions of transition metal nitrosyl, dinitrogen and dioxygen complexes, tertiary phosphine as ligand		
1		Unit- IV: Metal Cluster Higher boranes, carboranes, metallobranes and metallocarboranes, metal carbonyl and halide clusters, compounds with metal-metal multiple bonds.		
2	**Organic Chemistry**	Unit- I: Reaction Mechanism, Structure and Reactivity Types of mechanism, types of reactions, thermodynamics and kinetic requirement. Kinetic and thermodynamics control, Hammond's postulate, Curtin-Hammett Principle, Potential energy diagrams, transition states	In this course students learn about elimination reactions, free radical mechanism and pericyclic reactions.	

		and intermediates, method of determining mechanisms, isotope effects. Addition to Carbon-Carbon Multiple Bonds. Mechanistic and stereochemical aspects of addition reaction involving electrophiles, nucleophiles and free radicals, regio and chemoselectivity, orientation and reactivity. Addition to cyclopropane ring. Hydrogenation of double and triple bonds, hydrogenation of aromatic ring. Hydroboration. Michael reaction. Sharpless asymmetric epoxidation		
2		Unit- II: Addition To Carbon-Heteroatom Multiple Bonds Mechanism of metal hydride reduction of saturated and unsaturated carbonyl compounds acids, esters and nitriles. Addition of grignard reagents, organozinc and organolithium reagents to carbonyl and unsaturated carbonyl compounds. Wittig reaction. Mechanism of condensation reactions involving enolates-Aldol, Knoevenagel, Claisen, Mannich, Benzoin, Perkin and Stobbe reactions. Hydrolysis of esters and amides, ammonolysis of esters.		
		Unit- III: Free Radical Reactions Type of free radical reactions, free radical substitution mechanism at		

		an aromatic substrate, neighbouring group assistance. Reactivity for aliphatic and aromatic substrates at a bridgehead. Reactivity in the attacking radicals. The effect of solvents on reactivity. Allylic halogenation (NBS), oxidation of aldehydes to carboxylic acids, auto-oxidation. Coupling of alkynes and arylation of aromatic compounds by diazonium salts. Sandmeyer reaction. Free Radical Rearrangement. Hunsdiecker reaction, Elimination Reaction: The E2, E1 and E1cB mechanisms and their spectrum, Orientation of the double bond. Reactivity effects of substrate structure, attacking base, the leaving group and the medium. Mechanism and orientation in pyrolytic elimination.		
2		Unit- IV: Pericyclic Reactions: Molecular orbital symmetry, frontier orbitals of ethylene, 1,3-butadiene, 1, 3, 5-hexatriene and allyl system. Classification of pericyclic reactions. Woodward-Hoffmann correlation diagrams. FMO and PMO approach. Electrocyclic reactions conrotatory and disrotatory motions 4n, 4n +2 and allyl system. Cycloadditions-antarafacial suprafacial additions, 4n and 4n+2 systems, 2+2 additiion		

		of ketenes, 1, 3-dipolar cycloadditions and cheleotropic reactions. Sigmatropic rearrangements-Suprafacial and antarafacial shifts of H. Sigmatropic shifts involving carbon moieties, [3, 3]-and [5, 5]-sigmatropic rearrangements. Claisen, Cope and aza-Cope rearrangement. Fluxional tautomerism. Ene reaction.		
2	**Physical Chemistry**	Unit- I: Chemical Dynamics: Methods of determining rate laws, ionic reactions, kinetic salt effects, steady state kinetics, kinetic & thermodynamic control of reactions, treatments of unimolecular reactions, Dynamic chain (pyrolysis of acetaldehyde composition of ethane), photochemical (H2-cl2) reactions & oscillatory reactions (Belousov-Zhabotinsky reaction), homogeneous catalysis, kinetics of enzyme reactions, general features of fast reactions, study of fast reactions by flow method, relaxation method, flash photolysis, and NMR method, dynamics of molecular motion, probing the transition state, dynamics of barrierless chemical reactions in solution, dynamics of unimolecular reaction (Lindemann-Hinshelwood and Rice-	Students learn about application of electrochemistry, surface chemistry and chemeical kinetics.	

		Ramsperger-Kassel-Marcus Theories of unimolecular reactions.		
2		Unit- II: Non-equilibrium Thermodynamics: Thermodynamic criteria for non eqbm states, entropy production and entropy flow, entropy balance eqns for different irreversible processes (eg. heat flow, chemical reaction etc.), transformation of generalized fluxes and forces, noneqbm stationary states, phenomenological equators, microscopic reversibility and onsager's reciprocity relations, electro kinetic phenomenon, diffusion, electrical conduction, irreversible thermodynamics for biological system, coupled reactions. Macromolecules: Electrically conducting, fire resistant, liquid crystal polymers, Kinetics of polymerization, mechanism of polymerization, mol.mass determination (osmometry, viscometry, diffusion & light scattering methods), sedimentation, chain config. of macromolecules, calculation of average dimensions.		
2		Unit- III: Surface Chemistry: Adsorption: Surface tension, capillary action, pressure difference across curved surface (Laplace		

		eqn), vapour pressure of droplets, (Kelvin eqn), Gibb's adsorption isotherm, estimation of surface area (BET eqn), surface films on liquids (electro kinetic phenomenon), catalytic activity at surfaces. Micelles: Surface active agents, classification of surface active agents, micellisation, hydrophobic interactions, critical micellar comentration, factors affecting CMC of surfactants, counter ions binding to micelles, thermodynamics of micellization-phase separation & mass action models, solubilization, microemulsion, reverse micelles		
2		Unit- IV: Electrochemistry: Electrochemistry of solutions, Debye-Huckel treatment, and its extension, ion solvent interaction, Debye-Huckel-Jerrum model, Thermodynamics of electrified interface equations, derivation of electrocapillarity, Lippmann equations (surface excess), Methods of determining structures of electrified interfaces, Guoy-Chapman, Stern. Over potentials, exchange current density, derivation of Butler-volmer equation. Tafel plots. Quantum aspects of charge transfer at electrode solution interfaces, quantization of charge transfer,		

		tunnelling Semiconductor interfaces- theory of double layer interfaces, effects of light at semiconductor solution interface. Electrocatalysis :Influence of various parameters, H-electrode, polarography, theory Ilkovic eqn, (excluding derivation), Half wave potential & its significance, electrocardiography, introduction to corrosion, homogeneous, theory, forms of corrosion, corrosion monitoring		
2	**Group theory and spectroscopy**	Unit- I: Symmetry And Group Theory In Chemistry: Symmetry elements & symmetry operation, definitions of group, subgroup, relation between orders of a finite group & its sub groups. Point group symmetry. Representations of groups by matrices (representation for the Cn, Cnv, Cnn, Dnn etc. group) character of a representation. The great orthogonality theorem and its importance character tables and there use-in spectroscopy	Students learn about various spectroscopic techniques for characterization of inorganic and organic molecules.	
2		Unit- II: Microwave Spectroscopy: Classification of molecules rigid rotor model, effect of isotopes; non rigid rotor Stark effect, nuclear and electron spin interaction & effect of external field. Vibrational Spectroscopy: Infrared Spectroscopy:- Linear		

		Harmonic Oscillator, Vibrational energy of diatomic molecule zero point energy, force constants & bond lengths anharmonicity, morse potential energy diagram. Vibrational rotational spectroscopy, P, Q, R, branches. Selection rules Normal modes of vibration, group frequencies, overtones, hot bands, Raman Vibrational:- Classical & quantum theories of Raman effect pure rotational, vibrational and vibrational. Rotational Raman spectroscopy. Coherent anti stokes Raman spectroscopy.		
2		Unit- III: Molecular Spectroscopy: Energy levels, molecular orbital, Frank Condon's Principles, electronic spectra of polyatomic molecules emission spectra; radiative & non radiative decay. Spectra of transition metal complexes; change transfer spectra. Basic Principles Photoelectric Effect, Ionization Process: Koopman's theorem, photoelectron spectra of simple molecule. Auger electron spectroscopy. Diffraction: Bragg's condition, Miller indices. Debye-Scherrer method for structure analysis. Principal and applications of neutron diffraction and electron diffraction.		

2		Unit- IV: Magnetic Resonance Spectroscopy: Nuclear Magnetic Resonance Spectroscopy: Nuclear spin, Nuclear resonance, shielding of magnetic nuclei, chemical shifts deshielding, spin spin interactions, (ABX, AMX, ABC, A2 B2) spin decoupling. Nuclear Quadrupole Resonance spectroscopy: Quadrupole Nuclear moments, electic field gradient complex constants applications.		
2	**Laboratory Course (Inorganic Chemistry)**	1. Preparation of hexamminecobalt(III) chloride and determine the percentage of cobalt in the product iodimetrically. 2. Preparation of chloropentaammine cobalt (III) chloride and interpretation of electronic spectrum and magnetic properties. 3. Preparations of nitropentamminecobalt (III) chloride from chloropentaamminecobalt (III) chloride and interpretation of electronic spectrum and magnetic properties. 4. Preparations of nitritopentamminecobalt (III) chloride from chloropentaamminecobalt (III)	Students learn to synthesize coordination compounds and purify them using crysatalization.	

		chloride and interpretation of electronic spectrum and magnetic properties. 5. Preparation of cis-and trans isomers of [Co(en)2Cl2]Cl and interpretation of electronic spectra and magnetic properties. 6. Preparations of Cu2(CH3COO)4 (H2O)2 from CuSO4.5H2O and interpretation of electronic spectrum and magnetic properties. 7. Preparation of cis-and trans isomers of K[Cr(C2O4)(H2O)2].2H2O and interpretation of electronic spectra and magnetic properties. 8. Preparation of Tris(thiourea)cuprous (I) sulphate [Cu(tu)3]2SO4.2H2O (Where tu stands for thiourea) and determine the percentage of copper in the product iodimetrically. 9. Preparation of [Co(acac)3] and interpretation of electronic spectrum and magnetic properties. 10. Preparation of potassium trioxalato-aluminate(III) and tris(acetylacetonato)-aluminium(III).		
2	**Laboratory Course (Organic Chemistry)**	Qualitative Analysis of mixtures of two organic solids: Separation of the compounds and their identification through various	Students learn to perform separating components from a mixture.	

		steps, derivative preparation, checking the purity of components by melting point.		
2	**Laboratory Course (Physical Chemistry)**	1. Polarimetry: (i) To study the inversion of cane sugar by optical rotation measurement. (ii) To determine the specific and molecular rotations of optically active substances. 2. Potentiometry: (i) Determination of valence of mercurous ion. (ii) Determination of pH value using quinhydrone electrode. (iii) Determination of heat of reaction, equilibrium constant and other thermodynamic functions for: (a) Zn + Cu+2 Zn+2+Cu (b) Zn+Pb+2 Zn+2+Pb (iv) Determination of hydrolysis constant of aniline hydrochloride / ammonium chloride electrometrically. 3. Flame Photometry: (i) etermination of Na+ & K+ when present together. (ii)Determination of Lithium/Calcium/ Barium/Strontium.	Students learn to find physical parameter like polarity. Also learn use of potentiometer and flame photometer.	
3	**Application of Spectroscopy**	Unit- I Electron Spin Resonance Spectroscopy: Hyperfine coupling, spin polarization for atoms and transition metal ions , spin orbit		

		coupling and significance of g-tensors , application of transition metal complexes (having one unpaired electron) including biological systems and to inorganic free radicals such as: Nuclear Magnetic Resonance of Paramagnetic Substances in Solution: The contact and pseudo contact shifts, factors affecting nuclear relaxation, some applications including biochemical systems, an overview of NMR of metal nuclides with emphasis on 195Pt and 119Sn NMR.		
3		Unit- II Mossbauer Spectroscopy: Basic principles, spectral parameters and spectrum display. Application of the technique to the studies of (1) bonding and structures of Fe+2 and Fe+3 compounds including those of intermediate spin , (2) Sn+2 and Sn+4 compounds- nature of M-L bond, coordination number, structure and (3) detection of oxidation state and inequivalent MB atoms. Vibrational Spectroscopy: Mode of bonding of ambidentate ligands , ethylenediamine and iketonato complexes, applications of resonance Raman spectroscopy particularly for the study of active		

		sites of metalloproteins. Organic chemistry Ultraviolet and Visible Spectroscopy, Various electronic transitions (185-800nm),Beer-Lambert law, effect of solvent on electronic transition, ultraviolet bands forcarbonyl compounds,unsaturated carbonyl compounds, dienes, conjugated polyenes. Fieser- Woodwared rules for conjugated dienes and carbonyl , ultraviolet spectra of aromatic andheterocyclic compounds. Steric effect in biphenyles		
3		Unit- III: Infrared Spectroscopy: Instrumentation and sample handling. Characteristics vibrational frequencies of alkanes, alkenes, alkynes, aromatic compounds, alcohols, ethers phenols and amines .Detailed study of vibrational frequencies of carbonyl compounds (ketones, aldehydes, esters amides acids, anhydrides, lactones, lactams and conjugated carbonyl compounds). Effect of hydrogen bonding of solvent effect on vibrational frequencies, overtones, combination bands and Fermi resonance. FT-IR of gaseous, solid and polymeric materials. Nuclear Magnetic Resonance Spectroscopy: General introduction and definition,		

		chemical shift, spin spin interaction, shielding mechanism of measurement, chemical shift values and correlation for protons bonded to carbon (aliphatic, olefinic, aldehydic and aromatic) another nuclei (alcoholic, phenols, enols, Carboxylic acids, amines, amides & mercapto),chemical exchange, effect of deuteration, complex spin-spin interaction between two, three, four, five nuclei (first order spectra) virtual coupling, stereochemistry, hindered rotation, karplus curve variation of coupling constant with dihedral angle. simplification of complex spectra-nuclear magnetic double reasonane, contact shift reagents, solvent effects, fourier tansform tecnhnique, nuclear overhauser effect (NOE) resonance of other nuclei –F,P		
3		Unit- IV: Carbon-13 NMR spectroscopy: General considration chemical shift (aliphatic olefinic alkyne aromatic heteroaromatic and carbonyl carbon)coupling constants. Two dimension NMR spectroscopy – COSY, NOESY, DEPT, APT, and INADEQUATE technique. Mass Spectrometry: Introduction, ion production –EI, CI, FD and FAB, factors affecting		

		fragmentation, ion analysis,ion abundance. Mass septra Cl fragmentation of organic compounds, common functional group, molecular ion peak, metastabl peak, Mclafferty rearrangement. nitrogen rule, high resolution mass spectrometery. Example of mass spectral fragmentation of organic compounds with respect to their structure determination.		
3	**Organotransition Metal Chemistry**	Unit- I Compounds of Transition Metal-Carbon Multiple Bonds: Alkylidenes, alkylidynes, low valent Carbenes and carbynes-Synthesis, nature of bond, Structural Characteristics, nucleophilic and Electrophilic reaction on the ligands, role in organic Synthesis, Transition Metal Compounds with Bonds to Hydrogen Transition metal Compounds with bonds to hydrogen	Students learn about compounds having metal carbon multiple bonds, their synthesis and applications in catalysis.	
3		Unit- II: Transition Metal Complexes: Transition Metal Complexes with unsaturated Organic molecules, alkenes, alkynes, Allyl, diene, dienyl, arene and trienyl complexes, preparations, properties, nature of bonding and structural features important reactions relating to		

		nucleophilic and electrophilic attack on ligands and to organic synthesis.		
3		Unit- III: Alkyls and Aryls of Transition Metals Types, routes of synthesis, Stability and decomposition Pathways, organocopper Organic Synthesis. Fluxional organometallic compounds: Fluxionality and dynamic equilibria in compounds such as η2 Allyl and dienyl Complexes		
3		Unit- IV: Homogeneous Catalysis: Stoichiometric reaction for catalysis, homogeneous catalytic hydrogenation, Zeigler-Natta polymerization of olefins, catalytic reactions involving carbon monoxide such as hydrocarbonylation of olefins (oxo reaction) oxopalladation reactions, activation of C-H bond. Monsanto acetic acid synthesis, water gas shift reaction and Fischer–Tropsch Synthesis		
3	**Heterocyclic Chemistry**	Unit- I Nomenclature of Heterocycles: Replacement and systematic nomenclature (Hantzsch-widman System) for monocyclic fused and bridged hetrocycles. Aromatic Heterocycles General chemical behaviour of aromatic heterocycles classification (structural type)	Students learn about role of heterocycles in medicinal chemistry and pharmaceutical chemistry.	

		criteria of aromaticity (bond length ring current and chemical shift in H NMR- Spectra empirical resonance energy delocalization energy and Dewar resonance energy Diamagnetic susceptibility exaltations) Non- aromatic Heterocycles: Strain-bond angle and torsional strains and their conseqences in small ring heterocycles. Conformation of six-membered heterocycles with reference to molecular Geometry, barrier to ring inversion, pyramidal inversion and 1,3-diaxial interaction. Stereo-electronic effects anomeric and related effects Attractive interactions-hydrogen bonding and intermolecular nucleophilic-electrophilic interactions.		
3		Unit- II: Heterocyclic synthesis: Principles of heterocyclic synthesis involving cyclization reactions and cycloaddition Reactions. Three- membered and four-membered heterocycles-synthesis and reactions of aziridines, oxiranes, thiiranes, azetidines, oxetanes and thietanes Benzo-Fused Five-Memberd Heterocycles, Synthesis and reaction including medicinal applications of benzopyrroles, benzofurans and Benzothiophenes		

3		Unit- III: Meso-ionic Heterocycles, General classification chemistry of some important meso-ionic heterocycles of type-A and B and their applications. Synthesis of pharmaceutical compounds having heterocyclic ring with one or more heteroatom. Pencillin-V, Cephalosporin –C, Benzodiazepine (Midazolam, Diazepam), (Antidepressant Fluoxetine, Escitalopram), Proton Pump inhibitors (Omeprazole, Pentoperazole), Antihypertensive (Nifedipine, Losartan) Six-Membered Heterocycles with Two or More Hetroatoms, Synthesis and reactions of diazines, triazines, tetrazines and thiazines		
3		Unit- IV: 1,2-Azoles: pyrazoles, isothiazoles and isoxazoles, Introduction to 1,2-azoles, synthesis of 1,2-azoles. Addition on nitrogen: protonation, N-alkylation, N-acylation. Reaction with electrophilic and nucleophilic reagents. Reaction with bases: reaction of N-metallated pyrazole, reaction of C-metallated 1,2-azoles. Reaction with oxidizing and reducing agents. 1,3-Azoles: imidazoles, thiazoles and oxazoles. Introduction to 1,3-azoles, synthesis of 1,3-azoles. Addition at nitrogen: protonation, Nalkylation,		

		N-acylation. Reaction with electrophilic and nucleophilic reagents.Reaction with bases: reaction of N-metallated imidazole, reaction of C-metallated 1,3-azoles.Reaction with oxidizing and redusing agents. Synthesis and reaction of quaternary 1,3-azolium salt and 1,3- azole-N-oxide.		
3	**Environmental Chemistry**	Unit- I Environment: composition of atmosphere, vertical temperature, heat budget of the Earth, atmospheric system, vertical stability atmosphere. Biogeochemical cycles of C, N, P, S and O. Biodistribution of elements. Environmental Toxicology: Chemical solutions to environmental problems, biodegradability, principles of decomposition ,better industrial processes. Bhopal gas tragedy, Chernobyl, Three mile island, Sewozo	Students understand chemistry of various environmental problems on earth and their possible solutions using chemistry.	
3		Unit- II: Industrial Pollution: Cement sugar, distillery, drug, paper, thermal power plants, nuclear Power plants, metallurgy. Polymers, drugsetc. Radionuclide analysis. Disposal of wastes and their management.and Minamata disasters. Soils Composition, micro and macro nutrients, pollution-fertilizers, pesticides, plastic and		

		metals. Waste treatment		
3		Unit- III Hydrosphere Chemical composition of water bodies-lakes, streams, rivers and wet lands etc. Hydrological cycle. Aquatic pollution – inorganic, organic, pesticide, agricultural, industrial and Sewage, detergents, oil spills and oil pollutants. Water Quality parameters –Dissolved oxygen, biochemical oxygen demand, solids, metals, content of Chloride, sulphate, phosphate, nitrate and micro-organisms. Water quality Standards. Analytical methods for measuring BOD,DO,COD,F,Oils, metals (As,Cd,Cr, Hg,Pb,Se etc.), residual chloride and chlorine demand. Purification and treatment of water.		
3		Unit- IV Atmosphere: Chemical composition of atmosphere – particles, ions and redicals and their formation. Chemical and photochemical reactions in atmosphere, smog formation, oxides of Chlorofluorohydrocarbons, Ozone depletion, Global warming. Green house effect, acid rain, air pollution controls and their chemistry. Analytical methods for measuring air pollutants. Continuous monitoring instruments.		

	Laboratory Course (Inorganic Chemistry)	1. Colorimetric estimation of cations and anions. 2. Separation techniques (i) Ion exchange (ii) Solvent extraction (iii) Column and paper chromatography	Students learn to find concentration using colorimetry.	
	Laboratory Course (Organic Chemistry)	A. Preparation of the following organic compounds: 1. 2-Hydroxy-1-naphthaldehyde (Reimer tiemann Reaction) 2. Thiamine hydrochloride catalyzed synthesis of benzoin and conversion to benzil and benzylic acid 3. Photoreduction of benzophenone to benzopinacol and subsequent conversion to benzopinacolone 4. Preparation of 1, 1-bis-2-naphthol from 2-naphthol (Radical coupling reaction) 5. Synthesis of dihydropyrimidinone (Three component coupling reaction) 6. Synthesis of 4-nitrosalicylic acid from salicylic acid using calcium nitrate and acetic acid. 7. Benzophenone, Benzophenone oxime, Benzanilide (Beckmann Rearrangement). 8. Trinitrophenol (picric acid) and picrate derivative. B. Studies of TLC, column	Students learn to perform synthesis of functional organic compounds with popular name reactions.	

		chromatography and paper chromatography for organic mixture.		
	Laboratory Course (Physical Chemistry)	1. Conductometric Measurements : (i) Determination of cell constant of a cell. (ii) Determination of equivalent conductance, degree of dissociation and dissociation constant of a weak acid like acetic acid. (iii) Verification of Debye-Huckel Onsager equation. (iv) Conductometric titration of a mixture of HNO3 and H2SO4 (v) Determination of degree of hydrolysis. (vi) To study the kinetics of saponification of ethyl acetate by NaOH conductometrically. (vii) To titrate conductometrically mixtures of HCL/NH4Cl and NH4OH/NH4Cl. 2. Chemical Kinetics : (i) To compare the strengths of two acids by studying hydrolysis of an ester. (ii) To study the kinetics of hydrolysis of ethyl acetate by NaOH. 3. Phase Equilibrium : (i) To determine the equilibrium constant of KI3 complex formation	Students learn to find conductance of cell and verify laws governing conductance.	

		KI + I2 - KI3 by distribution method. (ii) To determine critical solution temperature of phenol-water system in the presence of (a) 1% NaCl (b) 0.5% naphthalene (c) 1% succinic acid		
4	**Biophysical Chemistry**	Unit- I Biological Cell and its Constituents (4 Hrs.) Biological cell, DNA and RNA in living systems. Basic consideration. Proximity effects and molecular adaptation. Enzymes: Introduction and historical perspective, chemical and biological catalysis, Remarkable properties of enzymes like catalytic power, specificity and regulation. Nomenclature and classification, extraction and purification. Fischer's lock and key and Koshland's induced fit hypothesis, concept and identification of active site by the use of inhibitors, affinity labeling and enzyme modification by site-directed mutagenesis . Enzyme kinetics, Michaelis-Menten and Lineweaver- Burk plots, reversible and irreversible inhibition. Mechanism of Enzyme Action: Transition state theory, orientation and steric effect, acid-base catalysis, covalent catalysis, strain or distortion . Examples of some typical enzyme mechanisms for	Students learn about chemical reactions in human body and plants. They understand role of elements in various physiological processes.	

		Chymotrypsin, ribonuclease, lysozyme and carboxypeptidase A		
4		Unit- II Kinds of Reactions Catalysed by Enzymes. Nucleophilic displacement on a phosphorus atom, multiple displacement reactions and the coupling of ATP cleavage to endergonic processes. Transfer of sulphate, addition and elimination reaction, enolic intermediates in isomerization reactions, -cleavage and condensation, some isomerization and rearrangement reactions. Enzyme catalyzed carboxylation and decarboxylation. Co-Enzyme Chemistry: Cofactors as derived from vitamins, coenzymes, prosthetic groups, apoenzymes. Structure and biological function of coenzyme A, thiamine pyrophosphate, Pyridoxal phosphate, NAD +NADP+ FMN, FAD, lipoic acid, vitamin B12. Mechanism of reaction catalyzed by the above cofactors. Biological Macromolecules Basic features of macromolecules, their configurations and conformations. Proteins: Amino acids, the unique protein sequence, secondary structures of proteins, helical symmetry, effect peptide bond on protein conformations, the structure of globular proteins.		

4		Unit- III: Biological Macromolecules: The Nucleic Acids: Nucleotide, torsion angles in poly nucleotide chains, the helical structure of polynucleic acids, high order structure in polynucleotides. Interactions in Macromolecules: Basic principles of interaction between molecules, water structure and its interaction with biomolecules, dipole interactions, side chain interactions, electrostatic interactions, base pairing in nucleic acids, base stacking, hydration and the hydrophobic effect. Structural Transition in Biomacromolecules: Coil – helix transitions in proteins, statistical methods for predicting protein secondary structures; melting and annealing of polynucleotide duplexes, helical transitions in double stranded DNA, super coil dependent DNA transitions predicting helical structures in genomic DNA.		
4		Unit- IV: Bioenergetics and ATP cycle Standard free energy change in biochemical reaction, exergonic, endergonic reactions. Hydrolysis of ATP, synthesis of ATP from ADP, metal complexes and transition of energy, chlorophyls, photo system I and photo system II in cleavage of		

		water. Thermodynamics of Biopolymer Solutions Thermodynamics of biopolymes solutions, osmotic pressure, membrane equilibrium, muscular contraction and engery generations in mechanochemical system. Cell Membranes And Transport Of Ions, Structure and function of cell membrane, ion transport through cell membrane, Na /K Pump.		
4	**Organic Synthesis**	Unit- I: Organometallic Reagents Principle, Preparations, properties and applications of the following in organic synthesis with mechanistic details Organolithium and organomagnesium compounds : Zn and Ce Compounds Transition metals: Cu,Pd,Ni, Fe , Co, Rh and Ti Compounds Other elements : Si ,B and iodine (I) Compounds	Students learn about reagents in chemistry to synthesize important compounds and their role with mechanism.	
4		Unit- II: Organic Synthesis Linear & Conversion Synthesis, Reterosynthetic Approach, Umpolung, Regeoselectivity, Chemoselectivity and Diastereoselectivity, Cram's Rule, Felkin-Ahn Model (with relevant examples)		
4		Unit- III: Oxidation: Introduction. Different oxidative Processes Hydrocarbon-alkenes, aromatic rings, saturated C-H groups(activated and Unactivated) Alcohols, diols, aldehybes, ketones,		

		ketals and carboxylic acids, amines, hydrazines, and sulphides. Oxidation with ruthenium tetaoxide, iodobenzene diacetate and Thallium(III) nitrate. Reduction: Introduction Different reductive processes Hydrocarbons-alkanes, alkenes, alkynes and aromatic rings carbonyl compounds-aldehydes, ketones, acids and their derivatives. epoxides. nitro, nitroso, azo and oxime groups. Hydrogenolysis.		
4		Unit- IV: Rearrangements: General mechanistic considerations-nature of migration, migratory aptitude, memory effects A detailed Study of the following rearrangements Pinacol-pinacolone, Wagner-Meerwein, Demjanov, Benzil- Benzilic Acid, Favorskii, Arndt Eistert synthesis, Neber, Beckmann, Hoffman, Curtius, Schmidt, Baeyer- Villiger, Shapiro reaction.		
4	**Natural products**	Unit- I Terpenoids and Carotenoids: Classification, nomenclature occurrence isolation general methods of structure Determination, isoprene rule. Structure determination, Biosynthesis and synthesis of the following representative molecules: citral, Terpeneol, Farnesol, longifoline, phytol, Abietic Acid	Students learn about chemically synthesizing naturally available compounds in laboratory. They understand various steps and their mechanism.	

		and Beta-Carotene		
4		Unit- II: Alkaloids: Definition, nomenclature and physiological action occurrence isolation general method of structure elucidation degradation classification based on nitrogen heterocyclic ring role of alkaloids in plants. Structure stereochemistry synthesis and biosynthesis of the following: Ephedrine, (+)- Conine, Nicotine, Atropine, Quinine and Morphine		
4		Unit- III: Steroids: Occurrence nomenclature basic skeleton. Diel's hydrocarbon and Stereochemistry Isolation structure determination and synthesis of cholesterol Bile acids Testosterone, Estrone Progestrone Aldosterone Biosynthesis of Steroids		
4		Unit- IV: Plant Pigments: Occurrence nomenclature and general methods of structure determinations, isolation and synthesis ,Querceti, Quercetin-3-Glucoside, Cyanidin-7-arabinoside cyanidine, Hirsutidin Biosynthesis of Flavonoids: Acetate path way and shikimic acid path way. Porphyrins Structure and synthesis of Haemoglobin and chlorophyll, Prostaglandins, Occurrence, nomenclature, classification, biogenesis and physiological		

		effects Synthesis of PGE2 and PGF 2		
4	**Photochemistry and solid state**	Unit- I Photochemistry Photochemical Reactions Interaction of electromagnetic radiation with matter, type so excitations, fate of excited molecule, quantum yield ,transfer of excitation energy, actinometry Determination of reaction mechanism, Classification, rate constants and life times of reactive energy states –determination of rate constants of reaction .Effect of light intensity on the rate of photochemical reactions. Types of photochemical reaction –photo-dissociation, gas –phase photolysis. Photochemistry of Alkenes: Interamolecularreaction of the olefinic bond-geometrical isomerism, cyclisation reaction, rearrangement of 1,4- and 1,5-dienes	Students learn about role of light in chemical reactions, effect of light in various functional groups and their reactions.	
4		Unit- II: Photochemistry of Carbonyl compoundIntramolecular reaction of carbonyl compounds-saturated,cyclic and acyclic β γ unsaturated and α-β unsaturated compounds.Cyclohexa-dienes. intermolecular cyclo-addition reactions—dimerisation and oxetane formation. Photochemistry of aromatic compounds Isomerisations, additions and		

		substitutions. Miscellaneous photochemical reactions, Photofries reactions of anilids. photo-fries rearrangement. Barton reaction. singlet molecular oxygen reactions. photochemical formation of smog. photodegradation of polymers. photochemistry of vision.		
4		Unit- III: Solid state reactions: General principles, experimental procedures, co-precipitation as a precursor to solid state, reactions, kinetics of solid state reactions. Crystal defects and non-stochiometry: Perfect and imperfect crystals, intrinsic and extrinsic defects-point defect, line defects, vacancies-Schottky defects and Frenkel defects. Thermodynamics of Schottky defects and Frenkel defect formation, colour centers, non-stoichiometry and defects. Organic solids: Electrically conducting solids, organic charge transfer complex, organic metals, new superconductors.		
4		Unit- IV: Electronic properties and Band Theory: Metals, insulators and semiconductors, electronic structure of solids-band theory of metals, insulators and semiconductors, intrinsic and extrinsic semiconductors. doping		

		semiconductors, p-n junctions, superconductors. Optical properties-Optical reflectance, photoconduction photoelectric effects. Magnetic properties-Classification of materials: Quantum theory of paramagnetics-cooperative phenomena-magnetic domains, hysteresis.		
4	**Laboratory Course (Inorganic Chemistry)**	1. Amperometric determination of (i) Zn + with EDTA (ii) Thiosulphate with iodine. 2. Analysis of water (i) Hardness (ii) Different type of nitrogen (NO3- ions, NH4+ ions) and oxygen (Residual oxygen, BOD/COD) (iii) Residual chlorine (iv) Removal of hardness. 3. Oxidation-Reduction Titrations (i) Preparation of 0.1M cerium (IV) sulphate and its standardization with ammonium iron(II) sulphate or sodium oxalate. (ii) To determine the concentration of the nitrite ions in the sample solution using standardized cerium (IV) sulphate (iii) To determine the percentage purity of the NaNO2 using standardized cerium (IV) sulphate. 4. Precipitation Titrations	Students learn to find concentration of ions using amperometry and titrations.	

		(i) Preparation of 0.1M silver nitrate and its standardization with Mohr's method using potassium chromate/adsorption indicator. (ii) Determination of chloride in neutral solution by titration with standard 0.1 M silver nitrate 5. Oxidation and reduction processes involving iodine (i) Preparation of sodium thiosulphate ($Na_2S_2O_3,5H_2O$) and its standardization with potassium iodate / potassium dichromate. (ii) Determination of copper in crystallized copper sulphate using standardized Sodium thiosulphate solution.		
	Laboratory Course (Organic Chemistry)	A. Extraction of organic compound from natural sources 1. Isolation of caffeine from Tea leaves 2. Isolation of Casein and lactose from milk 3. Isolation of Lcycopene from tomatoes 4. Isolation of Hippuric acid from urine 1. To estimate the strength of given glucose and sucrore solution. (Fehling's method) 2. To determine saponification & iodine values of oils and fats.	Students learn to extract or isolate compounds from their natural source.	

		3. Estimation of formaldehyde. 4.Estimation of glycin		
	Laboratory Course (Physical Chemistry)	1. Current Potential Relationships : (i) To determine half wave potentials of Zn 2+ and Cd 2+ions. (ii) To find formation constant of copper glycinate polarographically. (iii) To plot a polarogram of a mixed soln. of Cd2+, Zn 2+, Mn2+ ions in 0.1M KCl. OR Spectro-photometric analysis: (i) Determination of the absorption curve and concentration of a substance (potassium nitrate). (ii) The effect of substituents on the absorption spectrum of benzoic acid. (iii) Spectrophotometric determination of the pK value of an indicator (The acid dissociation constant of methyl red/ phenolphthalein). 2. Colorimetry : (i) Determination of iron in water using a colorimeter. (ii) To measure concentration of KMnO4 and K2Cr2O7 present in same solution. (iii) To find composition of ferric ions-salicylic acid complex by Job's method. 3. Refractometry:	Students learn to study potential relationships, colorimetry, and refractometry.	

		(i) Determination of molar refractivity of ethyl acetate, methyl acetate, ethylene chloride and chloroform and calculation of the atomic refractivities of the C, H and Cl. (ii) Measurement of the average electronic polarizabilities of some of the common solvents refractometrically. (iii) To find the composition of binary mixtures refractometrically. 4. Chromatography : (i) To prepare citric acid from sodium citrate and aniline from aniline hydrochloride using cation and anion exchangers. (ii) To differentiate common sugars/amino acids by paper chromatography. 5. Computer Programming : Elementary exercise in computer graphics an illustrative experiment solving the interactive equation. Plotting the time series: Xn,(t) Versus n. (for all experiments.		

2.6 Student Performance and Learning Outcomes

Paper/ unit-content wise Course outcomes:most course objectives are given in the syllabus. An example is attached for you in an adobe file

Class--MSc----------

Subject Mathematics----------

attainment of course outcomes:

Semester	Title of the paper	Course content	Objectives of the course/ content	How were the objectives met
I year		Objectives		
Real Analysis		Logical and critical thinking		
Abstract Algebra		Abstract and critical thinking		
Differential Equations & Mechanics		Reflect surrounding critically, modelling differential equations and techniques to solve these		
Complex Analysis		Abstract and critical thinking,		
Number Theory		Inductive and deductive thinking, Problem solving techniques		

III semester **1. Field Theory** **2.Topology** **3.Linear Programming** **4.Probability and Mathematical Statistics** **5.Torsions**		**1.Applications of Algebra to solve polynomial equations, relate the study with certain geometrical problems.** **2. Study of geometry of figures of abstract nature** **3.Mathematical modelling of real life problems & Application of linear algebra to solve these.** **4.Reflect on surroundings and abstraction of the study** **5.application of multilinear algebra and geometry to get a useful way to organize data and their applications in problems faced by physicists.**		

IV Semester **1.Linear Algebra** **2.Functional Analysis** **3.Non-linear Programming** **4.Integral Transforms**		**1.Develop theories to solve linear equations and quadratic equations** **2.study of certain topological-algebraical structures and applications to analytic problems** **3.mathematical modelling of real life optimization Problems with nonlinear constraints and application of algebra to solve these** **5.geometric description of curves and surfaces to establish basic properties of study of geodesics , evolutes etc.**		

5.Differential Geometry				

MSC PHYSICS

Sem	Title of the paper	Course content	Objectives of the course/ content	How were the objectives met
1	MATHEMATICAL PHYSICS I	Complex Variables, Cauchy's Integral theorem, Laurent expansion, Dispersion relation, Delta and Gamma Functions, Dimensional analysis. Vector algebra and vector calculus. Linear algebra, matrices, Cayley-Hamilton Theorem. Eigenvalues and eigenvectors. Differential Equations: Partial differential equations of theoretical physics, Frobenius method, Special Functions: Bessel function of first and second kind, Generating function, Legendre function, Various Legendre polynomials, Associated Legendre functions, Hermite functions.	To equip the M.Sc student with the mathematical techniques for understanding theoretical treatment in different courses, e.g., to evaluate various definite integrals, to solve various differential equations including Laplace equation, Schroedinger equation, equations used in electronic circuits, electrical circuits, nuclear decays etc., Concepts of Complex analysis, Dirac Delta function, beta, gamma functions, Special functions: Bessel, Legendre, Hermite, Lagurre functions for developing a strong background if the student chooses to pursue research in Physics as a career.	By following Lecture, inductive, deductive, Heuristic, analytic and problem solving method
	CLASSICAL	Lagrangian Formulation: Mechanics of a system of	To demonstrate knowledge and understanding of	Classroom teaching, group discussions, seminars,

	MECHANICS	particles: constraints of motion. Generalized coordinates, D'Alembert's Principle and Lagrange's velocity. Application of Lagrangian formulation. Hamilton Principle, Calculus of variations. Extension to non-holonomic systems, advantages of variational principle formulation, Rigid Body Motion, Eulerian angles and Euler's theorems, Rate of change of vector,principal axis transformation. Euler equations of motion. Torque free motion of rigid body, motion of a symmetrical top, Small Oscillation, Eigenvalue equation. Free vibrations. Normal Coordinates. Vibrations of a triatomic molecule. Hamilton's Equations, Legendre Transformations. Hamilton's equations of motion. Cyclic-coordinates. Hamilton's equations from variational principle, principle of least action, Canonical Transformation and Hamilton- Jacobi Theory, Poisson brackets. Equations of motion, infinitesimal canonical transformation. Conservation Theorems. Hamilton – Jacobi equations for principal and characteristic functions. Harmonic oscillator problem, Action angle variables for system with one degree of freedom.	the following fundamental concepts in: the dynamics of system of particles, motion of rigid body, Lagrangian and Hamiltonian formulation of mechanics.	tutorials, quiz, audio-visual multimedia, Problem solving, Inquiry, Solving problem that could be found in the environment.
	QUANTUM MECHANICS I	Linear Vector Space and Matrix Mechanics, Schwarz inequality, Orthonormal basis. Schmidt orthonormalisation method, Operators, change of basis, Eigenvalue and Eigenvectors of operators. Dirac's bra and ket notation, commutators, Postulates of quantum mechanics, uncertainty relation. Harmonic oscillator in matrix mechanics. Time development of states and operators. Heisenberg and Schroedinger representations, Angular part of the Schroedinger equation for a spherically symmetric potential, orbital angular momentum operator, Eigen values and eigenvector of L2 and Lz ,Spin angular momentum. General angular momentum, Eigenvalues and eigenvectors of J2 and Jz . Representation of	To introduce the students of M.Sc to the formal structure of the subject and to equip them with techniques of linear vector space, angular momentum , perturbation theory, Variational method with the application to ground states of harmonic oscillator, hydrogen atom etc., so that they can use these in various branches of Physics as per requirement.	Content -focused method, participative method and by solving problems , group discussion, seminars.

		general momentum operator. Addition of general angular momentum, C.G. coefficients,Stationary State Approximate Methods, Non- Degenerate and degenerate perturbation theory and its application to anharmonic oscillator, Variational method with application ,Time Dependent Perturbation, General expression for the probability of transition from one state to another. Constant and harmonic perturbations. Fermi's golden rule and its application to radiative transition in atoms.		
	ELECTRONICS I	Semiconductor Devices, Growth of semiconductor crystals, Effect of temperature and doping on Carrier concentration and their mobility, Energy band diagrams, Fabrication of p-n junction, Diffusion and depletion capacitance of p-n junctions, Varactors, Ohmic and rectifying contacts, Zener and Avalanche diode, Tunnel diode, Light emitting diode, Laser diode, Photodiodes and Solar cell. Fundamentals of operation of BJT, FET, MOSFET and UJT. Liquid crystal display. High frequency devices: Gunn diode, IMPATT diode, Circuit Analysis, Admittance, Impedance, Hybrid and Transmission matrices for two-port networks and their applications. Transforming circuit elements to frequency domain, Transfer function, location of poles and stability of circuit, Sinusoidal frequency and phase response, Analysis of LP, HP, BP, BR and AP passive filters, OPAMP based Circuits, Differential amplifiers, Transfer characteristics, Basic internal circuit of IC Op amp. Comparators with hysteresis, 555 timer based circuits. Analogue computation , Active filters, Power Devices, Communication systems: Generation and detection of amplitude modulated, Single-side band, Double-side band suppressed carrier and Frequency modulated wave. ASK, PSK and FSK, Satellite and mobile communication - TDMA, FDMA, CDMA.	Electronics and Communications encompasses fields such as computer engineering, control systems, image processing, power systems, opto-electronics, analog and digital circuit designing, and many other fields. ..	Project -based learning, Group tutoring, selection of the project and elaboration of work teams, seminars
	PHYSICS	Introduction to experimental techniques	To expose the students of M.Sc. to the	Demonstrate experimental designs and analysis of data,

	LABORATORY I	Measurement techniques, Data and error analysis, Plotting and curve fitting software, Introduction to electronic components & use of instruments: Oscilloscope, Multimeter, Wave-form generator.	experimental techniques in general Physics, electronics, nuclear Physics and condensed matter Physics so that they can co-relate the theoretical concepts with the experimental ones and develop confidence to handle sophisticated equipments wherever necessary.	hypothesis making , discussion and deduce conclusion
	COMPUTATIONAL PHYSICS I	The course include two parts : 1. Introduction to numerical methods 2. Study of c++ Programming	To make Students get conceptual understanding of numerical methods and c++ programming.	Simulation, visulation, numerical methods, algorithms and data analysis
2	MATHEMATICAL PHYSICS II	Group Theory: Multiplication table, conjugate elements and classes. Isomorphism and Homomorphism. Permutation groups, Schurs' Lemmas, Orthogonal theorem, Characters of a representation. Topological groups and Lie groups, three dimensional rotation group. Unitary groups: SU(2), O(3), the axial rotation group SO(2). Applications of group theory. Fourier Series and Integral Transforms: Advantages and applications, Gibbs phenomenon. Development of the Fourier integral, Inversion theorem, Fourier transform, Fourier transforms of derivatives, Momentum representation. Laplace transforms, Laplace transforms of derivatives, Properties of Laplace transform, Faltung theorem, Inverse Laplace transformation. Integral Equations: classifications, Neumann series, Separable kernels, Hilbert Schmidt theory. Green's function in one dimension. Tensors: Pseudo tensors, irreducible tensors, Non Cartesian tensors - metric tensor. Christoffel symbols, Covariant differentiation. Elementary Numerical Analysis: Numerical differentiation, Numerical integration by Simpson and Weddle's rules. Numerical solution of differential equations by Euler and Runge-Kutta Method, Linear and non-linear least square fitting, generation of random numbers, Monte-Carlo technique, integration, simulations. Elementary probability theory, random variables, binomial, Poisson and normal distributions. Central limit	To equip the M.Sc student with the mathematical techniques for understanding theoretical treatment in different courses. The knowledge of Fourier analysis, Laplace transforms, tensor analysis, integral equations help to solve plenty of problems in higher Physics. Numerical analysis helps to solve problems of computational physics and develop a strong background if he chooses to pursue research in Physics as a career.	By following Lecture, inductive, deductive, Heuristic, analytic and problem solving method

		theorem.		
	STATISTICAL MECHANICS	The Statistical Basis of Thermodynamics: classical ideal gas, Gibbs paradox and its solution. Elements of Ensemble Theory : Phase space and Liouville's Theorem, The micro canonical ensemble theory and its application, canonical ensemble and its thermodynamics The grand canonical ensemble : Equilibrium between a system and a particle-energy reservoir and significance of statistical quantities. Classical ideal gas in grand canonical ensemble theory. Elements of Quantum Statistics, An ideal gas in quantum mechanical ensembles. Ideal Bose Systems: BoseEinstein condensation, Discussion of gas of photons and phonons ,Ideal Fermi Systems :Thermodynamic behaviour of an ideal fermi gas, Pauli paramagnetism. Elements of Phase Transitions: First- and second-order phase transitions, Diamagnetism, paramagnetism, and ferromagnetism. a dynamical model of phase transitions, Ising and Heisenberg models. Fluctuations: non-equilibrium processes, diffusion equation	The aim of statistical mechanics is the evaluation of the laws of classical thermodynamics for macroscopic systems using the properties of its atomic particles. In addition to the classical TD the statistical approach provides information on the nature of statistical errors and variations of thermodynamic parameters.	Classroom teaching, group discussions, seminars, tutorials, quiz
	CLASSICAL ELECTRODYNAMICS I	Electrostatics in Vacuum: Coulomb's Law, Gauss Law, Scalar potential. Laplace and Poisson's equations. Electrostatic potentials, energy and energy density of the electromagnetic field. Multipole Expansion, dipole moment, quadrupole moment. Magnetostatics: the differential equations, Vector potential. Magnetic field of a localized current distribution. Electrostatics of Dielectrics : Molecular polarizability and electric susceptibility. Clasusius-Mossetti relations. Models of Molecular Polarizability. Energy of charges in dielectric media. Boundary value Problems: Green's Theorem, Method of images with examples. Magnetostatic Boundary value problems. Time Varying Fields and Maxwell Equation:	Aim of electrodynamics is to make a detailed account for gauge transformations and their use, master the technique of deriving and evaluating formulae for the electromagnetic fields from very general charge and current distributions.	Lecture -cum Demonstration method, visual aids, problem solving method, project method , seminars

		Poynting's Theorem. Conservation of momentum. EM waves in various unbounded media: Poynting's theorem for a complex vector field. Waves in conducting media, EM waves in rare field plasma and their propagation in ionosphere. EM waves in bounded media-Applications : Fresnel's amplitude relations. Polarization by reflection. Brewster's angle, Total internal reflection, Parallel plate transmission lines, Wave guides, TE and TM waves, Radiation from Localized Time Varying Sources: Solutions of the inhomogeneous wave equation in the absence of boundaries, Electric dipole and electric quadrupole fields, centre fed linear antenna.		
	ELECTRONICS-II	Digital circuits: Boolean algebra, Karnaugh maps. Data processing circuits: Multiplexers, Demultiplexers, Arithmetic building blocks. Digital logic families Sequential circuits : Flip-Flops, Shift registers, Asynchronous and Synchronous counters, Counter design and applications. A/D Converters , D/A converter ,Semiconductor memory devices: Organizations, operations, Classification and characteristics of memories and Applications Microprocessor: Buffer registers, Bus oraganised computers, SAP-I, Microprocessor (µP) 8085. Instruction classification, addressing modes, timing diagram, Data transfer, Logic and Branch operations. Microcontroller: family and Architecture. IC Fabrication: Basic ideas of integrated circuits, Epitaxial growth, Diffusion, Masking, Etching, Fabrication of Monolithic Integrated circuits.	To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits.To prepare students to perform the analysis and design of various digital electronic circuits.	Project -based learning, Group tutoring ,selection of the project and elaboration of work teams, seminars
	PHYSICS LABORATORY II	Introduction to experimental techniques Measurement techniques, Data and error analysis, Plotting and curve fitting software, Introduction to electronic components & use of instruments: Oscilloscope, Multimeter, Wave-form generator.	The aim and objective of the courses on Physics Laboratory II is to expose the students of M.Sc. to the experimental techniques in general Physics, electronics, nuclear Physics and condensed matter Physics so that they can co-relate the theoretical concepts with the experimental ones	Demonstrate experimental designs and analysis of data, hypothesis making, discussion and deduce conclusion

			and develop confidence to handle sophisticated equipments wherever necessary.	
	COMPUTATIONAL PHYSICS II	The course include two parts : 1. Introduction to numerical methods 2. Study of c++ Programming	To make Students get conceptual understanding of numerical methods and c++ programming.	Simulation, visulation, numerical methods, algorithms and data analysis
3	Classical Electrodynamics II	The course of classical electrodynamics includes the postulates of special theory of relativity, Lorentz transformations, motion of particle in various aspects of electric and magnetic fields. Minkowski force, Four momentum, applications of energy momentum conservation : Disintegration of a particle, C.M. System and reaction thresholds. Space varying magnetic field, Gradient Drift, Curvature Drift. Adiabatic magnetic field invariance of flux through an orbit, magnetic mirroring, Relativistic motion of a charged particle: Constant magnetic field, Constant electric field Electromagnetic Field of a plane wave. The Covariant Formulation of Electrodynamics in Vacuum gives information of Four vectors in Electrodynamics, covariant continuity equation, wave equation, covariance of Maxwell equations. Electromagnetic field tensor, Energy momentum tensor of the EM fields and the conservation laws.	To make students have a deep understanding on the concept of Special theory of relativity in four vector form & covariant formulation of Electrodynamics	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.
	Statistical Mechanics	The course consists of the techniques of ensemble theory and relation of the statistics and thermodynamics, Gibbs paradox, Ensemble theory and its application to ideal gas of monatomic particles Phase space and Liouville's Theorem, The micro canonical ensemble theory and its application to ideal gas of monatomic particles, equipartition and virial theorems, canonical ensemble and its thermodynamics, partition function, classical ideal gas in canonical ensemble theory, energy fluctuations, Equipartition and virial theorems. Also physical significance of various statistical quantities, energy fluctuations, a system of	To make students have a deep conceptual knowledge of Ensemble theory, behaviour of Ideal bose gases & Ideal fermi gases. They also get familiarize to statistics & thermodynamics of magnetic systems, Ising model and Heisenberg model of phase transitions	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.

		harmonic oscillators as canonical ensemble. Statistics of paramagnetism, thermodynamics of magnetic systems and negative temperatures, significance of statistical quantities, Ising model and Heisenberg model of phase transitions. Thermodynamic Fluctuations, random walk and Brownian motion, introduction to nonequilibrium processes, diffusion equation.		
	Nuclear Physics II	The course includes advanced topics of Nuclear physics with various nuclear models like Shell model, collective model etc. Singleparticle model, total spin for various configurations, Nuclear isomerism, Magnetic momentSchmidt lines, electric quadrupole moment, Configuration mixing, Independent particle model, L-S coupling and jj coupling. Collective modes of motion, Nuclear vibrations, β and γ vibrations in spheroidal nucleus and associated energy spectra, Iso-scalar vibrations, Giant resonances. It also comprises study of nuclear reactions and understanding nuclear properties on the basis of various models. We study Nuclear reactions, Resonance: Breit-Wigner Dispersion Formula, Compound Nucleus, cross section for formation of compound nucleus. Harmonic anisotropic oscillator, Nilsson model. Rotational motion at very high spins, Population of high spin states, Cranking shell model, Signature quantum number, Backbending phenomenon, Kinematics and dynamic moment of inertia.	To make students have a deep conceptual knowledge of advanced topics of Nuclear physics with various nuclear models. They also know about nuclear reactions and nuclear properties on the basis of various models.	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.
	Condensed Matter Physics I	The course includes to the Solid Structure and lattice dynamics Bragg Law, Reciprocal lattice vectors, Structure factor, Form factor. Forces	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.

		between atom: ionic bonding, cohesive energy of ionic crystal, evaluation of Madelung constant of NaCl structure, covalent bonding, metallic bonding, hydrogen bonding, van der waals bonding. Elastic constants, dielectric properties, energy band theory and transport theory so that they are prepared with the techniques used in investigating these aspects of the matter in condensed phase. Band theory: Bloch theorem, the KronigPenney model, zone schemes. Boltzmann transport equation, electrical conductivity, calculation of relaxation time in metals, thermal conductivity of metals and insulators, thermoelectric effects; Hall effect and magnetoresistance; Transport in semiconductors. Polarization mechanisms, Dielectric function from oscillator strength, dielectric constant and its measurements, ploarizability, the classical theory of electronic ploarizabilty, ClausiusMosotti relation; dipolar polarizability.		
	Physics Laboratory III	The courses on Physics Laboratory III is to train the students of M.Sc. class to advanced experimental techniques in general physics, electronics, nuclear physics, particle physics and condensed matter physics so that they can investigate various relevant aspects and are confident to handle sophisticated equipment and analyze the data.	To make Students familiar with the experimental techniques and they also develop data analysis skills.	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.
	Computational Physics I	The course include two parts : 1. Introduction to numerical methods 2. Study of c++ Programming	To make Students get conceptual understanding of numerical methods and c++ programming	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.
4	Particle Physics II	The course on Particle Physics II consists of the relatively advanced topics like internal symmetries Introduction to Symmetries	To make Students familiar to the relatively advanced topics like internal symmetries and quark model, details of different types of	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.

		Discrete symmetries. Continuous Symmetries. Permutation Symmetry. Young's Tables and their relation to groups Symmetry groups O(3), SU(2), SU(3) and SU(6). Applications of symmetry groups to hadron spectroscopy, Quark model, Deep inelastic scattering Low energy e-p scattering and form factors. Electromagnetic form factors of nucleons. Deep inelastic structure functions and introduction to parton model. Gauge invariance, Noether's Theorem. Weak Interactions :Introduction to four fermion Fermi theory. FermiGamow Teller transitions. Development of V-A theory. Weak neutral current and GIM model. Neutrino-nucleon scattering. Non abelian gauge theory, Spontaneous symmetry breaking, Introduction to GlashowWeinberg-Salam model, Standard model-introduction and Lagrangian.	fundamental interactions and unification schemes	
	Condensed Matter Physics II	The course on Condensed Matter have relatively advanced topics like Optical properties : Propagation of light in isotropic solids, propagation of light in conducting media, absorption processes, photo conductivity, luminescence. Piezoeletricity and ferroeletricity. Magnetism : Magnetism : Dia- and para-magnetism in materials, Pauli paramagnetism, Ferromagnetism, Heisenberg Hamiltonian and resume of the results; Antiferomagnestim, Ferrimagnetism, ferrites, spin waves, specific heat - Bloch law, Magnons. Superconductivity: Source of superconductivity, response of magnetic field, the Meissner effect, Type I and Type II superconductors; thermodynamics of superconducting transitions, origin of energy	To make Students get familiar to the relatively advanced topics like optical properties, magnetism, superconductivity and disordered solids.	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.

		gap, Isotope effect, London equatios, London penetration depth, coherence length, elements of BCS theory, flux quantization, normal tunneling and Josephson effect, and disordered solids. Point Imperfections, presence of dislocation, dislocation motion, energy of adislocation, slip planes and slip directions, surface imperfections.		
	Experimental Techniques in Nuclear Physics and Particle Physics	The course consists of various radiation detection techniques, Interaction of gamma-rays, neutrons, electrons and heavy charged particles with matter, Relativistic particle interaction. General properties of radiation detectors, pulse height spectra, energy resolution, detection efficiency, dead time. Back ground radiation and detector shielding. Gas-filled detectors : Proportional counters, Gas multiplication factor, space charge effects, energy resolution. Position-sensitive proportional counters. Organic and inorganic scintillators and their characteristics, coupling to photomultiplier tubes and photodiodes. Semiconductor detector in X-ray, gamma-ray Spectroscopy, Ge and Si(Li) detectors, Charge production and collection process, baseline shift and restoration, overload recovery and pileup, Impedance matching, singlechannel and multichannel analyzers. It consists of detectors systems for heavy ion as well as high energy too.	To make students get indepth Students get familiar to the relatively advanced topics like optical properties, magnetism, superconductivity and disordered solids.	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.
	Analytical Techniques for materials	The course consists of analytical techniques for atomic & molecular spectroscopy, Electron spin. Spectrum of helium and alkali atom. Relativistic corrections for energy levels of hydrogen atom, hyperfine structure and isotopic shift, width of spectrum lines, LS & JJ	To make students familiar with theoretical as well as analytical aspects of atomic & molecular spectroscopy	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.

		couplings. Zeeman, Paschen-Bach & Stark effects. Inner-shell ionization, X-ray spectra, Mosley law, absorption spectra, Auger effect, Coster-Kronig Transitions, Selection rules. Transducers and their Classification, Transducers for temperature, pressure/vacuum. Resistive transducer, Inductive transducer, Capacitive transducer Accelerometer. Lock-in-detector, Vacuum Techniques : Mechanical pumps, Ionization pumps, turbo molecular pumps. Sample Preparation techniques : Thin films (Physico-chemical methods), Laser ablation,Evaporation, Sputtering, Electron beam sputtering, Beam Epitaxy. Characterization Techniques: Structural properties: XRD, TEM, SEM, AFM, STM, Differential scanning caloriemetry,measurement of specific heat, and thermal conductivity.		
	Physics Laboratory IV	The courses on Physics Laboratory IV is to train the students of M.Sc. class to advanced experimental techniques in general physics, electronics, nuclear physics, particle physics and condensed matter physics so that they can investigate various relevant aspects and are confident to handle sophisticated equipment and analyze the data.	To make Students get familiar with the experimental techniques and they also develop data analysis skills.	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.
	Computational Physics II	The course include two parts: 1. Introduction to numerical methods. 2. Study of c++ Programming	To make Students get conceptual understanding of numerical methods and c++ programming.	Class lectures, Seminars by Experts, Student presentations, Inter college quiz.