COURSE OUTCOMES Of BBA 2017-2018					
Sl No	**Year**	**Course Cod**	**Course Name**	**CO Number**	**Course Outcome**
1st Semester					
1		105	Management Process	CO1	Students would be competent to deliver the basic managerial functions
				CO2	Student is able to acquire managerial decision making skills and ability to plan and implement.
				CO3	Student will be able to design appropriate organisational structures for smooth running of
					organisation.
				CO4	Students will assess the benefits/issues with various selection methodologies.
				CO5	Students acquire motivational abilities and leadership skills.
2		106	MANAGERIAL ECONOMICS	CO1	Student will be able to evolve price strategies for a product or a service given the dynamics of a market.
				CO2	Enables the student to take equilibrium product and price decisions under different market situations.
				CO3	Enable the learner to take micro decisions against the background of changing macroeconomic environment.
3		107	IT FOR MANAGERS	CO1	Student will be able to understand and appreciate Organisation's information system and Basics of computer.
				CO2	Student will be able to manage computer memory and use input and output devices efficiently
				CO3	Student will be able to understand the uses of Computer Software and Programming languages in management.
				CO4	Student will be able to manage appropriate computer networks for business.
				CO5	Student will be able to adapt to new technologies used in business managemnet.
4		108	ACCOUNTING FOR MANAGERS	CO1	Students are able to take decisions in the crucial areas of the organisation.
				CO2	Students are able to take a key role in the liquidity control of the Industrial Unit.
				CO3	Students are able to rectify the errors and prepare final accounts.
				CO4	Students are able to know the financial position of the business organisation.
				CO5	Students are able to obtain the Income and Service potential of the assets.

6		DSC2A106	Managerial Economics	CO1	Student will be able to evolve price strategies for a product or a service given the dynamics of a market.
				CO2	2. Enables the student to take equilibrium product and price decisions under different market situations.
				CO3	Enable the learner to take micro decisions against the background of changing macroeconomic environment.
7		DSCA107	Information Technology	CO1	Student will be able to understand and appreciate Organisation's information system and Basics of computer.
				CO2	Student will be able to manage computer memory and use input and output devices efficiently
				CO3	Student will be able to understand the uses of Computer Software and Programming languages in management.
					Student will be able to manage appropriate computer networks for business.
					Student will be able to adapt to new technologies used in business managemnet.
8		DSC4108	Accounting for management	CO1	Students are able to take decisions in the crucial areas of the Organisation.
				CO2	Students are able to take a key role in the liquidity control of the Industrial Unit.
				CO3	Students are able to rectify the errors and prepare final accounts.
				CO4	Students are able to know the financial position of the business organisation.
				CO5	Students are able to obtain the Income and Service potential of the assets.
II SEMESTER					
2nd SEMESTER					
5		205	Quantitative Methods For Managers	CO1	Knowledge of statistical tools enables the student to take business decisions.
				CO2	Students can identify important variables and appropriate tools in managerial decision making and forecasting.
				CO3	Student can take decisions on optimum allocation of resources to realise maximum amount of production, revenue and profit

6		206	Management Accounting	CO1	Enable the students to understand the concepts of Management Accounting.
				CO2	Able to prepare financial statements and interpret the analysis.
				CO3	Able to comprehend funds flow and cash flow statements.
				CO4	Able to apply the tools of Marginal Costing techniques and interpret the financial statements through Ratio Analysis.
				CO5	Able to prepare cash and flexible budgets.
7		207	Business Environment	CO1	Students are able to assess the impact of various internal and external environmental factors influencing business trends.
				CO2	Students will develop an understanding on various economic policies and functioning of planning institutions in India.
				CO3	Students will be exposed to various Acts applicable to business.
				CO4	Students can understand the objectives and functioning of international economic institutions
8		208	Organisational Behaviour	CO1	Student will develop competences by understanding dynamics of behaviour.
				CO2	Students will be able to learn to manage group dynamics.
				CO3	Learn to design and adapt to different types of organizational structures.
				CO4	Students acquire motivational abilities and leadership skills.

III rd SEMESER					
9		305	Operations Management	CO1	Enable the students to pronounce the words in English correctly through phonemic transcription.
				CO2	Enable students understand the role of stress and intonation in language learning.
				CO3	Enable students to write with clarity using punctuation marks correctly.
				CO4	Enable students to gain effective writing skills to excel at professional life.
10		306	Human Resource Management	CO1	Students will be able to understand the significance of HR functions and role of HR executives in the changing scenario
				CO2	Students will be able to estimate the manpower requirement and adopt various HRP techniques.
				CO3	Students will be understand various sources of recruitment and selection process.
				CO4	Students acquires knowledge on training and development methods
					Students will be able to understand the challenges of HR in international context
11		307	Marketing Management	CO1	Students can scan the marketing environment appropriately and can design STP strategies for a given product.
				CO2	Students are able to design suitable product mix and branding strategies for a firm.
				CO3	Students can fix appropriate price for a product by analyzing different factors.
				CO4	Students are able to structure different marketing channels for a given product.
				CO5	Students are able to take decisions on suitable promotion mix and can also design appropriate personal selling process for a given product.
12		308	Business Ethics and Corporate Governance	CO1	Understand the importance of ethics and its role in business
				CO2	Know the importance of Corporate Governance and Corporate Excellence and the benefits of a good Corporate Governance and the role of rating agencies.
				CO3	Be aware of various scams that have taken place because of bad Corporate Governance practices and how proper Corporate Governance could have helped avoid them
				CO4	Be aware of the regulatory framework of Corporate Governance in India and SEBI norms
				CO5	Understand the importance of Corporate Social Responsibility and its relation with Business Ethics and Corporate Governance

IVth SEMESTER					
13		405	Financial Management	CO1	Students will be aware of various functions and objectives of financial management.
				CO2	Students can determine optimal capital structure to an organisation.
				CO3	Students can analyse the viability of projects for long term investment.
				CO4	Students will be able to handle the short term financial needs of the organisation.
				CO5	Students can analyse the impact of dividend decision on value of the firm.
14		406	Business Laws	CO1	Student will be able to understand the legal environment of business and can apply basic legal knowledge in business transactions.
				CO2	Student can take appropriate proactive measures to comply the laws pertaining to Contract Act, Sale of goods Act and Companies Act.
				CO3	Student can advise and implement compliance with Consumer Protection Act, Environmental Protection Act and Right to information Act to redress the disputes/grievances of the stake holders.
15		407	E-Commerce	CO1	Student will be able to understand and appreciate e-Commerce transactions and e-Marketing
				CO2	Student will be able to manage Supply Chain in e-Commerce through EDI
				CO3	Student will be able to Student will be able to Identify secure e-payment methods in e-Commerce
				CO4	Student will be able to manage Customer relationships using appropriate e-CRM application
				CO5	Student will be able to adapt to new technologies used in business managemnet.
16		408	MSME	CO1	Students will acquire knowledge and scope under MSME sector
				CO2	Student will get knowledge about Establishment of Ancillary units and forms of business.
				CO3	Student gain knowledge w.r.t Government policies towards development of infrastructure, warehousing, marketing facilities and assist rural entrepreneurs to export their goods to foreign countries.
				CO4	Student will acquire knowledge about preventive and remedial solution for sickness of industries and feasibility analysis.
				CO5	Student are able to understand the role of Banks and other financial institutions and apex bodies in industrial development.

Vth SEMESTER					
17		501	International Business	CO1	Students can comprehend the concept of international trade.
				CO2	Students can understand the dynamics of foreign exchange mechanism.
				CO3	Students are familiar with dynamics of Balance of Payments and its containment.
				CO4	Students can understand the need for trade blocks and the role of WTO
				CO5	Students are equipped with export and import documentation and procedures
18		MM502	Sales and Distribution Management	CO1	Students can design suitable sales management techniques for different products.
				CO2	Students can assess sales potentiality and market potentiality for a given product.
				CO3	Students are able to design appropriate sales force management strategies.
				CO4	Students can design appropriate distribution channels for a given product.
				CO5	Students can adopt latest trends and techniques in sales and distribution management.
19		MM503	Advertising and Media Management	CO1	Students are able to execute the public relation skills.
				CO2	Students can design appropriate IMC strategy for different situations.
				CO3	Student can prepare advertising budget and able to evaluate the effectiveness of advertising.
				CO4	Students can design appropriate media planning strategies along with suitable appeals to reach the target market effectively.
				CO5	Students can effectively schedule the advertisements in appropriate media.
20		FM 502	Financial Markets	CO1	Students will be able to understand the role of Financial System in economic development.
				CO2	Students will be familiar with the functions of Money market and their components.
				CO3	Students will acquire knowledge on primary market operations in capital market
				CO4	Student will gain knowledge on components of secondary markets in capital markets.
				CO5	Students will be able to understand regulations of financial markets

21		FM 503	Foreign Exchange Management	CO1	Students can identify various sources of funds from international financial markets.
				CO2	Students will be familiar with various activities of foreign exchange markets.
				CO3	Students can determine exchange rates in spot and forward markets.
				CO4	Students can determine the appropriate method of financing international trade.
				CO5	Students can manage foreign exchange risk.
22		HRM	Talent Management	CO1	Students would be competent to implement talent management initiatives
				CO2	Student is able to acquire skills in mapping the competencies with the jobs in the organisations
				CO3	Student will be able to implement performance management systems followed in the organisations
				CO4	Students would be competent to initiate employee engagement practices and initiatives
				CO5	Students are able to understand the clear process involved in succession planning along with significance.
23		HRM	Industrial Relations	CO1	The students can advice the management on the adoption of various processes for maintaining harmonious industrial relations.
				CO2	The students can facilitate adoption of effective systems of grievance redressal and discipline in industry
				CO3	The students are aware of the legal machinery available for industrial dispute settlement
				CO4	The students can implement systems for workers participation in management.
				CO5	The students acquire the knowledge of collective bargaining process .

VIth SEMESTER					
24		DSC 601	Taxation	CO1	Distinguish sources of income
				CO2	Distinguish between deductible and non deductible expenses
				CO3	Apply the tax code provisions
				CO4	Calculate tax for natural and legal persons
				CO5	Complete printed matter tax declarations
				CO6	Research, analyse and evaluate income tax information and issues.
25		MM602	Project Management	CO1	The student will be able to efficiently prepare a project proposal.
				CO2	The student will be able to initiate and implement different analysis methods on a project proposal.
				CO3	The student will be able to adopt and implement different methods to evaluate a project.
				CO4	The student will be competent in managing the human aspects of project management.
				CO5	
26		MM603	Marketing of Services	CO1	The students learn the concepts of services business and services marketing.
				CO2	The students are able to design services marketing mix for a given service.
				CO3	The students are able to analyze the customer expectations and perceptions and thereby determine the service quality.
				CO4	The students design a new service and establish service standards for a given service.
27		MM604	Retail Marketing	CO1	Students can understand retail business environment and able to design retail mix strategy.
				CO2	Students are able to identify store location and appropriate design store layout.
				CO3	Student can design appropriate merchandise management strategies.
				CO4	Student will be adopt suitable pricing and promotion strategies for a retail outlet
				CO5	Student can formulate different functional strategies for a retail outlet.

28		FM605	Financial Services	CO1	Students acquire knowledge on regulatory frame work of various financial services.
				CO2	Students become an expert in delivering advice on various Fee based financial services.
				CO3	Students will be able to advice in selecting appropriate Fund based financial services.
				CO4	Students will be able to understand the role of merchant banker in Issue management
				CO5	Students will be aware of Housing Finance companies and guideline for re-finance
29		FM606	Investment Management	CO1	Students will gain knowledge on various practices and instruments of investment.
				CO2	Students are capable of handling various activities in primary markets.
				CO3	Students are capable of measuring return and risk of a security.
				CO4	Students are capable to choose right security through security valuation.
				CO5	Students can analyze securities to offer investment suggestions.
30		HR605	Global Human Resource Management	CO1	Students are able to deliver HR functions in global context.
				CO2	Students acquire competencies to handle training and development in international context.
				CO3	Students can organize interviews and facilitate selection process.
				CO4	Students acquire competencies for performance appraisal in multinational companies.
				CO5	Students acquire knowledge on different compensation practices in multinational context.
31		HR606	Training & Development	CO1	Students will be able to understand the significance of training
				CO2	Students acquire knowledge on steps in training process
				CO3	Students able to understand various training and development programmes
				CO4	Students can adopt various evaluation models for training effectiveness

COURSE OUTCOMES 2017-2018

B.Com - 2017-18

SI NO	Year	Course Code	COURSE NAME	CO Number	Course Outcome
Ist SEMESTER					
1	2017-18	DSC 1A	FUNDAMENTALS OF ACCOUNTING-1	CO1	Students are equipped with the basic principles of accounting
				CO2	Students are able to maintain various books of accounts.
				CO3	Students gain knowledge in rectification of various erroneous transactions in the business.F37
				CO4	Students will be able to reconcile the cash book with the pass book of business.
				CO5	Students will be able to prepare summarized financial statements of a business. (Sole proprietorship
2	2017-18	DSC 2A	BUSINESS ORGANISATION	CO1	Students can easily acquire the business qualities and business strategies
				CO2	Student is able to acquire managerial decision-making skills and ability to plan and implement new entrepreneur skills within a short time.
				CO3	Student will be able to design requirements for sole trading and partnership business
				CO4	Students will develop the analysis of company formation and its proceedings
				CO5	Students acquire motivational abilities and leadership skills.
3	2017-18	DSC 3A	Business economics-I	CO1	Students will be able to apply various economic theories and reasoning to the problems of their businesses.
				CO2	From Demand analysis students will be able to do decision making such as forecasting sales, determining profit making, marketing decision regarding advertisement for sales promotion and making financial decisions.
				CO3	Students will be able to know how much increase or decrease in the commodity is desirable to make maximum profits.
				CO4	Students will be able to know various cost and revenue concepts in fixing the price of the products and calculating profit and loss.
				CO5	Breakeven analysis enables the students to understand profit structure
II nd SEMESTER					
4	2017-18	DSC 1B	FUNDAMENTALS OF ACCOUNTING-II	CO1	Determine the useful life, value of the depreciable asset and application of different methods of depreciation.
				CO2	Understand the concept of provisions and reserves. The types of reserves and provisions and its accounting treatment in today's business world.
				CO3	Appreciate the need for negotiable instruments and procedure of accounting for bills honoured and dishonouredunder various conditions.
				CO4	Understand the concept of Consignment and learn the accounting treatment of the various aspects of consignment.
				CO5	Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.

5	2017-18	DSC 2B	BUSINESS ENIVIRONMENT	CO1	To develop conceptual clarity on the various dimensions of business environment
				CO2	To identify the strategic factors in the development of the less developed countries.
				CO3	Enable the student to evolve new strategies for achieving sustainable development and inclusive growth .
				CO4	Equip the student community with the theoretical and empirical material for enhancing their capability to address the basic problems confronted by the society.
				CO5	impart the knowledge about students about the concept of social injustice and various schemes
6	2017-18	DSC 3B	BUSINESS ECONOMICS –II	CO1	Students will learn cost behaviour and breakeven analysis to know their profit structure in their business.
				CO2	Students enable to learn producers' behaviour in determining the level of output and fixation of the prices of the products under perfect competition and monopoly.
				CO3	Students enable to learn producers' behaviour in determining the level of output and fixation of the prices of the products under monopolistic competition and oligopoly.
				CO4	National Income accounting shows the magnitude of our economic performance which is important to planners and policy makers.
				CO5	Students enable to learn various structural changes introduced in Indian economy and the phases of trade cycles.
IIIrd SEMESTER					
7	2017-18	DSC 1C	CORPORATE ACCOUNTING	CO1	To enable the student to differentiate the various kinds of accounting in relation to cost accounting, and also to enable the students to identify the cost centres.
				CO2	Students will be able to understand the importance of material in costing.
				CO3	Students will readily identify the various incentive schemes in relation to labour costs and also will be able to allocate the various overhead cost in relation to a product.
				CO4	Students can prepare the various cost sheets with respect to processing industry, manufacturing industries also.
				CO5	Students will gain knowledge about the various cost techniques used for decision making.
8	2017-18	DSC 2C	BUSINESS STATISTICS	CO1	describe data with descriptive statistics;
				CO2	To provide practical exposure on calculation of measures of average
				CO3	To provide practical exposure on calculation of measures of variation.
				CO4	interpret the results of statistical analyses;
				CO5	To provide practical exposure on calculation of trend analysis
9	2017-18	DSC 3C	Banking theory &practice	CO1	Students will get exposure for banking functions and its operations.
				CO2	Students will be exposed to different types of banking systems.
				CO3	Students will be exposed to the importance of development banks and its functioning.
				CO4	Students will be exposed to the types of relationship between Banker and Customer.
				CO5	Students will have practical applications of banking aspects in real life situations.
IVth SEMESTER					
10	2017-18	DSC 1D	ACCOUNTING FOR SERVICE ORGANIZATION	CO1	students will be able to understand the concept of non profit organizations and also can clearly differentiate between commercial organizations and non profit organizations.
				CO2	students will gain knowledge about the accounts maintained by the state electricity board and how the surplus will be disposed off by the company.

				CO3	students will be exposed to banking environment and will be able to prepare the final accounts of a banking company according to banking regulation Act.
				CO4	students will certainly understand the importance of insurance companies and also can readily prepare life insurance final accounts.
				CO5	as an extension of insurance companies students are able to recognize the various fields of general insurance and are able to prepare the final accounts of a general insurance company.
11	2017-18	DSC 3D	INCOME TAX	CO1	Students will be able to identify the exemptions and incidence of tax.
				CO2	Students can calculate the source of income from salaries, which will attract tax.
				CO3	To provide knowledge regarding the computation of income from House Property.
				CO4	To gain an understanding on capital gains and other sources of income.
				CO5	Students will be equipped with practical aspects of Tax Planning.
12	2017-18	DSC 2D	BUSINESS LAW	CO1	With the basic knowledge of the fundamental principles of law of contracts, the students in which ever field they may enter into seeking their employment or involve themselves in any business, they will be able to fore see the consequences and protect themselves from being deceived by people, by fraudulent intentions.
				CO2	The study of this chapter enlightens the students in avoiding the deficiencies that may creep in, while entering into contracts in their future
				CO3	Having been educated in this aspect, the students will be cautious while dealing with incompetent persons and avoid their liabilities.
				CO4	This chapter enlightens the students in contract for the sales of goods and also in distinguishing the contracts (sale) between the movable properties and immovable properties.
				CO5	This law enlightens the student with the probable loop holes and deficiencies that should be taken care of and helps protect themselves from the fraudulent transactions through E Commerce
Vth SEMESTER					
13	2017-18	DSC 1E	Cost accounting	CO1	Students will be able to analyse the indirect tax structure.
				CO2	Students will be able to understand the various models of GST and its launch in India.
				CO3	Students will gain knowledge regarding the different kinds of indirect taxes and taxes subsumed in GST.
				CO4	Students will be able to differentiate CGST, SGST, IGST
				CO5	Students gain knowledge about time of supply, place of supply, and Input tax credit, and the calculation of Transactional value of GST.
14	2017-18	DSC 2E	Goods and service tax Fandamentals	CO1	Students will be able to analyse the indirect tax structure.
				CO2	Students will be able to understand the various models of GST and its launch in India.
				CO3	Students will gain knowledge regarding the different kinds of indirect taxes and taxes subsumed in GST.
				CO4	Students will be able to differentiate CGST, SGST, IGST
				CO5	Students gain knowledge about time of supply, place of supply, and Input tax credit, and the calculation of Transactional value of GST.

15	2017-18	DSC 3E	COMMERCIAL GEOGRAPHY	CO1	Though the students are aware of this even from their school days, its study at this juncture made them more cautious and friendlier towards the environment.
				CO2	After the study of this chapter there seem to be a change in the outlook of the students towards Agriculture, as they realized that agriculture is an occupation for sustenance and that in addition to export of machine made or factory products, the Agro-Products can also be exported.
				CO3	Since improving the vegetation is the need of the hour, the study of the Forestry enlightens the students about the different enactments like Forest Act, 1980; CAF Bill, 2015; Forest Rights Acts, 2006 that have come up in India with the specific purpose to conserve the forests.
				CO4	The study of mines and minerals brings awareness in the students that natural resources should Exploited in the best possible manner, having an eye on the conservation of non-renewable minerals.
				CO5	This chapter enlightens the students about the rightful usage and proper augmentation of the water resources.
16	2017-18	DSC 1F	AND SALES PROMOTION	CO1	Students will be exposed to different types of advertising.
			PLANNING	CO2	The student can assess consumer behaviour.
				CO3	The student will be able to design advertising accommodating creative thinking and principles
					The student can plan appropriate media mix for an advertisement.
				CO5	The student can practice ethical advertising considering economic and social aspects of
17	2017-18	DSC 1F	CLUSTER ELECTIVE: ADVERTISING AND SALES PROMOTION	CO1	Students can easily acquire the knowledge of brand qualities and brand strategies
			2. BRAND MANAGEMENT	CO2	Students is able to acquire managerial decision-making skills and ability to plan and Implement new brand products within a short time.
				CO3	Students will be able to design requirements for brand Segmentation and brand building
				CO4	Students can easily know about the brand portfolios and segmentation based on brand values.
				CO5	Students will develop the awareness of brand in different sectors.
18	2017-18	DSC 2F	CLUSTER ELECTIVE E-COMMERCE	CO1	Logically observed and experienced the main activities of E-Commerce.
			1. E-COMMERCE	CO2	Learned and evaluated about the various components of E-Commerce.
				CO3	Conceptually learned the concept of online shopping and models of Electronic market.
				CO4	Thoroughly learned the concepts of instant messaging and Electronic Data Exchange.
				CO5	Learned about the implementation of HTTP and Secure Electronic transaction.
19	2017-18	DSC 2F	CLUSTER ELECTIVE E-COMMERCE	CO1	Independently understand basic computer network technology
			2.BUSINESS NETWORKS	CO2	Understand and explain Data Communications System and its components, Different layers of
				CO3	Identify the different types of network topologies and protocols, concept of cloud computing
				CO4	Understand and building the skills of subnetting and routing mechanisms. And establishing
				CO5	Identify the different types of network devices and their functions within a network. Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.
VIth SEMESTER					

20	2017-18	DSC 3G	MANAGEMENT ACCOUNTING	CO1	Students will be able to make decisions regarding a project.
				CO2	Students can frame out the budget for a business undertaking.
				CO3	Students will explore in practical knowledge regarding managerial decision making.
				CO4	Students will be able to understand the different types of techniques in decision making.
				CO5	Students will gain knowledge in concepts and calculation of various ratios for decision making.
21	2017-18	DSC 2G	AUDITING	CO1	Students would be able to understand the Meaning, History and Importance of auditing.
				CO2	Students would come to and understanding about the types of audit based on the type of business.
				CO3	Understand the process and planning the audit programme, audit note book and audit papers, internal check and control.
				CO4	Understand the Process and Importance of Vouching and Investigation.
				CO5	Understand Audit report and its types and also relevant provisions of Companies Act 2013.
22	2017-18	DSC 1G	MARKETING	CO1	To apply effective and intelligent modern marketing concepts.
				CO2	Ability to design marketing mix strategies for any product or services.
				CO3	It sets a product vision and strategies.
				CO4	Ability to design pricing strategies.
				CO5	Student will be oriented towards ethical Marketing Practices.
23	2017-18	DSC 1F	CLUSTER ELECTIVE: ADVERTISING AND SALES PROMOTION	CO1	Student will be able to select suitable sales organisation and promotion techniques.
			SALES PROMOTION	CO2	Student can assess the market and sales potentiality along with forecasting the sales by using appropriate forecasting methods.
				CO3	Student will be able to frame sales promotion strategies.
				CO4	Student will be able to adopt the best qualities required for becoming a successful sales manager.
				CO5	Student will be able to adopt suitable recruitment, selection and training, compensation and controlling approaches of sales personnel of a firm.
24	2017-18	DSC 1F	CLUSTER ELECTIVE: ADVERTISING AND SALES PROMOTION	CO1	Student will be able to adopt suitable strategies in direct marketing.
			DIRECT MARKETING	CO2	Student can assess the market suitability for direct marketing.
				CO3	Student will be able to know about various direct marketing media.
				CO4	Student will be able to work as social media marketing managers.
				CO5	Student will be able to adopt best suitable practices in digital marketing.
25	2017-18	DSC 2F	CLUSTER ELECTIVE E-COMMERCE	CO1	Students would be able to understand the concept of EDI Electronic Data Interchange and different issues with e-cash and its security.
			ELECTRONIC PAYMENT SYSTEM	CO2	Students would come to and understanding about Automated Clearing and Settlement and be able to utilize NEFT and RTGS facilities in banks.

				CO3	Students would identify and understand the process of Digital Signature and security issues related to e-payments and try to resolve them.
				CO4	Understand the concept of M-Commerce and Mobile payments and utilize different mobile payment apps available in the market.
				CO5	Gain Knowledge about Electronic invoice, Bill service providers, Customer service providers and the concept of Scan based trading and utilize the facilities
26	2017-18	DSC 2F	CLUSTER ELECTIVE E-COMMERCE	CO1	To impart knowledge on contemporary e-marketing practices.
			2 Social Media & E-Marketing	CO2	Students will differentiate the various digital consumers.
				CO3	The students will explore in the various sites of social media.
				CO4	Students will be capable of starting and managing social media marketing business in global economy.
				CO5	To enable the student to understand the online marketing related strategies

COURSE OUTCOMES B.Sc

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
Mathematics					
1		MAT	Differential Equations	CO1	Those opted this Differential equations can solve different differential equations under one or more conditions.
				CO2	The student can have apply this differential equations in Geometry and Economics, Mechanics etc. They will get knowledge of drawing graphs.Students are capable to calculate intrinsic value of securities.
				CO3	The students have a knowledge to solve the no of problems under various conditions while solving the problems in Engineering and other fields
				CO4	Student acquires knowledge to find Newton's law of cooling and the light of the falling object in the study of engineering physics.
				CO5	Student gets efficiency for finding the proportions of current in the function of current at different times.
2		MAT	Solid Geometry	CO1	The outcome of this course solid Geometry is motivated the students to go to the area of research.
				CO2	The student will get full knowledge that how to calculate volume, surface area etc.
				CO3	Student acquire knowledge of mechanism of controlling a robot, and its construction and design of instruments which will be used for music.
				CO4	Students will be able understand pictures animation and computer graphics.
3		MAT 115	Group Theory	CO1	Students will be understood what is a group, ring and techniques of homomorphism.
				CO2	It is an immense importance in the study of abstract algebra in the history and development of Mathematics
				CO3	Student will get knowledge of symmetrical operations in computers and in the subject of physics.
				CO4	Student will get knowledge use group theory in Chemistry chemical preparation.

4		MAT	Real Analysis	CO1	Student acquire knowledge on basic concepts of natural numbers, integers and structure of real numbers.
				CO2	students aquire the knowledge of discrete mathematics
				CO3	Students will gain knowledge to use this concept in the coding of software filed.
				CO4	Usefull to the students in the field of physics marine biology and bio-mathematics.
5		MAT	Linear Algebra	CO1	Student will understand the role of the concepts like groups,rings in modern mathematics
				CO2	Student may get interest to go for research in the area of theory of coding
				CO3	Student will have the knowledge in mathematical reasoning for advanced algebra
				CO4	He will understand various applications in engineering and other subjects
6		MAT	Ring theory & Vector Calculus	CO1	student can knows its applications in the area of computer science, economics, engineering and physics.
				CO2	Student will understand the techniques of the application
				CO3	Student will knows the concepts of graph theory, coding theory in the area of research
				CO4	student can understand some methods calculating the surface area of an agriculture field.
7		MAT 114	Numerical Analysis-I	CO1	Student have get knowledge of some basic concepts or ideas regarding numerical applications for computation or errors and their analysis
				CO2	student can be provide efficient methods for determining numerical amusers to such problems
				CO3	student can able to find required approximate value when data has been given
				CO4	student can solve differential equations without using any basic formulas of differentiation.
8		MAT	Integral Transofrmation	CO1	Student can solve problems of basic integral calculus.
				CO2	Student can understand solving of the problems in differential equations using Laplace transforms.
				CO3	He will apply integrals using Beta, Gamma functions.
				CO4	Student can solve Fourier Series expansions.
9		MAT	Advanced Numerical Analysis-II	CO1	Student can get some idea about the nature of relationship between the two variables.

				CO2	Student understand how to derive expressions for the reminder terms in the polynomial formulas.
				CO3	Student can able to solve the problems of definite integration without using any basic formula's of integration.
				CO4	When solving difficult differential equations which are not solve by analytical methods, student can apply these special methods to get the numerical solution of the equation.
Physics 2017-2018					
10		PHY	MECHANICS & PROPERTIES OF MATTER	CO1	The students are able to calculate surface and line integrals, apply Gauss Divergence- and Stokes' theorems, and have sufficient knowledge in vector analysis
				CO2	Understand the laws of motion, motion of the particles and concept of collisions.
				CO3	Understand concept of rotational kinematic relations, equation of motion for a rotating body, angular momentum.
				CO4	Understand the concept of central forces its applications. Derivation of Kepler'slaws. Motion of satellites.
				CO5	Understand the concept of special Theory of Relativity, Lorentz transformation equations by using special Theory of Relativity.
11		PHY	WAVES & OSCILALTIONS	CO1	Understand the Simple harmonic oscillator and solution of the differential equation-Physical characteristics of SHM.
				CO2	Understand the damped harmonic oscillator, solution of the differential equation of damped oscillator.
				CO3	Understand concept of Fourier theorem and evaluation of the Fourier coefficients, analysis of periodic wave functions-square wave and saw tooth wave.
				CO4	Understand the concept of Transverse wave propagation along a stretched string, general solution of wave equation
				CO5	Understand the concept of ultrasonic's, properties of ultrasonic waves and its applications.

12		PHY	OPTICS	CO1	Understand about Aberrations; solve problems related to the phenomena.
				CO2	Understand about interference; solve problems related to the phenomena.
				CO3	Understand about diffraction; solve problems related to the phenomena.
				CO4	Understand about Polarisation; solve problems related to the phenomena.
				CO5	Realize the importance of advantages of fiber optic communication and applications of lasers.
13		PHY	THERMODYNAMICS	CO1	Become familiar with various thermodynamic process and work done in each of these processes. Have a clear understanding about Reversible and irreversible process and also working of a Carnot engine, and knowledge of calculating change in entropy for various process.
				CO2	Realize the importance of Thermo dynamical functions and applications of Maxwell's relations
				CO3	Understand the Maxwell's speed distribution and transport phenomena.
				CO4	Become familiar with Joule Kelvin effect-Porous plug experiment - Joule Thomson expansion. Expression for Joule Thomson cooling- Liquefaction of helium, Kapitza's method-Adiabatic demagnetization
				CO5	Realize the importance of Wien's displacement law, Planck's law and Rayleigh-Jean's. Become familiar with Angstrom pyrheliometer-determination of solar constant, Temperature of Sun.
14		PHY	ELECTRICITY & ELECTROMAGNETISM	CO1	Understand basic concept of Electric field intensity and potential, dielectrics.
				CO2	Understand Biot-Savart's law, Lorentz force, Hall Effect. Understand the concept of electromagnetic induction, self induction of solenoid, mutual induction of coaxial solenoid.
				CO3	Understand LCR series and parallel resonant circuits and its physical significances and understand the applications of Maxwell's equations
				CO4	Gain knowledge of diodes and transistors

				CO5	Learn to convert number systems, Laws of Boolean algebra and De Morgan's laws
15		PHY	Modern Physics, Quantum Mechanics	CO1	Describe theories explaining the structure of atoms and the origin of the observed spectra, list different types of atomic spectra, identify atomic effect such as Zeeman Effect and Stark effect.
				CO2	Understand the dual nature of matter and the uncertainty relations.
				CO3	Understand and explain the differences between classical and quantum mechanics, understand the idea of wave function. Solve Schrodinger equation for simple potentials.
				CO4	Understand the size of nucleus and all its properties and different nuclear models. This course has led the students to understand interaction of various types of radiation with matter which they observe in their daily life.
				CO5	Demonstrate an understanding of the crystal lattice and how the main lattice types are described, knowledge of X-ray diffraction in crystals. Determine the structures of simple crystals. Knowledge of the super conductivity, types of super conductors, Meissner effect, applications of super conductors.
16		PHY	Analog and Digital Electronics	CO1	Have a thorough understanding of the fundamental concepts and techniques used in analog and digital electronics.
				CO2	To understand and examine the structure of various number systems and its application in digital design.
				CO3	The ability to understand, analyze and design various combinational and sequential circuits
				CO4	Evaluate possible causes of discrepancy in practical experimental observations in comparison to theory
				CO5	Prepare professional quality textual and graphical presentations of laboratory data and Computational results, incorporating accepted data analysis and synthesis methods, Mathematical software and word-processing tools.

17		PHY	Introduction to Microprocessors and Microcontrollers	CO1	The general architecture of a microcomputer system and architecture &organization of 8085 Microprocessor and understand the difference between 8085 and advanced microprocessor.
				CO2	Understand and realize the Interfacing of memory & various I/O devices with 8085 microprocessor.
				CO3	Understand need of microcontroller, architecture and operation of microcontroller, 8051 develops assembly language programs using instruction set of 8051.
				CO4	Develop programs using interrupts, various applications of microcontrollers
				CO5	To provide in depth knowledge about embedded processor, its hardware and software.
18		PHY	Computational Methods and Programming	CO1	Students completing this unit portion will be able to Define and Declare statements using C Language and the use of various operators used in C Language.
				CO2	Students completing this unit portion will be able to Know to use statements iteratively and execute some statements depending on the requirement.
				CO3	Students completing this unit portion will be able to Define efficient use of memory and execute statements based on a particular task.
				CO4	Student can able to solve the problems of definite integration without using any basic formula's of integration.
				CO5	When solving difficult differential equations which are not solve by analytical methods, student can apply these special methods to get the numerical solution of the equation.
19		PHY	Electronic Instrumentation	CO1	Understand basic principles involved in the meters for measuring voltage, current, resistance and frequency and become familiar with functioning of different meters associated with measurements of signal characteristics
				CO2	Employ CRO for measuring voltage, current and frequency and become familiar with CRO for measuring Signal characteristics

				CO3	Understand principle of measurements associated with different bridges and become familiar with different bridges employed for Electronic measurements
				CO4	Get complete knowledge regarding working of advanced instruments such as logic analyzers and spectrum analyzers
				CO5	Understand the operation of different signal generators and their uses in various applications
Electronics 2017-2018					
20		ELE	BASIC CIRCUIT THEORY	CO1	Student gets adequate knowledge on signals , passive elements and their characteristics.
				CO2	Students becomes well versed with the application of Kirchoff's laws and the characteristics of different passive networks.
				CO3	They will come to know the real time applications of various network theorems.
				CO4	Students gets familiarized with the designing approaches of different passive networks and their applications
				CO5	Student gets adequate knowledge on the designing of different resonant circuits for real time applications.
21		ELE	ELECTRONIC DEVICES AND CIRCUITS	CO1	The student becomes familiar with the basics of semiconductors and construction and working of various diodes.
				CO2	Students will know the working of BJTs and the designing of biasing circuits.
				CO3	Students will acquire complete knowledge on different 3 terminal semiconductor devices.
				CO4	The students can do projects using opto electronic devices.
				CO5	The student can design the clipping and clamping circuits by studying power supplies.
22		ELE	DIGITAL ELECTRONICS	CO1	The student became familiar with the digital signal, positive and negative logic, number systems, codes, and their conversion from to others.
				CO2	The student became familiar with Boolean algebra, logic gates, logical variables, the truth table

				CO3	The student can understand the working mechanism and design guidelines of different combinational circuits and their role in the digital system design.
				CO4	The student can understand the working mechanism and design guidelines of different sequential circuits and their role in the digital system design.
				CO5	The student can understand, analyze and design various semiconductor memories and their functioning.
23		ELE	ANALOG AND DIGITAL IC APPLICATIONS	CO1	The student acquires complete knowledge on operational amplifiers internal structure, its characteristics and modes of its operations.
				CO2	They become familiar with various applications of operational Amplifiers.
				CO3	The students become well versed with the designing of combinational and sequential circuit designing.
				CO4	They come to know the operation and the application of ADC and DAC in daily life.
				CO5	They become aware of real time applications like Digital clock, UART etc.
24		ELE	MICROPROCESSORS AND MICROCONTROLLERS	CO1	Students become familiarize with the architecture of 8085 processor.
				CO2	Students become familiar with the instruction set of 8085.
				CO3	They get skilled hands in 8085 assembly language programming.
				CO4	They acquire knowledge in 8051 microcontroller concepts, architecture and programming
				CO5	They become familiar with the design of microprocessor based systems for various applications.
25		ELE	ELECTRONIC COMMUNICATIONS	CO1	Students get knowledge on the basics of communication systems and different types of noises.
				CO2	Students learn the analysis the different parameters of amplitude modulation and demodulation.
				CO3	Student obtain knowledge on angle modulation systems PAM,PWM and PPM
				CO4	They become well versed with block diagrams of AM and FM.
				CO5	They obtain adequate knowledge on digital communication systems.

26		ELE	ELECTRONIC INSTRUMENTATION	CO1	The student will be able to describe the fundamental concepts and principles of instrument
				CO2	The student will be able to apply the measurement techniques for different types of tests.
				CO3	They will know the designing of ac and dc bridges and use them for relevant parameter measurement.
				CO4	The student will be able to handle the different types of cros for measurements of frequency, phase, and amplitude.
				CO5	The student will be able to use different types of signal generators and passive or active transducers for measurement of physical phenomenon.
27		ELE	ELECTRONIC CIRCUITS AND PCB DESIGNING	CO1	The student becomes familiar with the basics of semiconductors and construction and working of various diodes.
				CO2	Students will know the working of BJTs and the designing of biasing circuits.
				CO3	The student can recognize and identify electronic components and codes of components.
				CO4	The student gets familiarized in Artwork layout Pathways, signal trace and soldering the Components on board.
				CO5	The student gets familiarized in soldering the Components on board.
CHEMISTRY					
28	2017-2018	CHE	INORGANIC AND ORGANIC CHEMISTRY	CO1	Gains the knowledge of structure and properties of p-block compounds like diborane, silicones, hydrazine etc.
				CO2	Gains the knowledge of structure and properties of p-block compounds like oxides, interhalogen compounds, organometallic compounds.
				CO3	Learns about different types of reactions, reagents and intermediates.
				CO4	Gains the knowledge about preparations hydrocarbons and theories of cyclo alkanes.
				CO5	Students understand the structure and orientation of benzene
29		CHE	PHYSICAL AND GENERAL CHEMISTRY	CO1	Gains the knowledge of types, symmetry and defects in crystal systems
				CO2	Can deduce relation between vanderwaals and critical constants. And can also classify liquid crystals.

				CO3	Gains the knowledge of separation of miscible and immiscible solutions by fractional distillation.
				CO4	Gains the knowledge of preparation, properties of colloids and types of adsorption. And also gains knowledge in basic theories of chemical bonding.
				CO5	Can easily identify optical and geometrical isomers of carbon compounds.
30		CHE	INORGANIC AND ORGANIC CHEMISTRY	CO1	Students can aquire knowledge on the classification of elements and general properties of d-block elements. And can also aquire knowledge in theories on bonding in metals.
				CO2	Students can aquire knowledge on the classification of elements and general properties of f-block elements. And can also aquire knowledge in study of structures of metal carbonyls.
				CO3	Gets the knowledge in types of reactions involving(SN1 and SN2), reactivity of halogen compounds. And also gets the knowledge in preparations, properties, reactions, identification tests of hydroxy compounds.
				CO4	Gets the knowledge in preparations, properties, special reactions, identification tests of aldehydes and ketones.
				CO5	Gets the knowledge in classification, preparations, properties, reactions of carboxylic acids. And also gets the knowledge in the synthesis of various compounds by active methylene compounds.
31		CHE	SPECTROSCOPY AND PHYSICAL CHEMISTRY	CO1	Aquire a knowledge of spectrophotometric techniques. And also aquires knowledge of electronic spectroscopy.
				CO2	Aquires the knowledge of IR, NMR spectroscopy and structure ananlysis of organic compounds
				CO3	Gets the knowledge how to prove colligative properties.
				CO4	Students understood basic principles and theories of electrochemistry.
				CO5	Students can differentiate electrochemical cells and electrolytic cells. And also gets knowledge of phase diagrams by a phase rule.
32		CHE	INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY	CO1	Aquires the knowledge and theories and structures of metal ions and ligands.
				CO2	Gets the knowledge of stability constants of complex compounds.

				CO3	Learns about preparations and properties of nitro compounds.
				CO4	Learns about preparations and properties of amines.
				CO5	Gets the skill in derivation of thermodynamic equations.
33		CHE	INORGANIC, PHYSICAL AND ORGANIC CHEMISTRY	CO1	Gets the knowledge of mechanism of complex compounds and importance of Fe and Ca in human body.
				CO2	Students become capable to derive first, second, third order rate equations and learns various photochemical reactions.
				CO3	Aquires the knowledge in the reactivity of pyrrole, furan, thiophene.
				CO4	Gets the knowledge to differtiate glucose and fructose by their structures.
				CO5	Aquires the knowledge in the synthesis of amino acids.
34		CHE	ANALYTICAL METHODS IN CHEMISTRY	CO1	Students understand quantitative principles of titrimetry and gravimetry.
				CO2	Students can calculate errors and accuracy of their calculations.
				CO3	Students gets knowledge of separation of immiscible liquids.
				CO4	Students acquires the knowledge of paper chromatography and Rf values.
				CO5	Students acquires knowledge of complete procedure and principles of TLC, column chromatography, HPLC.
35		CHE	ORGANIC SPECTROSCOPIC TECHNIQUES	CO1	Students gets the knowledge in basic concepts of NMR.
				CO2	Students gets the knowledge in difference of NMR and FT-NMR. And also the applications of NMR.
				CO3	Students gets the knowledge in woodward-fischer rules.
				CO4	Students gets the knowledge in the simultaneous determination of ions spectrophotometrically.
				CO5	Students gets the knowledge in the interpretation of complex compounds and radicals.
36		CHE	ADVANCED ORGANIC REACTIONS	CO1	Students gets the knowledge in energy transfer and photoreduction reactions.
				CO2	Students gets the knowledge in cleavage and combination of radicals in photochemical reactions.
				CO3	Students understand how to protect functional groups by various protecting groups.

				CO4	Students gets the knowledge of synthetic reactions to develop drug designing skills.
				CO5	Students aquires ability to think about new ways for synthetic reactions.
37		CHE	PHARMACEUTICAL AND MEDICINAL CHEMISTRY	CO1	Students can able to understand basic definitions like pharmacy, pharmacophore, pharmacodynamics.
				CO2	Students gets the knowledge in classification of drugs.
				CO3	Students gets the knowledge in the synthesis of drugs like antibiotics, antipyretics, antimalarial and sulphadrugs.
				CO4	Students gets the knowledge in the sysnthesis of antiasthma, antianginals, diuretic drugs.
				CO5	Students gets the knowledge in the prevention of AIDS and can also differentiate NRTIs and NNRTIs AIDs drugs
Biotechnology					
38		BTL	MICROBIOLOGY AND CELL BIOLOGY	CO1	Demonstrate theory and practical skills in microscopy and their handling techniques and staining procedures
				CO2	Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes and also understand the structural similarities and differences among various physiological groups of bacteria/archaea.Know how viruses are classified and Understand the architecture of viruses
				CO3	understand about the nutritional requirements of microorganisms and Know various Culture media and their applications and also understand various physical and chemical means of sterilization
				CO4	Know the various Physical and Chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurement. Know General bacteriology and microbial techniques for isolation of pure cultures of bacteria. Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively
				CO5	Understand the structural features, organelles and the cellular mechanisms of Eukaryotic cells.

39		BTL	MACROMOLEULES, ENZYMOLOGY AND BIOENERGETICS	CO1	To know the structure of nucleic acid, types of nucleic acids and its forms.
				CO2	Define, classify and understand the biological functions, chemical and physical properties, structural characteristic of Amino acids and proteins.
				CO3	Understand The Definition, classification, biological function and chemical and physical properties of Carbohydrates and Lipids
				CO4	Understand the concept of enzyme activity, enzyme inhibition, enzyme kinetics and classify enzymes.
				CO5	Explain the Concept of free energy and high energy bonds
40		BTL	BIOPHYSICAL TECHNIQUES	CO1	Explain The Principle, working and applications of spectrophotometer, Spectrofluorometry, Absorption & emission flame photometry and also perform experiments using the spectrophotometer.
				CO2	Explain the concept of partition coefficient, Principle, methodology and application of various chromatographic techniques and also perform experiments using chromatography technique.
				CO3	Explain and perform Gel electrophoresis, SDS-PAGE, isoelectric focusing, pulsed field gel electrophoresis.
				CO4	Understand the importance of Radioactive & stable isotopes, rate of radioactive decay Measurement of radioactivity, advantages and limitations, applications of isotopes in biotechnology
				CO5	Explain the Basic principle of Centrifugation, types of centrifuges. Students will be able to understand and apply the Basic concepts of Biostatistics (Standard deviation and Standard error,etc.)
41		BTL	IMMUNOLOGY	CO1	Get an insight about the cells and organs of immune system and also gain knowledge about the types of immunity and their mechanisms,complement system,humoral mediated immune response.

				CO2	To describe antigenicity and the factors affecting antigenicity. To understand the structure of antibody and to learn about the different types of antibodies and the biological functions.
				CO3	To explain cell mediated immunity, Natural killer cell immunity, concept of cytokines and MHC.
				CO4	Explain Hypersensitivity and describe about the principle, significance and types of vaccines .
				CO5	Understand about the antigen – antibody reactions,Hybridoma Technique and its applications
42		BTL 125	MOLECULAR BIOLOGY	CO1	The complete genomic organization of living organisms i.e, study of genes, genome, and chromosome.
				CO2	The mechanism and essential components required for prokaryotic DNA replication.
				CO3	The fundamentals of DNA damage and repair, including types of mutation and repair mechanisms.
				CO4	The process of DNA Transcription from mRNA, enzymes involved in transcription and its inhibitors.
				CO5	The process of protein synthesis, enzymes involved in protein synthesis and its inhibitors.
			r DNA TECHNOLOGY (Elective Theory		
				CO1	Understand the Enzymes and vectors used in genetic engineering.
				CO2	Explain the Method of gene cloning
				CO3	Understand the construction of genomic and cDNA libraries
				CO4	Explain and perform the DNA sequencing Techniques. Students will be able to explain the gene transfer techniques in fungi,yeast and higher plants.
				CO5	Understand the Applications of recombinant DNA technology in Agriculture and Medicine
43		BTL	PLANT AND ANIMAL BIOTECHNOLOGY	CO1	Understand the Laboratory organization, culture media, callus culture, suspension culture, Assessment of growth and viability

				CO2	Explain Micro propagation, Synthetic seed, Meristem culture, Somaclonal variations, haploid plants, Protoplast culture, somatic hybridization, and Agro bacterium mediated transformation.
				CO3	Understand the Laboratory facilities and culture media to be prepared for animal tissue culture, Cell lines, cell disaggregation and application of animal cell and tissue culture.
				CO4	Understand recombinant DNA products like insulin, somatostatin, vaccines, Concept of Gene therapy, Production of recombinant vaccines, transgenic animals, In vitro fertilization and embryo transfer in humans and farm animals.
				CO5	Understand about Intellectual property rights, society and ethical aspects of Biotechnology
44		BTL	CELL BIOLOGY	CO1	Understand the basic unit of an organism and explain the Ultra structure of eukaryotic (plant & animal) cell and prokaryotic cell.
				CO2	Explain the Structural organization and functions of plasma membrane and cell wall of eukaryotes.
				CO3	Explain the Structure and functions of cell organelles
				CO4	Understand the discovery, morphology and structural organization of chromosomes.
				CO5	Explain the mechanism of cell division and understand the programmed cell death and cell signalling
45		BTL	GENE BIOTECHNOLOGY	CO1	Study the phenomenon of dominance, laws of segregation, independent assortment of genes.
				CO2	Understand the different types of genetic interaction, incomplete dominance, co dominance, inter allelic genetic interactions, multiple alleles and quantitative inheritance, etc.
				CO3	Understand the principles and mechanisms of linkage and crossing over
				CO4	Study human sex anomalies, genetic drift and disorders due to mutant genes
				CO5	Explain Mutations and repair mechanisms of DNA.
46		BTL	BIOSTATISTICS AND BIOINFORMATICS	CO1	Understand the Scope of computers in biological research

				CO2	Inculcate probability and distributions, Measurement of central tendency and dispersion for solving biological problems.
				CO3	Know how to open the Biological databases NCBI, PUBMED, genebank, DDBJ, swissprot, PIR, EMBL, PDB, MMDB, SRS, ENTREZ, Expasy.
				CO4	Search sequence database using BLAST and understand the Concept of genomics and proteomics
				CO5	Apply Population and sampling test of significance biostatistic applications to solve experimental outcomes.
Microbiology					
47		MBY101	INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY	CO1	The students are acquainted with the history and contributions of various scientists in the field of Microbiology and gain knowledge on the classification of microorganisms.
				CO2	The students become familiar with the general characteristics and structure of different Microorganisms. Understand the architecture of viruses
				CO3	The student develops skill in Microscopy.
				CO4	They learn the staining and Sterilization techniques.
				CO5	Students are motivated to isolate and preserve microorganisms from various samples.
48		MBY202	MICROBIAL BIOCHEMISTRY AND METABOLISM	CO1	Understand the structure and characteristics of Biomolecules and become capable of Identifying the biomolecules.
				CO2	Students are acquainted with the Biophysical techniques and explore their use in Research.
				CO3	They gain knowledge on the concepts of Enzyme activity and their Applications in various fields of science.
				CO4	They understand the growth kinetics and modes of nutrition in Microorganisms. Know the various Physical and Chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurement.
				CO5	They became familiar with the different Mechanisms of Energy Production in Microorganisms

49		MBY303	MICROBIAL GENETICS AND MOLECULAR BIOLOGY	CO1	They understand the importance of genetic material, their basic structure and mechanism of replication in a cell.
				CO2	They understand the concept of Mutation, gene transfer mechanisms and their role in evolution.
				CO3	They learn about the importance of gene and their expression for proper functioning of a cell.
				CO4	They learn about the types of genes and their regulation.
				CO5	They gain knowledge on principles of genetic engineering and their applications in various fields.
50		MBY404	IMMUNOLOGY AND MEDICAL MICROBIOLOGY	CO1	They learn the concept of immunity and the functioning of immune cells in protecting the host from different pathogens.
				CO2	They gain knowledge on the nature of Antigen, Antibody, their types and applications of their interactions.
				CO3	Master aseptic techniques and be able to perform culture isolation and handling tasks safely and effectively
				CO4	They gain knowledge on the mechanism of action of various antibiotics, resistance exhibited by microbes and explore the invention of new vaccines.
				CO5	They understand the pathogenic potential of microbes causing various diseases and learn their control.
51		MBY505	ENVIRONMENTAL AND AGRICULTURAL MICROBIOLOGY	CO1	They Learn the occurrence, abundance and distribution of microorganism in various environment and their role in the environment and also learn different methods for their detection and characterization.
				CO2	They Understand various biogeochemical cycles - Carbon, Nitrogen, Phosphorus cycles etc. and microbes involved.
				CO3	Comprehend the various methods to determine the Sanitary quality of water and sewage treatment methods employed in waste water treatment.
				CO4	Understand various plant microbes' interactions especially rhizosphere, phyllo sphere and mycorrhizae and their applications especially the biofertilizers and their production techniques.

				CO5	Competently explain various symptoms of plant diseases caused by microorganisms and to become familiar with their control practices.
52		MBY506	MICROBIAL DIAGNOSIS IN HEALTH CLINICS	CO1	This unit provides the conceptual basis for understanding pathogenic microorganisms and the mechanisms by which they cause diseases in the human body.
				CO2	It provides opportunities to develop informatics and diagnostic skills, including the use and interpretation of laboratory tests in the diagnosis of infectious diseases.
				CO3	Know various Culture media and their applications. Comprehend the various methods for identification of microorganisms by staining techniques.
				CO4	To make them understand the salient features of antigen antibody reactions& their uses in diagnostics and detection of disease-causing microorganisms.
				CO5	To Recognize the biochemical and genetic basis for antibiotic resistance and learn the tests for detecting the antibiotic resistance.
53		MBY607	VII FOOD AND INDUSTRIAL MICROBIOLOGY	CO1	Understand the significance and activities of microorganisms in food spoilage and role of intrinsic and extrinsic factors on growth and survival of microorganisms in foods.To know the diseases associated with the consumption of spoiled foods.
				CO2	Toidentify ways to control microorganisms in foods and thus know the principles involving various methods of food preservation. Understand the beneficial role of microorganisms in fermented foods, microbiology of different types of fermented food products and about probiotics.
				CO3	Get equipped with a theoretical and practical understanding of industrially important microorganisms, Screening and strain improvement methods.
				CO4	To Know about design of bioreactor, and to understand the medium formulation & to appreciate the different types of fermentation processes.
				CO5	To learn and appreciate how microbiology is applied in manufacture of industrial products.

				CO1	To recognize various industrially important microorganisms and to learn the methodsof Screening and strain improvement. To enable them to differentiate between the primary and secondary metabolites produced by microorganisms.
54		MBY -6	VIII (A) INDUSTRIAL	CO2	To Know about design of bioreactor, and to understand the
				CO3	Understand the applications of enzymes in therapy, textile and leather industries and gain knowledge on the role of microorganisms in Bioleaching process.
				CO4	To develop conceptual knowledge on the kinetics of bacterial growth, factors affecting microbial growth and principles of production medium.
				CO5	Know about principle and design of bioreactors, types of microbial fermentationand sterilization techniques of bioreactors.
55			VIII (B) FOOD MICROBIOLOGY	CO1	Understand the significance and activities of microorganisms in
				CO2	To apply the theoretical knowledge of usage of microorganisms in fermented foods and apply them in production of various fermented foods.
				CO3	To gain the knowledge on different distilled beverages and the production & importance of cheese and yogurt.
				CO4	To identify ways to control microorganisms in foods and thus know the principles involving various methods of food preservation.
				CO5	To know the microorganisms used as probiotics and their significance in human health. To gain knowledge on the microbial production of vitamin B 12, Vitamin c and their applications.
56			VIII (C) MANAGEMENT OF HUMAN MICROBIAL DISEASES.	CO1	This unit emphasizes on different infectious microbial groups and their mode of transmission and pathogenicity.
				CO2	To understand the epidemiology of current emerging and reemerging infectious diseases and detrimental effects of microbes as Biological Weapons.
				CO3	To differentiate between different viruses and diseases associated with them.
				CO4	To understand various modes of Transmission of pathogens in different diseases and potentiality of toxins in exhibiting their pathogenicity.

				CO5	To analyze how a vector can transmit a disease and corelate it with epidemiological studies. To gain knowledge on mechanism of drug resistance of different pathogenic strains.
Statistics 2017-2018					
57			DESCRIPTIVE STATISTICS AND PROBABILITY	CO1	Students can able to aware and understand of raw data, sources, presentation of grouped data in tabular & graphical and calculation of central tendency measures.
				CO2	Student aware and understand calculation of dispersion measures, moments and it's inter relationship.
				CO3	Student can understand basic concepts and applications of probability and acquire the ability to engage independent and life learning.
				CO4	Student can learn theorems of probability and use apply these in solving real life problems.
				CO5	Student learns to get solution of the problems based on the random variable and distribution functions and acquire the ability to engage independent and life learning.
58			Mathematical Expectations & Probability distributions	CO1	Student learns basic concepts of mathematical expectation; theoretically understand generating functions for discrete and continuous variables and understand Chebyshev and Schwartz inequalities.
				CO2	Student acquires a detailed knowledge of characterization of discrete distributions Binomial, Poisson and its real life examples.
				CO3	Student acquires a detailed knowledge of characterization of discrete distributions Negative Binomial, geometric and Hyper geometric &their approximations which ever applicable and its real life examples.
				CO4	Student acquires a detailed knowledge of characterization of continuous distributions Rectangular, Exponential, Beta and Gamma and its real life examples.

				CO5	Student understands normal distribution and its importance in statistics and applies this knowledge to solve the real life problems.
59			Statistical methods	CO1	Student recollects the meaning of the variables; understand theory & practical way of calculating various measures of correlation and its interpretation
				CO2	Student recollects the meaning of the independent & dependent variables understand theory & practical way of obtaining regression lines and distinguish between correlation and regression
				CO3	Student learns how to fit linear and non-linear curve to the given n data points by using least squares method.
				CO4	Students understand various methods of measuring association for attributes.
				CO5	Student understand detailed knowledge about exact sampling distributions and analyse it's inter relationships.
60			Statistical Inference	CO1	Student recollects primary concepts and understands the various methods of estimation.
				CO2	Student understands the concepts, theory of testing of hypothesis and learn how obtain the best critical regions.
				CO3	Student emphasize statistical thinking on theory and applications of large sample tests
				CO4	Student emphasize statistical thinking on theory and applications of small sample tests
				CO5	Student understanding the procedure of testing non-parametric methods and able to distinguish between one sample and two sample parametric tests.
61			Sampling Techniques & Design of Experiments	CO1	Student can learn an overview of the concepts of how to plan, design and different sampling techniques
				CO2	Student able to conduct sampling technique efficiently and effectively, understand the theory and applications of Simple Random sampling method.
				CO3	Student able to conduct sampling technique efficiently and effectively, understand the theory and applications of Stratified and Systematic sampling methods.

				CO4	Student can enhance the procedure of testing of hypothesis, analysis and interpretation of ANOVA technique.
				CO5	Student acquires knowledge about the concepts of design of experiments, various designs and applies ANOVA techniquefor analysis of designs.
62			Quality & Reliablity	CO1	Student learns and understands the basic concepts, theory and importance SQC and understands the construction of various control limits.
				CO2	Student can understand the procedure of constructing control charts for variables and attributes.
				CO3	Student learns concepts of various acceptance sampling plans
				CO4	Student understands different sampling plans.
				CO5	Student will be able understand the Reliability for industrial process.
63			Applied Statistics	CO1	Student acquires knowledge and understands the basic concepts, theory and analysis of Time series.
				CO2	Student understands the basic concepts, theory, construction, uses of Index Numbers and applies Various Index number methods for construction of Index Numbers.
				CO3	Student understands the structure, functions and activities of NSSO, CSO & other organizations and Concepts and computation problems in National Income.
				CO4	Student acquires the knowledge on concepts of vital statistics, its sources, theory and measures of various mortality, fertility rates.
				CO5	Student understands theory on reproduction rates and construction of life tables.
64			Cluster-1(a) Optimization Techniques	CO1	Student can learn the basic concepts, importance of Optimization techniques.
				CO2	Student learns how to formulate real life problems as mathematical programming problem and solving these problems with graphical method.
				CO3	Student understands algorithm of simplex method and solving linear programming problems by using simplex method.

				CO4	Student understands algorithm of Big-M and Two phase method and apply these methods to solve linear programming problems.
				CO5	Student understands algorithm of dual simplex method and apply these method to solve linear programming problems
65			Cluster-1(b) Operations Research	CO1	Student understands algorithm of revised simplex method and apply these method to solve linear programming problems
				CO2	Student learns basic concepts, mathematical formulation of transportation and solving TPP by various methods/ techniques.
				CO3	Students acquires the knowledge to obtain optimal solution for LPP by MODI method
				CO4	The Students can understand the concepts, theory and solving the problems in Assignment Problems.
				CO5	The Students can understand the concepts, theory and solving the problems in Sequencing theory
66			Cluster-1(c) Project Work & Viva	CO1	Student recollects the knowledge about CRD, RBD and LSD
				CO2	Student understands the statistical analysis of missing plot technique with one and two observation per cell.
				CO3	Student acquires the concept of ANCOVA and its statistical analysis
				CO4	Student understands the various factorial designs.
				CO5	Student understands BIBD and PBIBD.
Environmental science 2017-2018					
67	2017-2018	ES	Environmental science	CO1	In this unit the students learn about the scope and importance of Environmental studies. The students also understand about the types of natural resources and problems associated with them.
				CO2	In this unit the students understand about different kinds of ecosystems, biodiversity and its conservation. They also learn about types of biodiversity, values of biodiversity and threats to biodiversity.
				CO3	In this unit the students gain knowledge about different types of environmental pollutions, their causes, effects and control measures.

				CO4	In this unit the student learns about sustainable development and various environmental legislation Acts.
				CO5	In this unit the students gain knowledge about characteristics of human population growth and its impact on environment.
Hindi 2017-2018					
68	2017-2018	Hindi	HINDI GADYA SANDESH	CO1	विद्यार्थियों को संस्कृति,साहित्य और विज्ञान आदि विषयों से संबंध अवगत कराया जाता है जो उनके व्यक्तित्व निर्माण में सहायक होता है।
				CO2	विद्यार्थियों को मानव मूल्यों की सीख इस पाठ के माद्यम से दी गई है।साथ ही सच्चे वीरता का परिचय देकर उन्हें सच्चे वीर बनने का प्रेरण दी गई है।
				CO3	विद्यार्थियों एक कच्ची मिट्टी की मूर्ति के समान होते हैं। उनको जिस रूप में बनाया जाय वही रूप में डल जाते हैं।चाहे उन्हें राक्षस बनाया जाय या देवता।इसलिए जीवन में सच्चे मित्र प्राप्त करना बहुत कठिन काम है।
				CO4	इस कहानी के माद्यम से विद्यार्थियों को धार्मिक सहिष्णुता की सीख मिलती है जो देश के वर्तमान राजनीतिक,सामाजिक,धार्मिक एवं सांस्कृतिक परिस्थितियों में प्रासंगिक हैं।
				CO5	इस कहानी के माद्यम से विद्यार्थियों को यह प्रेरणा दी गई है कि प्रेम और बलिदान का जीवन में अत्यंत महत्व पूर्ण स्थान दिया गया है। प्राण जाय पर वचन ना जाय इसी तथ्य को सैनिक लहनासिंह की माद्यम से कहानीकार ने सिद्द करने का कोशिश किया है।विद्यार्थियों को जीवन में प्रेम और बलिदान की महत्व को समझाया है।
69		GGY116	Maps & Scales	CO1	To have the knowlege of different types of Maps
				CO2	To understand different Scales of Maps
				CO3	To analyse some Maps to gain indepth knowledge on Maps and Scales and different types of diagonal scales
				CO4	To apply the knowledge in understanding the maps and scales in rea life
70		Hindi	HINDI GADYA SANDESH	CO1	विद्यार्थियों को ऎसे उत्तम विचारवाले निबंध को पाठ्यक्रम में सम्मिलित कर जीवन केलिए एक मार्गदर्शन कराया गया है|

				CO2	विद्यार्थियों को राष्ट्रीय एकता की भावना को बढाने में यह पाठ अत्यंत उपयुक्त है।"UNITY IN DIVERSITY" इस निबंध का मूल मंत्र है जो किसी भी देश की प्रगति केलिए आवश्यक है
				CO3	एड्स के इतिहास उसके फैलाव उससे बचने के उपाय आदि के बारे में उसके युवा वर्ग को विस्तृत ज्ञान दिया जाय तो इस महामारी से बचना बहुत आसान है| इस प्रकार यह वैज्ञानिक निबंध विद्यार्थियों को अत्यंत उपयोगी है।
				CO4	विद्यार्थियों केलिए यह एक सीख है कि किसी भी प्रलोभन में न पढ और बहुत सूझ बूझ के साथ जीवन कथम बढाए| गैर सरकारी कार्यालयों में नौकरी प्राप्त करने तथा सरकारी उच्च स्था पर होनेवाले विभिन्न परीक्षाओं में सफलता प्राप्त करने में अत्यंत उपयोगी हैं।
				CO5	वर्तमान युवा वर्ग को स्वाभिमान से सब हासिल करने की सीख दी गई है, ना कि किसी पर आधारित रह कर । विद्यार्थियों केलिए यह एक सीख है कि किसी भी प्रलोभन में न पढ|
71		Hindi	HINDI KAVYA DEEP	CO1	छात्र-छत्रों को इन दोहों के माद्यम से एक समाज में एक उत्तम नागरिक के रूप में समाज की सेवा किस तरह करना चाहिए इसकी शिक्षा मिलती है।
				CO2	जब समाज की सत्य को अपनी कविताओं में जो कवि चित्रित करता है तभी समाज का हित संभव है। मातृभूमि की रक्षा करना हमारा परम कर्तव्य है।
				CO3	कालों की मुख्य प्रवृत्तियों से परिचय होकर साधारण हिन्दी पाठक हिन्दी साहित्य की जानकारी प्राप्त कर सकेगा।
				CO4	साहित्य के इतिहास के माद्यम से हम तत्कालीन समाज,सामाजिक,राजनीतिक,सांस्कृतिक,आर्थिक एवं साहित्यक परिस्थितियों के बारे में ज्ञान प्राप्त कर सकते हैं
				CO5	निबंधों के माध्यम से विध्यार्थियों को सामान्य ज्ञान प्राप्त होता है जैसे उन्हें जीवन में बहु उपयोगी सिद्द है। स्नातक स्तर पर छात्रोओं को अनुवाद साहित्यक और अनुप्रयोगिक माध्यम से सिखा जा रहा है, जो उनको भविष्य में अत्यंत लाभाकारी सिद्द होगा
72		Hindi	HINDI	CO1	विद्यार्दियों को इससे सीख मिलती है कि साधना और तप से कूछ भी प्राप्त कर और जीवन में आगे बढ सकते हैं।

				CO2	तोडतीपत्तर में श्रम के महत्व को बताते हुए प्रलोभनों से दूर रहने का उपदेश दिया है।
				CO3	सत्य को अपनी कविताओं में जो कवि चित्रित करता है तभी समाज का हित संभव है। हिन्दी की वर्तमान दिशा को दर्शाया गया है|
				CO4	साहित्य के इतिहास के माद्यम से हम तत्कालीन समाज,सामाजिक,राजनीतिक,सांस्कृतिक,आर्थिक एवं साहित्यक परिस्थितियों के बारे में ज्ञान प्राप्त कर सकते हैं।
				CO5	सार-लेख विद्यार्थियों की विश्लेषण,संश्लेषण,तर्क, एवं निर्णय आदि शक्तियों को विकास करने में उपयोग है सरकारी तथा गैर सरकारी कार्यालयों में नौकरी प्राप्त करने तथा सरकारी उच्च स्थर पर होनेवाले विभिन्न परीक्षाओं में सफलता प्राप्त करने में अत्यंत उपयोगी हैं।
Computer Science 2017-2018					
73	2017-2018	CSC113	Compter Fundamentals & Photoshop	CO1	After successful completion of the course the student must be able to understand Basics of the Computers.
				CO2	After successful completion of the course the student must be able to understand the Input and output devices, different types of software's, Memories and windows concepts.
				CO3	At the end of this course the student will posses basics knowledge Image editing photoshop software.
				CO4	At the end of this course the student will posses Image editing photoshop software and tool Box.
				CO5	After successful completion of the course the student must be able to understand the concepts of photoshop Layers and Filters.
74		CSC114	Programming In C	CO1	After successful completion of the course, a student should able to Analyze a given problem and develop an algorithm to solve the problem using basic programming concepts in C.
				CO2	After successful completion of the course, a student should be able to design programs involving decision structures, loops and functions.

				CO3	After successful completion of the course, a student should be able to understand the concepts of Arrays and Strings in C language.
				CO4	After successful completion of the course, a student should be able to understand the concepts of pointers and Structures and Enums.
				CO5	After successful completion of the course, a student should be able to understand the Concepts of Files in C language.
75		CSC115	Object Oriented programming using JAVA	CO1	Be able to understand the difference between object oriented programming and procedural oriented language and data types in java
				CO2	Be able to understand classes and objects and Decision making and branching and looping techniques and in java
				CO3	Be able to understand java features such as Operator overloading, inheritance, Polymorphism etc in java.
				CO4	Be able to understand Multithreaded programming and Exception handling in java .
				CO5	Be able to understand Applet programming and Files and Packages in java.
76		CSC116	Data Structures	CO1	Describe the how the data is Defined in different types like linear and non linear ways, storage structures and file structures. Describe how arrays, records, linked structures are represented in memory and used by algorithms. Compare and contrast the benefits of dynamic and static data structures implementations. Explore about Abstract Data types and its implementation
				CO2	Describe how to organize data in stacks, queues represented in memory in arrays, records, linked structures and used by algorithms Describe common applications for arrays, records, linked structures, stacks, queues Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack .

				CO3	Describe how to organize data in nonlinear ways like trees and represented in memory in arrays, linked structures and used by algorithms Demonstrate different methods for traversing trees and applications.
				CO4	Describe how to organize data in nonlinear ways like Graphs and represented in memory in arrays, linked structures and used by algorithms Demonstrate different methods for graph traversals with minimum cost and describing graph applications.
				CO5	Discuss the Techniques and computational efficiency of the principal algorithms for sorting's and searching's.
77		CSC117	Database Management Systems	CO1	Understand fundamental concepts of DBMS.
				CO2	Understand an ER-modelling for relational model.
				CO3	Normalize the database and performing operations on Relational Algebra and Calculus.
				CO4	Perform Query Language Commands such as DDL,DML,DCL,TCL , Sub-Queries and Views.
				CO5	Write PL/SQL programs using cursors, procedures, triggers and exception handlers.
78		CSC118	Software Engineering	CO1	How to apply the software engineering lifecycle by demonstrating competence in communication, planning, analysis, design, construction, and deployment
				CO2	An ability to work in one or more significant application domains
				CO3	Work as an individual and as part of a multidisciplinary team to develop and deliver quality software
				CO4	Demonstrate an understanding of and apply current theories, models, and techniques that provide a basis for the software lifecycle
				CO5	Demonstrate an ability to use the techniques and tools necessary for engineering practice
79		CSC119	Operating Systems	CO1	Learn the basic concepts of operating systems. and about process management

				CO2	Apply different optimization techniques for the improvement of system performance
				CO3	Learn and apply different memory management techniques
				CO4	Discuss various files concepts, disk structure, protection and security aspects.
				CO5	Apply different deadlock prevention techniques
80		CSC120	Foundations of Data Science	CO1	Able to learn data science process with different techniques such as cleaning,sampling etc.
				CO2	Learn to apply hypotheses and data into actionable predictions by using cluster analysis.
				CO3	Learn basics of R-language using R-studio.
				CO4	Learn different types of Distributions using R.
				CO5	Document and transfer the results and effectively communicate the findings using visualization techniques.
81		CSC121	Big Data Technology	CO1	Understand Big Data analytics and Map Reduce techniques
				CO2	Apply Hadoop techniques for Data handling.
				CO3	Implement HDFS commands in Hadoop framework.
				CO4	Handle different queries of HiveQL.
				CO5	Apply different services of Zookeeper in HBase.
Biochemistry					
82		semester -I BC	BIOMOLECULES	CO1	Students gain the knowledge about basic biophysical concepts pH and buffers.
				CO2	Students able to identify different types of carbohydrates found in nature and also able to discriminate between them.
				CO3	Students recognize lipids structure found in cell membrane and their transport across the membranes and also enables them to identify their role to maintain health in the daily life.
				CO4	students describe essential and nonessential amino acid structure, physical properties and predict how their ionic charges change with pH.
				CO5	Students gain the knowledge of types and structure of proteins which enables them to understand the importance of protein structure in its function.

83		SEMESTER -IIBC	NUCLEIC ACIDS AND BIOPHYSICAL TECHNIQUES	CO1	Students acquire knowledge of Nucleic acids structure and can describe their role in heredity.
				CO2	Students able to identify various types of porphyrins present in the nature.
				CO3	Students gain knowledge of various biophysical techniques and develop the skill to conduct experiments
				CO4	students able to understand the differences between spectrophotometers apply the knowledge to identify the biomolecules depending on their absorption spectra
				CO5	students learn different techniques employed in in-vivo and in-vitro studies which inculcates research aptitude.
84		SEMESTER-III BC	Enzymology and bioenergetics	CO1	Students gain the knowledge of enzyme classification and identify the enzyme classes and the reactions catalysed by them.
				CO2	Students are able to describe the basic properties of enzymes
				CO3	Students understand the mechanism of enzyme action and can analyse the disorders of enzymes dysfunction.
				CO4	students gain the knowledge of bioenergetics which enables them to understand the energy transformation in biological processess.
				CO5	students understand the mechanism of oxidative phosphorylation.
85		SEMESTER-IV BC	INTERMEDIARY METABOLISM	CO1	Students able to identify and describe the components of metabolic pathway for the glucose metabolism.
				CO2	Students are able to differentiate lipolysis and lipogenesis and explain how blood lipid levels are related to cardio vascular diseases and obesity.
				CO3	Students understand the mechanism of amino acid metabolism and identify deficiency disorders.
				CO4	students understand the process of biological nitrogen fixation and which helps them to prepare biofertilizers.
				CO5	Students learn the metabolism of nucleic acids emphasising the role of enzymes in disorders
86		SEMESTER-V PAPER-V BC	Physiology, Clinical Biochemistry and Immunology	CO1	Students analyze and describe structures and functions of human anatomy and physiology.

				CO2	Students are able to explain the roles of the endocrine system in maintaining homeostasis integrating growth and development.
				CO3	Students can interpret and apply nutrition concepts to evaluate and improve the nutritional health of communities.
				CO4	Students are able to clinically asses the laboratory indicators of physiological conditions and diseases.
				CO5	Students understand the overall organization of immune system and the importance of immunization which enables them to educate the people about immunization.
87		SEMESTER- V PAPER-VI BC	BASIC MICROBIOLOGY	CO1	Students gain the knowledge about history and development of Microbiology
				CO2	Students able to differentiate between various microorganisms based on their physical characteristics
				CO3	students understand the role of bacteria in causing diseases and prophylaxsis
				CO4	students understand the role of viruses to understand the biological process
				CO5	students gain the knowledge of algae and fungi and their economical importance
88		SEMESTER-VI PAPER-VIIBC	Microbiology and Molecular Biology	CO1	Students understand the scope of Microbiology and gain the knowledge of sterilization, isolation and culture preparation techniques which enables them to handle the experiments in aseptic conditions.
				CO2	Students learn versatile uses of Microorganism and enzymes in industry.
				CO3	Students able to describe and explain fundamental mechanisms of replication enzymes involved.
				CO4	Students able to demonstrate the process of transcription and translation.
				CO5	Students understand the methods of gene cloning and its applications.

89		SEMESTER-VI PAPER-VIIIA BC	DIAGNOSTIC BIOCHEMISTRY	CO1	Students demonstrate, by performance, the basic laboratory mathematics necessary to perform tests, make dilutions, and prepare solutions. Identify and summarize the use of standard precautions applied in clinical laboratory and during the collection and processing of biological specimens for analysis.
				CO2	Students will be able to identify the signs of irregular blood glucose levels, test patient's levels of blood glucose and how to manage it effectively.
				CO3	Students describe and explain the role of liver function in bilirubin metabolism and identify the tests used for bilirubin analysis, and relate laboratory results to clinical diagnosis.
				CO4	Students relate laboratory results to clinical diagnosis and relationship to heart, liver, kidney and pancreas function
				CO5	Students gain knowledge on importance of Cholesterol,its transport and management to reduce Atherosclerotic Cardiovascular Risk in Adults.
89		SEMESTER-VI PAPER-VIIIB	CLINICAL BIOCHEMISTRY	CO1	Students properly evaluate the suitability of clinical chemistry specimens and prepare chemistry specimens for analysis.
				CO2	Students will be able to identify the signs of irregular blood glucose levels, test patient's levels of blood glucose and able to differentiate clinically diabetes mellitus, renal failure.
				CO3	Students describe and identify inborn defects in metabolism and correlate them with deficiency of key metabolic enzymes
				CO4	Students describe and identify the main characteristic of diagnosis, screening, and prognosis of disease
				CO5	Students relate laboratory results to clinical diagnosis and relationship to heart, liver, kidney and pancreas function
90		SEMESTER-VI PAPER-VIIIC	Biochemical Genetics	CO1	students able to identify the role of mutations in nature and understand the concepts of classical genetics.
				CO2	students apply the knowledge of breeding techniques to improve crop yield.

				CO3	students to analyze the complexity of the human genome and understand abnormality of chromosomes.
				CO4	students gain knowledge of bacterial genetics which enables them to construct linkage maps.
				CO5	students understand the concepts of viral genetics.

COURSE OUTCOMES					
Sl No	**Year**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
ENGLISH					
1	2017-18	101	ENGLISH	CO1	Enables students to read and comprehend literary pieces.
				CO2	Enables students to write meaningfully on topics of interest or relevance.
				CO3	Enables students to understand the finer aspects of creative writing
				CO4	Enables students improve vocabulary and grammatical ability
2		201	English	CO1	Enables the student to read and understand the text on their own to know the different cultural aspects and the prominence of Science in our daily lives.
				CO2	Enables the students understand Feminism and the influence of Seasons on human activities.
				CO3	Enables the students to convert the prose form to dialogue form and vice- versa.
				CO4	Enables the students to improve their verbal and writing skills.
3		301	English	CO1	Enable the students enhancing their higher order skills like analytical skills, problem solving skills, reviewing and critical thinking.
				CO2	Enable students improve and understand intonation patterns in language.
				CO3	Enable the students understand literary, cultural and higher order literary aspects.

COURSE OUTCOMES

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
Hindi					
1	2017-2018	102	HINDI GADYA SANDESH-I	CO1	विद्यार्थियों को संस्कृति,साहित्य और विज्ञान आदि विषयों से संबंध अवगत कराया जाता है जो उनके व्यक्तित्व निर्माण में सहायक होता है।
				CO2	विद्यार्थियों को मानव मूल्यों की सीख इस पाठ के माद्यम से दी गई है।साथ ही सच्चे वीरता का परिचय देकर उन्हें सच्चे वीर बनने का प्रेरण दी गई है।
				CO3	विद्यार्थियों एक कच्ची मिट्टी की मूर्ति के समान होते हैं। उनको जिस रूप में बनाया जाय वही रूप में डल जाते हैं।चाहे उन्हें राक्षस बनाया जाय या देवता।इसलिए जीवन में सच्चे मित्र प्राप्त करना बहुत कठिन काम है।
				CO4	इस कहानी के माद्यम से विद्यार्थियों को धार्मिक सहिष्णुता की सीख मिलती है जो देश के वर्तमान राजनीतिक,सामाजिक,धार्मिक एवं सांस्कृतिक परिस्थितियों में प्रासंगिक हैं।
				CO5	इस कहानी के माद्यम से विद्यार्थियों को यह प्रेरणा दी गई है कि प्रेम और बलिदान का जीवन में अत्यंत महत्व पूर्ण स्थान दिया गया है। प्राण जाय पर वचन ना जाय इसी तथ्य को सैनिक लहनासिंह की माद्यम से कहानीकार ने सिद्द करने का कोशिश किया है।विद्यार्थियों को जीवन में प्रेम और बलिदान की महत्व को समझाया है।
2		202	HINDI GADYA SANDESH-II	CO1	विद्यार्थियों को ऎसे उत्तम विचारवाले निबंध को पाठ्यक्रम में सम्मिलित कर जीवन केलिए एक मार्गदर्शन कराया गया है|
				CO2	विद्यार्थियों को राष्ट्रीय एकता की भावना को बढाने में यह पाठ अत्यंत उपयुक्त है।"UNITY IN DIVERSITY" इस निबंध का मूल मंत्र है जो किसी भी देश की प्रगति केलिए आवश्यक है
				CO3	एड्स के इतिहास उसके फैलाव उससे बचने के उपाय आदि के बारे में उसके युवा वर्ग को विस्तृत ज्ञान दिया जाय तो इस महामारी से बचना बहुत आसान है| इस प्रकार यह वैज्ञानिक निबंध विद्यार्थियों को
				CO4	विद्यार्थियों केलिए यह एक सीख है कि किसी भी प्रलोभन में न पढ और बहुत सूझ बूझ के साथ जीवन कथम बढाए| गैर सरकारी कार्यालयों में नौकरी प्राप्त करने तथा सरकारी उच्च स्था पर होनेवाले विभिन्न परीक्षाओं में सफलता प्राप्त करने में अत्यंत उपयोगी हैं।
				CO5	वर्तमान युवा वर्ग को स्वाभिमान से सब हासिल करने की सीख दी गई है,ना कि किसी पर आधारित रह कर । विद्यार्थियों केलिए यह एक सीख है कि किसी भी प्रलोभन में न पढ|

3		302	HINDI KAVYA DEEP	CO1	छात्र-छत्रों को इन दोहों के माद्यम से एक समाज में एक उत्तम नागरिक के रूप में समाज की सेवा किस तरह करना चाहिए इसकी शिक्षा मिलती है।
				CO1	जब समाज की सत्य को अपनी कविताओं में जो कवि चित्रित करता है तभी समाज का हित संभव है। मातृभूमि की रक्षा करना हमारा परम कर्तव्य है।
				CO2	कालों की मुख्य प्रवृत्तियों से परिचय होकर साधारण हिन्दी पाठक हिन्दी साहित्य की जानकारी प्राप्त कर सकेगा।
				CO2	साहित्य के इतिहास के माद्यम से हम तत्कालीन समाज,सामाजिक,राजनीतिक,सांस्कृतिक,आर्थिक एवं साहित्यक परिस्थितियों के बारे में ज्ञान प्राप्त कर सकते हैं
				CO3	निबंधों के माध्यम से विध्यार्थियों को सामान्य ज्ञान प्राप्त होता है जैसे उन्हें जीवन में बहु उपयोगी सिद्द है। स्नातक स्तर पर छात्रोओं को अनुवाद साहित्यक और अनुप्रयोगिक माध्यम से सिखा जा रहा है, जो उनको भविष्य में अत्यंत लाभाकारी सिद्द होगा
				CO3	विद्यार्दियों को इससे सीख मिलती है कि साधना और तप से कूछ भी प्राप्त कर और जीवन में आगे बढ सकते हैं।
				CO4	तोडतीपत्तर में श्रम के महत्व को बताते हुए प्रलोभनों से दूर रहने का उपदेश दिया है।
				CO4	सत्य को अपनी कविताओं में जो कवि चित्रित करता है तभी समाज का हित संभव है। हिन्दी की वर्तमान दिशा को दर्शाया गया है|
				CO5	सार-लेख विद्यार्थियों की विश्लेषण,संश्लेषण,तर्क, एवं निर्णय आदि शक्तियों को विकास करने में उपयोग है सरकारी तथा गैर सरकारी कार्यालयों में नौकरी प्राप्त करने तथा सरकारी उच्च स्थर पर होनेवाले विभिन्न परीक्षाओं में सफलता प्राप्त करने में अत्यंत उपयोगी हैं।

సెమిస్టర్ - I SEMESTER-I

TELUGU - సామాజిక నందనం

Course outcomes

CO1 — బ్రహ్మశాపం పొందిన గంగాదేవి భూలోకంలో ఆదర్శ నారీశిరోమణి కావడం, భీష్ముని వంటి భారత మహావీరునికి జన్మకు కారణం కావడం ఇత్యాది అంశాలు విద్యార్థులు గ్రహిస్తారు.

CO2 — ద్రౌపది ఆత్మాభిమానం, శ్రీకృష్ణునితో మాట్లాడినప్పుడు తెలుగు పదాలలోపదును, వ్యంగ్యం, నాటకీయ ధోరణి గ్రహిస్తారు.

CO3 — పరస్త్రీవ్యామోహం ఎంతటి వారినీ అయినను పతనస్థితికి చేరుస్తుందని, పట్టుమేత రాబికి కన్నక లొంగక అగ్నిగుండంలో ఆత్మాహుతి చేసుకొని రాబికి గుణపాఠం చెప్పడం ప్రధానేతివృత్తం

CO3 — అణగారిన ఆర్యుల, సామాన్యుల జీవనగాథలను తెలుసుకోవడమే చరిత్రగా మార్చిన సిద్ధాంత సారాన్ని విద్యార్థులు గ్రహిస్తారు.

CO4 — గుంటూరు జిల్లాలో పొగాకు రైతుల కష్టనష్టాలు, దళారీ వ్యవస్థ, రాబికోయ నాయకుల కుతంత్రాలు ఈ పాఠం ద్వారా తెలుస్తుంది.

CO5 — రాయలసీమ లో అనంతపురం జిల్లా లో కరవుకాటకాల పరిస్థితుల యథార్థచిత్రణం సావుకూడు కథ ద్వారా గ్రహిస్తారు.

CO1 - అచ్చులతో అచ్చులు కలవడం వలన పదాలలో కలిగిన మార్పులు సంధివిధానంలో గ్రహిస్తారు.

CO2 - రెండు లేదా అంతకంటే ఎక్కువ పదాల కలయికలో ఏర్పడే సమాసముల వైవిధ్యం తెలుస్తుంది తెలుగు భాషను వ్రాసే సమయంలో అక్షరాల సరియైన రూపాలను గ్రహించడం ప్రధానోద్దేశం.

U.V.S.S. వర్మ

SEMESTER-II

TELUGU TEXT BOOK - COURSE OUTCOMES

సామాజిక కోవిడ్

CO1 – సైకాలజీ హాస్టల్లో పరమేశ్వరుని పూజించడంలో ఏనుగు, పాములకు కలిగిన ఇక్కట్లపరమైన స్పూర్తి విద్యార్థులలో వర్ణనా ప్రావీణ్యం అనే కానలాన్ని కలిగిస్తుంది.

CO2 – తెలుగింటి పెండ్లివేడుకలు, సంప్రదాయములు, సరససంభాషణములు, ఆచారవ్యవహారములు వధూవరుల వర్ణన, తెలుగుభాషలో చమత్కారములు విద్యార్థులు గ్రహిస్తారు.

CO3 – హృదయవేదన వ్యక్తీకరించడంలో తెలుగు భాషకున్న శక్తి. ఆడినమాటను తప్పకం, చూడిలి చెప్పడం పనికిరావని విద్యార్థులు గ్రహిస్తారు.

CO3 – పర్యావరణంలో వచ్చుదనాన్ని, పక్షులకు ఆశ్రయాన్ని, కోకిలలకు సంగీతవేదికను, ఎండలోనడిచేబాటసారులకు చల్లనినీడను ఇవ్వడంలో 'చెట్టు' ప్రధానపాత్రపోషిస్తుందని గ్రహిస్తారు.

CO4 – కడపజిల్లా చిలమకూరులో వీరన్నకెండకాలం కరవుకాటకాలవలన పంటకోవడంతో వ్యవసాయం మానిఫ్యాక్టరీలో కూలిపనిచేస్తూ కష్టాలపాలయిన విషయాన్ని గ్రహిస్తారు. నాటి సాంఘిక పరిస్థితులకు దర్పణం.

CO4 – ఇంటిపనులు, బయటిపనులు స్త్రీపురుషులు సరిసమానంగా పంచుకొన్ననాడే జీవితం సుఖమయం అవుతుందని, సామాజిక జీవన విధానంలో లింగవివక్షను తొలగించే పాఠ్యభాగమిది.

CO5 – కళకోసం జీవితాలను అంకితం చేసి వంశపారంపర్యంగా ఎన్ని కష్టనష్టాలు ఎదురైనను నాటక కళను పోషిస్తూ కళాసాధనలో జీవితాలను చాలించిన కళాతపస్వుల వృత్తాంతాలను విద్యార్థులు గ్రహిస్తారు. బ్రతుకుతెరువులో కళాకారులు పడిన కష్టాలు ఇందులో వర్ణింపబడినవి.

Semester-3 సెమిస్టరు-3

ప్రాచీన కవిత్వం

1. CO1 — దానగుణ వైశిష్ట్యం, సత్యనిష్ఠ, మాటకు కట్టుబడి ఉండడం, గురుశిష్యసంబంధం గ్రహిస్తారు.

2. CO2 — ప్రజలంతా కులమత భేదం లేకుండా అన్నదమ్ముల వలె ఐకమత్యంతో జీవించాలనే సందేశం తెలుస్తుంది.

3. CO3 — తెలుగు భాష శ్రేష్ఠత్వం, తెలుగుజాతి ఔన్నత్యం, భాషా సౌందర్యం, పాలనా భాషగా తెలుగు అమలు చేయడానికి సూచనలు గ్రహిస్తారు.

4. CO4 — నేటి యువతరం వ్యక్తిత్వ వికాసం అవసరాన్ని తెలియచేస్తుంది. ఆశావాదం అనుకూల ధోరణి, నిర్భయత్వం, నిబద్ధత విద్యార్థులు గ్రహిస్తారు.

5. CO5 — తెలుగులో ఛందోబద్ధమైన పరిజ్ఞానం, సైద్ధాంతిక సాధించడానికి దోహదపడేది ఛందస్సు

CO5 — తెలుగు భాషలో శబ్దములను సాధికారితతో ప్రయోగించడానికి శబ్దాలంకారములు సహాయపడతాయి.

COURSE OUTCOMES

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
SANSKRIT					
1		**102**	**SECOND LANGUAAGE**	CO1	Student will learn how to behave with the family and respect towards the guest who comes to their house.
				CO2	Student will learn to attain their target in their life.
				CO3	Student will learn the worldly knowledge along with education.
				CO4	Student will learn the sentence formation of Sanskrit language.
				CO5	Student will learn the division of words and group of words in a sentence
2		**202**	**SECOND LANGUAAGE**	CO1	Student will learn how to behave with the family and respect towards the guest who comes to their house.
				CO2	Student will learn to attain their target in their life.
				CO3	Student will learn the worldly knowledge along with education.
				CO4	Student will learn the sentence formation of Sanskrit language.
				CO5	Student will learn the division of words and group of words in a sentence.
3		**302**	**SECOND LANGUAAGE**	CO1	Student will learn how to behave with the family and respect towards the guest who comes to their house.
				CO2	Student will learn to attain their target in their life.

				CO3	Student will learn the worldly knowledge along with education.
				CO4	Student will learn the sentence formation of Sanskrit language.
				CO5	Student will learn the division of words and group of words in a sentence.

* commen for all UG Courses (BBA , B.Com and B.Sc)

COURSE OUTCOMES					
FOUNDATION COURSES					
Sl No	**Year**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
1		FC103	HVPE(HHuman Values and Professional Ethics	CO1	The Students identify the importance of human values and Skills for Sustained happiness
				CO2	The Students strike a balance between profession and personal happiness/ goals.
				CO3	The Students develop/propose appropriate technologies and management patterns to create harmony in professional and personal life
2		FC104	Environmental studies	CO1	Students learn about the scope and importance of Environmental studies. The students also understand about the types of natural resources and problems associated with them.
				CO2	students understand about different kinds of ecosystems, biodiversity and its conservation. They also learn about types of biodiversity, values of biodiversity and threats to biodiversity.
				CO3	Students gain knowledge about different types of environmental pollutions, their causes, effects and control measures.
				CO4	Student learns about sustainable development and various environmental legislation Acts.
3		FC203	ICT-1	CO1	Acquire fair amount of knowledge on basics of computers, their components different types of computers.
				CO2	Understand and appreciate the memory system of a computer and effectively manage computer memory by choosing appropriate operating system.
				CO3	Use MS Office applications such as MS Word, MS Excel and MS Powerpoint efficiently to conduct day to day business in a modern organization.
4		FC204	Communication and Soft Skills	CO1	students gain knowledge about characteristics of human population growth and its impact on environment.
				CO2	Enable students to improve their vocabulary and the usage.
				CO3	Enable students to learn and hone the language skills for apt expression.
				CO4	Enable students to master tenses for effective communication.

				CO5	Enable students to develop effective listening skills and reading skills.
5		FC303	ICT-2	CO1	Acquire knowledge on networking and various issues related to networking in order to work efficiently with various networks.
				CO2	Work efficiently with internet and emailing applications.
				CO3	Build HTML webpages and use World wide web affectively and efficiently to conduct business works in Organizations
6		FC304	Communication and Soft Skills	CO1	Enable the students enhancing their higher order skills like analytical skills, problem solving skills, reviewing and critical thinking.
				CO2	Enable students improve and understand intonation patterns in language.
				CO3	Enable the students understand literary, cultural and higher order literary aspects.
				CO4	Enable students improve English language skills through text based exercises
7		FC401	Communication and Soft Skills	CO1	Enable students develop positive attitude, emotional intelligence and analytical abilities.
				CO2	Enable students to improve critical and creative writing and thinking competencies
				CO3	Enable students develop effective documentation skills.
				CO4	Enable students improve upon their employability skills and life skills to be on the success side in their professional and social life.
8		FC402	Analytical skills	CO1	Uses and abuses of charts and graphs - avoiding ambiguity and "visual manipulation
				CO2	Analytical techniques to support decision-making
				CO3	solve both intricate and fundamental problems and concepts, and make decisions that make sense based on available information

				CO4	Tools and techniques for identifying root causes of problems
				CO5	Making real-time decisions by rapidly assessing the facts and assumptions
9		FC403	Enterpreneurship	CO1	Students will acquire knowledge about entrepreneurship and forms of business
				CO2	Student gain insight about innovation trends related to project assessment , formulation and appraisal techniques.
				CO3	Student are able to understand the role of Banks, financial institutions and apex bodies
				CO4	Student will acquire knowledge about different institutes extending support at central and stat e level.
				CO5	Student gain knowledge regarding Government policies and taxation benefits w.r.t entrepreneurship establishment bodies in industrial development.
10		FC404	Leadership Education	CO1	Students will understand the history of leadership and leadership theories. Students will understand how leadership models are put into practice personally, locally and globally.
				CO2	Students will learn to practice leadership through active group participation.
				CO3	Students will examine their own and other's intrinsic and extrinsic motivations as leaders.
				CO4	Students will be able to understand and manage groups and their functioning by resolving group conflicts.
* commen for all UG Courses (BBA , B.Com and B.Sc)					

COURSE OUTCOMES

Sl N	Year	Course Code	Course Name	CO Number	Course Outcome
CIVIL ENGINEERING					
1st Year 1st Semester					
1	2017-2018	ENG 1101	ENGLISH	CO1	To improve the language proficiency of the students in English with emphasis on LSRW skills.
				CO2	To enable the students to study and comprehend the prescribed lessons and subjects more effectively relating to their theoretical and practical components.
				CO3	To develop the communication skills of the students in both formal and informal situations.
2	2017-2018	ENG 1102	MATHEMATICS-I	CO1	Analyze problems involving two or more variables and their interpretation
				CO2	Apply the techniques of multivariable differential calculus to determine extrema and series expansions etc. of functions of several variables.
				CO3	Understand some basic definitions and terminology associated with differential equations and their solutions.
				CO4	Solve practical problems which give rise to differential equations of the first order.
				CO5	Develop the ability to solve linear differential equations of higher order.
3	2017-2018	ENG 1103	MATHEMATICS-II	CO1	Solve the linear system of equations analytically and compute Eigen values and eigenvectors of a square matrix.
				CO2	Reduce the Quadratic Form to Canonical Form and find the nature of a Quadratic Form
				CO3	Evaluation of integrals by using Laplace Transforms.
				CO4	Appraise the Laplace transform technique and use it to solve various engineering problems.
				CO5	Find Fourier series for certain functions.
4	2017-2018	ENG 1104	CHEMISTRY	CO1	To understand the determination of hardness of water sample by EDTA method
				CO2	To describe the principles concerning solid state structures

				CO3	To become familiar in moulding methods of preparation of different types of plastic materials
				CO4	To understand the methods of prevention of corrosion of metals
				CO5	To understand the properties of engineering materials and their applications
				CO6	To become familiar about lubrication techniques
5	2017-2018	ENG 1106	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS	CO1	Able to learn the basic concepts and develop C programs for Decision making statements, Branching statements, Looping statements, Arrays and Strings.
				CO2	Able to Develop C programs using Function calls and Pointer Variables.
				CO3	Able to Develop C programs using Structures, Unions and Files.
				CO4	Able to Develop the programs in the concepts of Numerical Methods.
6	2017-2018	ENG 1108	HISTORY OF SCIENCE AND TECHNOLOGY	CO1	Demonstrate knowledge of broad concepts in the history of science, technology ranging over time, space and cultures and appreciate the science and technological contributions for the development of various sectors of the economy.
				CO2	Recognise the values of a wide range of methodologies, conceptual approaches and policies for the development of science and technology.
				CO3	Think independently and critically, using appropriate methodologies and technological developments in the critical areas of science and technology that lead to human welfare.
				CO4	Proficiently use contemporary technologies.
7	2017-2018	ENG 1110	CHEMISTRY LAB	CO1	Determination of concentrations of various elements in different compounds and salts using suitable techniques
8	2017-2018	ENG 1112	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS LAB	CO1	Able to learn the basic concepts and develop C programs for Decision making statements, Branching statements, Looping statements using Arrays and Strings, Function calls and Pointer Variables, Structures, Unions and Files, and concepts of Numerical Methods.
1st Year 2nd Semester					

9	2017-2018	ENG 1201	MATHEMATICS-III	CO1	Calculate the double and triple integral of a function of two or three variables.
				CO2	Apply the knowledge of multiple integral, to find areas, volumes and moment of inertia.
				CO3	Have deal with some elementary complex functions.
				CO4	Solve the complex integration of a function and find the singularities of a function
				CO5	Acquire the skill of contour integration to evaluate complicated real definite integrals via residue calculus.
10	2017-2018	ENG 1202	PHYSICS	CO1	Learnt the fundamental laws and their applications in thermodynamics.
				CO2	Gained the basic and origin of electromagnetism from electrostatics and magnetism and Summarize the basic theories of electrostatics and electromagnetics to solve a variety of problems
				CO3	Learnt the basics of physical optics and its corresponding applications.
				CO4	Known how a laser light is different from ordinary light, how a laser light can be produced and its different applications in present day technology.
				CO5	To comprehend the principles of Optical Fiber.
				CO6	Learnt the concepts of modern physics and its applications in technology.
				CO7	Explore the knowledge of nanomaterials for various applications.
11	2017-2018	ENG 1204	ENGINEERING GRAPHICS	CO1	Graphically construct and understand, the importance of mathematical curvesand scales inEngineering applications
				CO2	Visualize Orthographic projections of points and lines, develop theability to construct the planes and solids in different orientations.
				CO3	Construct and develop the sectioned surfaces of geometrical solids
				CO4	Interpret and draw the Orthographic and Isometric views of different solids.
12	2017-2018	ENG 1206	PROFESSIONAL ETHICS AND MORAL VALUES	CO1	The students will understand the definitions of values, Ethics, morals. The students will also understand the classification of values and university of values.

				CO2	The students will understand the definitions and importance of profession, professionalism, and professional. The students will understand the code of ethics in engineering practise.
				CO3	The students will understand the different roles of an Engineer, Life skills for an engineer and the balanced outlook of law from an engineering perspective.
				CO4	The students will understand the importance of safety and risk moral responsibility of engineers, professional's rights and also the problems of sexual harassment at workplace.
				CO5	The students will learn the meaning o environment ethics, Globalisation, computers, ethics .cyber crimes and concept of harmony in life
13	2017-2018	CIV 1208	ENGINEERING GEOLOGY	CO1	Generate global vision of Earth processes
				CO2	Identify the subsurface material
				CO3	Knows reason of phenomena like Earthquakes and zoning
				CO4	Know about groundwater availability zones and groundwater management
				CO5	Know megascopic and mechanical properties of rocks
				CO6	Know field procedures of subsurface exploration
14	2017-2018	ENG 1209	PHYSICS LAB	CO1	Experiment and evaluate basic principles of physics
15	2017-2018	ENG 1211	WORKSHOP	CO1	Able to identify and use various tools required for performing operations in the trades of carpentry, tinsmithy and fitting
16	2017-2018	ENG 1213	ENGLISH LANGUAGE LAB	CO1	By the end of this course, the student will acquire and be efficient in all the four skills of language i.e Listening, Speaking, Reading and Writing.
2nd Year 1st SEMESTER					
1		CE 211	Mathematics-III	CO1	Calculate the double and triple integral of a function of two or three variables.
				CO2	Apply the knowledge of multiple integral, to find areas, volumes and moment of inertia.
				CO3	Have deal with some elementary complex functions.
				CO4	Solve the complex integration of a function and find the singularities of a function

2		CE 215	Surveying – I	CO1	Carry out preliminary surveying in the field of civil engineering applications such as structural, highway engineering
				CO2	Student can able to calculate angular measurements using compass.
				CO3	Understand the working principles of plane table surveying instruments
				CO4	Estimate the levels and interpolate the levels on contours
				CO5	Ability to know about the materials used in making of concrete such as cement and admixtures.
3		CE 216	Engineering Geology	CO1	Paraphrase the global vision of Earth processes, groundwater availability and its importance
				CO2	Identify the subsurface material, megascopic and mechanical properties of rocks
				CO3	Enumerate the formation of minerals, types and properties
				CO4	Categorize different structural deformations taking place within the earths crust, their classifications and causes, natural hazards like Earthquakes, Tsunamis, landslides etc.
				CO5	Practice several civil engineering problems encounered in any of the structural compaonents like, dams, tunnnels, bridges etc.
4		CE 217	Strength Of materials lab	CO1	Able to identify the strengths of different materials by performing necessary tests
				CO2	Dramatize the importance of remote sensing and GIS, their application in the current scenarios.
5		CE 218	Surveying Field work Lab-I	CO1	To familarise students with different surveying instruments and to calculate magnitude and direction of survey lines
2nd Year 2nd Semester					

1		CE 221	Mathematics IV	CO1	operate the differential operator 'del' to the scalar and vector point functions, Calculate the Gradient,Divergence and Curl, Vector normal to a surface, maximum rate of change of a scalar field, testwhether two surfaces are to cut orthogonally or not.find the rate per unit volume at which the physical quantity is issuing from a point, the rate of inflowminus out flow using the Divergence and the angular velocity of rotation at any point of the vector fieldusing the Curl. • test whether the given motion is irrotational or rotational, whether a vector force acting on a particle isconservative or not • find out the potential function from a given vector field. • obtain the well known Laplace and poisson equations from an irrotational field
				CO2	understand to determine the work done by a force field and circulation using a Line integral find out the Line, Surface and Volume integrals - find the flux using surface integral and volumes usingthe volume integral double and triple integrals as these are used to find areas and volumes.
				CO3	know the methods of solving Linear and Non linear first order and first degree partial differentialequations. solve the Linear Partial Differential Equations with constant coefficients (homogeneous and nonhomogeneous) and know the procedure for finding the complementary function and particular integrals
				CO4	apply the method of separation of variables to obtain solutions of most of the boundary value problemsinvolving Linear partial differential equations occurred in engineering studies solve, in particular the wave equations, heat equations and Laplace's equations in Cartesian and polarcoordinates using the method of separation of variables
				CO5	apply and extend the knowledge of Fourier transform techniques in solving several Initial andBoundary value problems of Engineering, such as in Conduction of heat/Thermodynamics,Hydraulics transverse vibrations of a string, oscillations of an elastic beam, bending of beams,electrical circuits, free and forced vibrations of a membrane and transmission lines, etc.
2		CE 222	Structural Analysis-I	CO1	Students will able to Calculate deflections in statically determinate beams using different methods
				CO2	They enable to Calculate strain energy due to different types of forces and Calculate deflections in statically determinate portal frames and Trusses
				CO3	They can Analyze statically indeterminate beams.
				CO4	They enable to Calculate shear force and bending moment vary with application of moving loads.
				CO5	They enable to Analyze Thick Cylinders.
3		CE 223	Fluid Mechanics-I	CO1	Compute hydrostatic and hydrodynamic forces

				CO2	Analyze and design Crest Gates and Lock Gates
				CO3	Apply conservation laws to derive governing equations of fluid flows
				CO4	Analyze and design simple pipe systems
				CO5	Analyze and design out let for open tanks
				CO6	Analyze and design pipe network for two or more reservoirs
4		CE 224	Surveying –II	CO1	To study the different techniques of measurements of distances, directions and elevations and to understand about errors in measurements and their adjustments in a traverse .
				CO2	To get introduced to different geodetic methods of survey such as triangulation, trigonometric leveling
				CO3	To understand the basics and elements of different types of curves on roads and their preliminary survey and the techniques of layout of curves in transportation engineering.
				CO4	To learn about the principles involved in the advanced surveying instrument i.e Total Staion.
				CO5	To get introduced to modern advanced surveying techniques involved such as Remote sensing, Total station, GPS, Photogrammetry etc.
5		CE 225	Building Planning And Design	CO1	Describe residential building parameters
				CO2	Describe Climatic effects on buildings and draw floor plan of a house.
				CO3	Design and draw Plan, elevation, sections of single, two, three bedroom houses. And design and draw individual rooms with functional, and furniture requirements.
				CO4	Draw plan, elevation, sections of houses for Hot and Humid zones.
6		CE 226	Environmental Studies	CO1	Gain knowledge on environment and structure, functions of various ecosystems
				CO2	Know the importance of renewable energy resources as alternative to non renewable resources
				CO3	Understand social and ethical values of biodiversity and need of its conservation
				CO4	Understand different ways of pollution of environment and its consequences
				CO5	Gain awareness on local and global issues
				CO6	Know various environmental legislative acts
7		CE 227	Surveying Field work Lab-II	CO1	Able To use different advanced surveying instruments and to calculate magnitude, altitude, angles and distances in the field
8		CE 228	Fluid Mechanics Lab-I	CO1	able to predict the coefficent of discharges for flow through pipes and experements with flow measurements devices
3rd Year 1st Semester					

1		CE311	Reinforced Concrete Structures – I	CO1	Ability to design flexural members (beams)singly reinforced, doubly reinforced and flanged beams
				CO2	Ability to design one way and two way slabs
				CO3	Ability to design shear reinforcement and torsion reinforcement
				CO4	Abilty to design the compression members, short columns and long columns
				CO5	Ability to design the footing and staircase
2		CE312	Steel Structures – I	CO1	Ability to design the welded and bolted connections
				CO2	Ability to design flexural members (beams) compact, semi-compact and slender beams
				CO3	Ability to design the tension members
				CO4	Abilty to design the compression members
				CO5	Ability to design the column basements and basics of pre-engineered structures
3		CE313	Fluid Mechanics – II	CO1	Basic definitions for boundary layer flows are introduced. Students will develop a basic understanding of viscous flows in general, and boundary layer flows, in particular.
				CO2	To measure the velocity profiles of laminar and turbulent boundary layers growing on a flat plate.
				CO3	To measure the drag on a bluff body, such as a sphere, and to understand why this is much greater than the skin friction drag.
				CO4	To relate the momentum loss of the fluid in the boundary layers to the skin friction drag on a body.
				CO5	To develop a basic knowledge of open channel flow relationships by applying fluid properties, hydrostatics, and the conservation equations for mass, momentum, and energy. To gain proficiency in applying the conservation equations to open channel flow problems.
				CO6	To develop and apply relationships for hydraulic jumps, surges, and critical, uniform and gradually-varying flows.
4		CE314	Geotechnical Engineering- I	CO1	Understand the origin of the soil and geological cycle, apply principles of phase diagram for soil properties and perform basic weight-volume calculations. And understand consistency of soil- atterberg limits. Understand and use AASHTO, Unified and IS soil classification systems for soil classification.
				CO2	Understand basics of soil permeability and Darcy's law, seepage in soil, quicksand condition, and permeability tests. Understand how stresses are transferred through soils and be able to compute both geostatic and induced stresses due to point, line and area loads.
				CO3	Describe the general principles of compaction, factors affecting compaction, the field compaction and determine maximum dry unit weight and optimum water content.
				CO4	Estimate the amount of consolidation and settlement and time required for settlement under a given load.
				CO5	Basic knowledge of shear strength principles including the Mohr- Coulomb failure criterion.

5		CE315	Environmental Engineering- I	CO1	Understand the sources of water, quality of water, types of water borne diseases.
				CO2	Learn to estimate demand for water supply, and can apply the physical principles of flow in water distribution networks and pumping stations
				CO3	Design water treatment systems and operations and working of different units.
				CO4	Design elements of public water systems, pumping and transportation of water, distribution systems, and components of water supply network in a town/city, functioning of water/sewer pipe appurtenances.
6		CE316	Estimation & Quantity Surveying	CO1	Estimate the cost of any building
				CO2	Design technical specifications for any project
				CO3	Invite tenders and arrange contracts on behalf of Govt.,
				CO4	Carry out rate analysis of various items in construction,
				CO5	Fix the value of built up properties and land, fixation of rent for a property,
7		CE317	Environmental Engineering Lab	CO1	Able to anylize amount of minerals present in water by using suitable techniques
8		CE318	Geotechnical Engineering Lab-I	CO1	Able to clasify the soil and identify different propertie of soil by performing necessary tests
9		CE319	Soft Skills	CO1	By the end of this course, the student will acquire and be efficient in all the four skills of language i.e Listening, Speaking, Reading and Writing.
3rd Year 2nd Semester					
1		CE 321	Structural Analysis – II	CO1	How do I apply my mechanics knowledge in a practical analysis? Perceive ability to analyze different types of trusses.
				CO2	Apply various methods to analyze different types of indeterminate frames.
				CO3	Comment on the behavior of structures with respect to different conditions, ability to analyze different types of arch structures.
				CO4	Ability to analyze cable and suspension bridges with different loading and support conditions.
				CO5	Ability to solve statically indeterminate structures using matrix (stiffness and flexibility) method.
2		CE 322	Reinforced Concrete Structures – II	CO1	Carryout analysis and design of different types of retaining walls.
				CO2	Design for circular and rectangular water tanks in reinforced concrete structures
				CO3	Design of reinforced concrete bridges

				CO4	Produce the drawings pertaining to different components of piles reinforced concrete structures.
				CO5	Ability to employ the code of prestressed for analysis of prestressed concrete structural members
3		CE 323	Steel Structures – II	CO1	Design of plate girders and stiffners
				CO2	Design of bearings and bridges
				CO3	Design Concepts of water tanks
				CO4	Familiarize students with concept of plastic analysis
4		CE 324	Geotechnical Engineering-II	CO1	Able to excavate the different soils and analyze the bearing capacity and settlement of shallow foundations.
				CO2	Analyze single and groups piles for lateral capacity and settlement of deep foundations
				CO3	Able to analyze types of well foundation and measures of rectifying tilts and shifts.
				CO4	Analyze lateral earth pressures theories of soil and Stability analysis of slopes and identify types of bulk heads and its use as retaining structures.
5		CE 325	Fluid Mechanics – III	CO1	Use dimensional analysis to determine the appropriate units for an unknown quantity in an equation
				CO2	Apply dimensional analysis to predict formulas which connect particular variables in given circumstances.
				CO3	To impart the knowledge of impact of jets.
				CO4	To introduce the concepts of the working and design aspects of hydraulic machines like turbines and pumps and their applications.
				CO5	To gain knowledge in performance testing of Hydraulic Turbines and Hydraulic Pumps at constant speed and Head.
6		CE 326 B	Remote Sensing And Gis	CO1	Understand the remote sensing process
				CO2	Understand digital data in different and their formats
				CO3	Know about spatial data analysis
				CO4	GIS application in various Engineering problems
7		CE 327	Geotechnical Engineering Lab-II	CO1	Able to identify shear perameters and bearing capacity of the soil.
		CE 328	Concrete Lab	CO1	To study the properties of sand, coarse aggregate, cement and concrete and its applications
4th Year 1st Semester					
1		CE411	Water Resources Engineering – I	CO1	Explain various components of hydrologic cycle that affect the movement of water in the earth.
				CO2	Illustrate the concepts of movement of ground water beneath the earth.
				CO3	Negotiate necessary investigations required for planning of a reservoir.
				CO4	Generalize the basic requirements of irrigation and various irrigation techniques, requirements of the crops.

				CO5	Evaluate the distribution systems for canal irrigation and the basics of design of unlined and lined irrigation canals design.
2		CE412	Transportation Engineering –I	CO1	Design highway geometrics.
				CO2	Design flexible and rigid pavements and Understand the principles of construction and maintenance of highways
				CO3	Design traffic signal systems
				CO4	Carryout the geometrical design of the airport infrastructure and Prepare structural designs of runway, taxiway, and apron-grate area
3		CE413	Project Planning And Management	CO1	Ability to understand the planning, scheduling & controlling of a particular project.
				CO2	Ability to Analyze the direct –indirect cost, operation time, process of updating of project work.
				CO3	.Ability to understand the importance of contract, its types, process of bidding.
				CO4	Abilty to manage the work , its scope in construction work, quality of project manager
				CO5	Ability to understand the Acts : Workmen compensation Act 1923, Minimum Wages Act 1948.
4		CE 414	Environmental Engineering –II	CO1	Understanding of various sewerage systems and their suitability
				CO2	Design sewer and drainage systems layout for communities. Plan and implement house plumbing work effectively.
				CO3	Determine waste water quality parameters and their characteristics.
				CO4	Understand relevant wastewater treatment processes, their design criteria and applicability
				CO5	Make decisions regarding the treatment plant site selection, operation and maintenance and the need of advanced treatment.
5		CE415 A	Environmental Impact Analysis	CO1	able to Know different Standards and guidelines of Environmental Impact Analysis
				CO2	able to identify Environmental attributes, air, water, soil, ecology, noise permissiable limits based on Human settlements – rehabilitations
				CO3	able to Identfy measurement, Aggregation, Secondary and Cumulative Impacts
				CO4	Able to Identify Criteria for selection of methodology, impact assessment methodologies, procedure for reviewing
6		CE416	Computer Application in Civil Engineering	CO1	Able to analyze the beams and trusses by using the Staad pro Software and solving some problems by using C Software
7		CE417	Transportation Engineering Lab	CO1	Able to identify weather aggregate and bitumen are used for road construction or not by performing necessary tests
8		CE418	Fluid Mechanics lab–II	CO1	abiity to under stand the woring of different fluid and hydraulic machines, examine the centrifugal & reciprocating pump.
4th Year 2nd Semester					

1		CE421	Transportation Engineering II	CO1	Carry out the surveys for railways and Perform geometric design
				CO2	Plan the layout of different types of terminals
				CO3	Plan different cross sections of tunnel
				CO4	Design components of docks and harbours
2		CE422	Water Resources Engineering II	CO1	Design of earth dams and spillways, failures and analysis
				CO2	Mainly it deals the design of reservoir, canals, diversion; storage head works by the Bligh's and Khosla's theory
				CO3	Understand about the types of fall in canals and its application which have designed in the all cases..
				CO4	It can develop the design principle of the types of spillways, and can able to design of aqueduct, siphon aqueduct and super passage
				CO5	Introduce river training works and its types, water power engineering
3		CE423 B	Solid Waste Management	CO1	Ability to define Solid Waste, classify its types and characteristics; explain problems due to improper solid waste disposal
				CO2	Ability to define SWM, its generation, identify collection methods of waste, list guidelines for route layout
				CO3	Explain transfer and transport of wastes
				CO4	Define Composting and Incineration, explain methods of composting and incineration, categorize advantages and disadvantages of composting and incineration.
				CO5	Explain disposal techniques of SW.
4		CE424 B	Ground Improvement Techniques	CO1	Able to analyze the Densification of soils by different methods and Dewatering.
				CO2	Able to analyze soil by grouting how to reinforce the earth and to design.
				CO3	Able to analyze and use of Geotextiles in different conditions.
				CO4	Able to identify vibration and dynamic techniques for soil stabilization for different soils according to their requirements.
5		CE3106D	Advanced Concrete technology	CO1	Summarize the concrete ingredients and its influence at gaining strength.
				CO2	Generalize the concepts of conventional concrete and its differences with other concretes like no fines, light weight etc, mechanical properties
				CO3	Grade the concrete and estimate its quantity using Mix design process
				CO4	Describe the application and use of fiber reinforced concrete, self-compacting and high performance concrete.

COURSE OUTCOMES 2017-2018

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
COMPUTER SCIENCE AND ENGINEERING					
1st Year 1st Semester					
1	2017-2018	ENG 1101	ENGLISH	CO1	To improve the language proficiency of the students in English with emphasis on LSRW skills.
				CO2	To enable the students to study and comprehend the prescribed lessons and subjects more effectively relating to their theoretical and practical components.
				CO3	To develop the communication skills of the students in both formal and informal situations.
2	2017-2018	ENG 1102	MATHEMATICS-I	CO1	Analyze problems involving two or more variables and their interpretation
				CO2	Apply the techniques of multivariable differential calculus to determine extrema and series expansions etc. of functions of several variables.
				CO3	Understand some basic definitions and terminology associated with differential equations and their solutions.
				CO4	Solve practical problems which give rise to differential equations of the first order.
				CO5	Develop the ability to solve linear differential equations of higher order.
3	2017-2018	ENG 1103	MATHEMATICS-II	CO1	Solve the linear system of equations analytically and compute Eigen values and eigenvectors of a square matrix.
				CO2	Reduce the Quadratic Form to Canonical Form and find the nature of a Quadratic Form
				CO3	Evaluation of integrals by using Laplace Transforms.
				CO4	Appraise the Laplace transform technique and use it to solve various engineering problems.
				CO5	Find Fourier series for certain functions.
4	2017-2018	ENG 1104	CHEMISTRY	CO1	To understand the determination of hardness of water sample by EDTA method
				CO2	To describe the principles concerning solid state structures
				CO3	To become familiar in moulding methods of preparation of different types of plastic materials
				CO4	To understand the methods of prevention of corrosion of metals
				CO5	To understand the properties of engineering materials and their applications
				CO6	To become familiar about lubrication techniques
5	2017-2018	ENG 1105	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS	CO1	Able to learn the basic concepts and develop C programs for Decision making statements, Branching statements, Looping statements, Arrays and Strings.
				CO2	Able to Develop C programs using Function calls and Pointer Variables.

				CO3	Able to Develop C programs using Structures, Unions and Files.
				CO4	Able to Develop the programs in the concepts of Numerical Methods.
6	2017-2018	ENG 1106	HISTORY OF SCIENCE AND TECHNOLOGY	CO1	Demonstrate knowledge of broad concepts in the history of science, technology ranging over time, space and cultures and appreciate the science and technological contributions for the development of various sectors of the economy.
				CO2	Recognise the values of a wide range of methodologies, conceptual approaches and policies for the development of science and technology.
				CO3	Think independently and critically, using appropriate methodologies and technological developments in the critical areas of science and technology that lead to human welfare.
				CO4	Proficiently use contemporary technologies.
7	2017-2018	ENG 1107	CHEMISTRY LAB	CO1	Determination of concentrations of various elements in different compounds and salts using suitable techniques
8	2017-2018	ENG 1108	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS LAB	CO1	Able to learn the basic concepts and develop C programs for Decision making statements, Branching statements, Looping statements using Arrays and Strings, Function calls and Pointer Variables, Structures, Unions and Files, and concepts of Numerical Methods.
1st Year 2nd Semester					
9	2017-2018	ENG 1201	MATHEMATICS-III	CO1	Calculate the double and triple integral of a function of two or three variables.
				CO2	Apply the knowledge of multiple integral, to find areas, volumes and moment of inertia.
				CO3	Have deal with some elementary complex functions.
				CO4	Solve the complex integration of a function and find the singularities of a function
				CO5	Acquire the skill of contour integration to evaluate complicated real definite integrals via residue calculus.
10	2017-2018	ENG 1202	PHYSICS	CO1	Learnt the fundamental laws and their applications in thermodynamics.
				CO2	Gained the basic and origin of electromagnetism from electrostatics and magnetism and Summarize the basic theories of electrostatics and electromagnetics to solve a variety of problems
				CO3	Learnt the basics of physical optics and its corresponding applications.
				CO4	Known how a laser light is different from ordinary light, how a laser light can be produced and its different applications in present day technology.
				CO5	To comprehend the principles of Optical Fiber.
				CO6	Learnt the concepts of modern physics and its applications in technology.
				CO7	Explore the knowledge of nanomaterials for various applications.
11	2017-2018	ENG 1203	PROBABILITY, STATISTICS AND QUEUING THEORY	CO1	Ability to solve various problems regarding probability and conditional probability.
				CO2	Examine, analyze and compare probability distributions.
				CO3	Prepare null and alternative hypothesis and test its validity based on random sample.
				CO4	Solve various types of regression problems.

				CO5	Understand various queuing models.
12	2017-2018	ENG 1204	ENGINEERING GRAPHICS	CO1	Graphically construct and understand, the importance of mathematical curvesand scales inEngineering applications
				CO2	Visualize Orthographic projections of points and lines, develop theability to construct the planes and solids in different orientations.
				CO3	Construct and develop the sectioned surfaces of geometrical solids
				CO4	Interpret and draw the Orthographic and Isometric views of different solids.
13	2017-2018	ENG 1205	PROFESSIONAL ETHICS AND MORAL VALUES	CO1	The students will understand the definitions of values, Ethics, morals. The students will also understand the classification of values and university of values.
				CO2	The students will understand the definitions and importance of profession, professionalism, and professional. The students will understand the code of ethics in engineering practise.
				CO3	The students will understand the different roles of an Engineer, Life skills for an engineer and the balanced outlook of law from an engineering perspective.
				CO4	The students will understand the importance of safety and risk moral responsibility of engineers, professional's rights and also the problems of sexual harassment at workplace.
				CO5	The students will learn the meaning o environment ethics, Globalisation, computers, ethics .cyber crimes and concept of harmony in life
14	2017-2018	ENG 1209	PHYSICS LAB	CO1	Experiment and evaluate basic principles of physics
15	2017-2018	ENG 1211	WORKSHOP	CO1	Able to identify and use various tools required for performing operations in the trades of carpentry, tinsmithy and fitting
16	2017-2018	ENG 1213	ENGLISH LANGUAGE LAB	CO1	By the end of this course, the student will acquire and be efficient in all the four skills of language i.e Listening, Speaking, Reading and Writing.
2nd Year 1st Semester					
1	2017-2018	CSE 2.1.1	DATA STRUCTURES	CO1	Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithm.
				CO2	Demonstrate different methods for traversing trees and alternative implementations of data structures with respect to performance.
				CO3	Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing
2	2017-2018	CSE 2.1.2	ELEMENTS OF ELECTRONICS ENGINEERING	CO1	Design simple combinational and sequential circuits and Analyze the given RC and RL circuits.
				CO2	Design simple Diode circuits like rectifiers and clipping circuits.
				CO3	Design circuits using ideal opamp to perform mathematical operations on analog signals.
				CO4	Appreciate the importance of some of the analog systems such as ADC, DAC.
3	2017-2018	CSE 2.1.3	DICRETE MATHEMATICAL STRUCTURES	CO1	Rewrite mathematical arguments using logical connectives and quantifiers and verify the validity of logical flow of arguments using propositional , predicate logic.

				CO2	Identify and give examples of various types of relations and describe various properties of the relations.
				CO3	Ability to solve problems using permutations and combinations.
				CO4	Determine isomorphism of graphs and spanning tree of a given graph using BFS/DFS algorithms. Also determine minimal spanning tree of a given graph.
4	2017-2018	CSE 2.1.4	OBJECT ORIENTED PROGRAMMING	CO1	Capability to acquire better to design and implementation of a program. and UML Diagrams
				CO2	Acquires the basic knowledge in C++ programming, operators, control structures, functions,
				CO3	overloading, recursion.
				CO4	Understanding the C++ concepts classes, objects and member functions, constructors, Destructors,
				CO5	variants in them, operator overloading, type conversions.
5	2017-2018	CSE 2.1.5	ELEMENTS OF ELECTRICAL ENGINEERING	CO1	An ability to understand basic concepts of magnetic circuits and electric fields.
				CO2	An ability to understand the fundamental concepts of DC generators and motors.
				CO3	An ability to understand and analyze the fundamentals of AC circuit analysis.
				CO4	An ability to understand and analyze basic transformers.
				CO5	An ability to understand and analyze AC motor and Alternators.
				CO6	An ability to understand and analyze the process of Earthing and safety.
6	2017-2018	CSE 2.1.6	DIGITAL LOGIC DESIGN	CO1	An ability to define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation.
				CO2	An ability to understand the different Boolean algebra theorems and apply them for logic functions.
				CO3	An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions.
				CO4	An ability to define the following combinational circuits: multiplexer, de-multiplexers encoders/decoders, comparators, arithmetic-logic units; and to be able to build simple circuits.
				CO5	An ability to understand asynchronous and synchronous sequential circuits, like counters and shift registers, memories like RAM and ROM, Programmable Logic Array and Programmable Array Logic.
2nd Year 2nd Semester					
7	2017-2018	CSE 2.2.1	OPERATING SYSTEMS	CO1	The student understands OS evolution, its structure and services provided by it.
				CO2	Learn process life cycle, process scheduling objectives, policies and mechanisms, process synchronization, inter process communication, deadlocks and other process subsystem related concepts.
				CO3	Learn memory hierarchy, allocation and deallocation policies and mechanism for main and auxiliary memory, file system design and implementation issues.

				CO4	investigate UNIX/ LINUX and Windows OS platforms w.r.t similarities and differences in design philosophies.
8	2017-2018	CSE 2.2.2	COMPUTER ORGANIZATION	CO1	To study about structure and functional components of a computer.
				CO2	Understanding the hierarchical organization of a computer system which consists of instruction set of commands.
				CO3	Learn about the architecture of a computer from a programming view.
				CO4	To design a balance system that minimizes performance and utilization of all elements.
9	2017-2018	CSE 2.2.3	MICROPROCESSORS	CO1	Understand the basic architectures of 8085 and 8086 microprocessors.
				CO2	Ability to write ALP programs using instruction sets.
				CO3	Understand the various interfacing concepts
				CO4	Understand the basic architectures of 8051microcontrollers.
10	2017-2018	CSE 2.2.4	DATA COMMUNICATIONS	CO1	Student will able to understand basic concepts related communication systems.
				CO2	Ability to understand different transmission medias
				CO3	Ability to understand concepts related to data communication hardware.
				CO4	Ability to understand basic functionality of modems.
11	2017-2018	CSE 2.2.5	ADVANCED DATA STRUCTURES	CO1	Student will be able to write programs to implement various trees.
				CO2	Ability to understand various hashing techniques.
				CO3	Ability to write programs to implement sorting techniques.
				CO4	Ability to understand concepts related to graph theory.
12	2017-2018	CSE 2.2.6	OPERATIONS REASEARCH	CO1	Ability to solve LPP problems using various methods.
				CO2	Ability to solve transportation and assignment problems using several methods.
				CO3	Analyze the PERT and CPM charts
				CO4	Ability to solve replacement problems
				CO5	Ability to solve game theory problems.
13	2017-2018	CSE 2.2.7	ENVIRONMENTAL STUDIES	CO1	Gain knowledge on environment and structure, functions of various ecosystems.
				CO2	Know the importance of renewable energy resources as alternative to non renewable resources.
				CO3	Understand social and ethical values of biodiversity and need of its conservation.
				CO4	Understand different ways of pollution of environment and its consequences.
				CO5	Gain awareness on local and global issues.
				CO6	Know various environmental legislative acts.
3rd Year 1st Semester					
14	2017-2018	CSE 3.1.1	COMPUTER NETWORKS	CO1	The student must be able to understand the design and estimate the requirements for practical setup of a given network scenario and size.
				CO2	Realize the Operation, maintenance and management of the Internet by mapping the theoretical networking concepts to the real-time network scenarios.

				CO3	Demonstrate the applications of wireless Networks and over view of advanced networking concepts.
				CO4	Identify different networking devices and their usage and functionality
15	2017-2018	CSE 3.1.3	WEB TECHNOLOGIES	CO1	Students will be able to construct web based applications and Identify where datastructures are appearing in them.
				CO2	Students will able to develop servlet applications
				CO3	Students will able to run webserver and run the php applications
				CO4	Students will able to connect to mysql database and perform various operations using php
16	2017-2018	CSE 3.1.4	FORMAL LANGUAGES AND AUTOMATA THEORY	CO1	Ability to think analytically and intuitively for problem-solving situations in related areas of theory in computer science
				CO2	Ability to describe the language accepted by an automata or generated by a regular expression or a context-free grammar;
				CO3	Ability to Understand the functioning of Finite-State Machines, Deterministic Finite-State Automata, Nondeterministic Finite-State Automata and Pushdown Automata and Turing Machines.
17	2017-2018	CSE 3.1.5	DATABASE MANAGEMENT SYSTEMS	CO1	The student will understand ER-modeling for conceptual database design and relational model.
				CO2	The student is introduced to formal and commercial query languages : Relational Algebra, calculus and SQL.
				CO3	The student will and understand learn schema refinement and normalization locking protocols concurrency control, and crash recovery methods.
18	2017-2018	CSE 3.1.6 (1)	APPLICATION DEVELOPMENT USING JAVA	CO1	Development of projects for web based and internet applications.
				CO2	Exposure of network programming.
				CO3	Idea about multitasking and multiprogramming development
				CO4	Understand about interface concept and implement the multiple inheritance concept
				CO5	To demonstrate the ability to understand and use Packages and file handling mechanism
19	2017-18	CSE 3.1.6 (4)	PRINCIPLES OF PROGRAMMING LANGUAGES	CO1	Ability to compare different programming languages.
				CO2	Ability to discuss the significant achievements in programming language history.
				CO3	Ability to assess the programming languages in scientific manner.
				CO4	Ability to access sequence control and sub program control
3rd Year 2nd Semester					
20	2017-18	CSE 3.2.1	DATA WAREHOUSING AND DATA MINING	CO1	The student understands the differences between OLTP and OLAP.
				CO2	The student learns how data cube technology supports structuring and querying high dimensional data.
				CO3	The student is introduced to similarity , distance, information gain and other performance and error metrics used for data mining.

				CO4	The student is introduced to association rule mining , supervised and unsupervised learning and the corresponding classification and clustering approaches involving decision trees, Bayesian approaches, model based and agglomerative approaches.
21	2017-18	CSE 3.2.2	OBJECT ORIENTED SOFTWARE ENGINEERING	CO1	Ability to define a problem and perform Requirements Engineering.
				CO2	Ability to draw UML diagrams for the requirements gathered.
				CO3	Ability to implement the designed problem in Object Oriented Programming Language and
				CO4	Ability to test whether all the requirements specified have been achieved or not.
22	2017-18	CSE 3.2.4	DESIGN AND ANALYSIS OF ALGORITHMS	CO1	Students will be able to Argue the correctness of algorithms using inductive proofs and invariants and Analyze worst-case running times of algorithms using asymptotic analysis.
				CO2	Describe the various paradigms of design when an algorithmic design situation calls for it.
				CO3	Recite algorithms that employ this paradigm and synthesize them
				CO4	Students will be able to Compare between different data structures. Pick an appropriate data structure for a design situation.
23	2017-18	CSE 3.2.5 (1)	CLOUD COMPUTING	CO1	Identify the architecture and infrastructure of cloud computing.
				CO2	Develop applications for cloud computing.
				CO3	Design and Implement a novel cloud computing application.
24	2017-18	CSE 3.2.5 (3)	DISTRIBUTED SYSTEMS	CO1	Scale as the number of entities in the system increase
				CO2	Can sustain failures and recover from them
				CO3	Work with distributed, fault tolerant file systems
				CO4	Can handle and process large data volumes
				CO5	Are secure and handle certain classes of distributed denial of service attacks
				CO6	Are Loosely coupled, transactional and eventually stable
25	2017-18	CSE 3.2.6	COMPILER DESIGN	CO1	Ability to design & conduct experiments for Intermediate Code Generation in compiler.
				CO2	Ability to learn the new code optimization techniques to improve the performance of a program in terms of speed & space.
				CO3	Ability to acquire the knowledge of modern compiler & its features.
26	2017-18	CSE 3.2.7	CRYPTOGRAPHY AND NETWORK SECURITY	CO1	Realize the need and importance of network and data security in the Internet and in the Distributed environments.
				CO2	Identify the different types of network security issues and their remedies.
				CO3	Application various cryptographic tools and techniques in different contexts and as per need of security levels.
				CO4	Implementation of some Internet security protocols and standards
4th Year 1st Semester					
27	2017-18	CSE 4.1.1	OBJECT ORIENTED SOFTWARE ENGINEERING	CO1	Ability to define a problem and perform Requirements Engineering.
				CO2	Ability to draw UML diagrams for the requirements gathered.
				CO3	Ability to implement the designed problem in Object Oriented Programming Language and
				CO4	Ability to test whether all the requirements specified have been achieved or not.
28	2017-18	CSE 4.1.2	COMPUTER NETWORKS	CO1	The student must be able to understand the design and estimate the requirements for practical setup of a given network scenario and size.

				CO2	Realize the Operation, maintenance and management of the Internet by mapping the theoretical networking concepts to the real-time network scenarios.
				CO3	Demonstrate the applications of wireless Networks and over view of advanced networking concepts.
				CO4	Identify different networking devices and their usage and functionality
29	2017-18	CSE 4.1.3	ARTIFICIAL INTELLIGENCE	CO1	The Student understands AI problem characteristics, state space approach for solving AI problem, Production System framework.
				CO2	The student learn several optimal search strategies and the use of heuristics.
				CO3	The student learns relational, inferential, inheritable and procedural knowledge and the corresponding knowledge representation approaches.
				CO4	The student is introduced to applying AI problem solving approaches to natural language processing, planning and expert systems.
30	2017-18	CSE 4.1.4	MANAGEMENT PRINCIPLES	CO1	Understand the links between production costs and the economic models of supply.
				CO2	Represent supply, in graphical form, including the upward slope of the supply curve and what shifts the supply curve.
				CO3	
				CO4	Understand the efficiency and equity implications of market interference, including government policy, different degrees of competition in a market affect pricing and output.
31	2017-18	CSE 4.1.5	EMBEDDED SYSTEMS	CO1	Apply economic reasoning to individual and firm behavior.
				CO2	ability to write ALP programs using 8051 instruction set.
				CO3	Ability to understand the concepts related to RTOS and its Inter Task Communication methods.
				CO4	Ability to understand various design issues of RTOS, embedded software development tools.
32	2017-18	CSE 4.1.6	WEB TECHNOLOGIES	CO1	Students will be able to construct web based applications and Identify where datastructures are appearing in them.
				CO2	Students will able to develop servlet applications
				CO3	Students will able to run webserver and run the php applications
				CO4	Students will able to connect to mysql database and perform various operations using php
4th Year 2nd Semester					
33	2017-18	CSE 4.2.1	DISTRIBUTED OPERATING SYSTEMS	CO1	Scale as the number of entities in the system increase
				CO 2	Can sustain failures and recover from them
				CO 3	Work with distributed, fault tolerant file systems
				CO 4	Can handle and process large data volumes
				CO 5	Are secure and handle certain classes of distributed denial of service attacks
				CO 6	Are Loosely coupled, transactional and eventually stable
34	2017-18	CSE 4.2.2	CRYPTOGRAPHY AND NETWORK SECURITY	CO1	Realize the need and importance of network and data security in the Internet and in the Distributed environments.
				CO 2	Identify the different types of network security issues and their remedies.

				CO 3	Application various cryptographic tools and techniques in different contexts and as per need of security levels.
				CO 4	Implementation of some Internet security protocols and standards
35	2017-18	CSE 4.2.3	DATAMINING AND DATAWARE HOUSING	CO1	The student understands the differences between OLTP and OLAP.
				CO 2	The student learns how data cube technology supports structuring and querying high dimensional data.
				CO 3	The student is introduced to similarity , distance, information gain and other performance and error metrics used for data mining.
				CO 4	The student is introduced to association rule mining , supervised and unsupervised learning and the corresponding classification and clustering approaches involving decision trees, Bayesian approaches, model based and agglomerative approaches.

COURSE OUTCOMES 2017-2018

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
ELECTRONICS AND COMMUNICATIONS ENGINEERING					
1st Year 1st Semester					
1	2017-2018	ENG 1101	ENGLISH	CO1	To improve the language proficiency of the students in English with emphasis on LSRW skills.
				CO2	To enable the students to study and comprehend the prescribed lessons and subjects more effectively relating to their theoretical and practical components.
				CO3	To develop the communication skills of the students in both formal and informal situations.
2	2017-2018	ENG 1102	MATHEMATICS-I	CO1	Analyze problems involving two or more variables and their interpretation
				CO2	Apply the techniques of multivariable differential calculus to determine extrema and series expansions etc. of functions of several variables.
				CO3	Understand some basic definitions and terminology associated with differential equations and their solutions.
				CO4	Solve practical problems which give rise to differential equations of the first order.
				CO5	Develop the ability to solve linear differential equations of higher order.
3	2017-2018	ENG 1103	MATHEMATICS-II	CO1	Solve the linear system of equations analytically and compute Eigen values and eigenvectors of a square matrix.
				CO2	Reduce the Quadratic Form to Canonical Form and find the nature of a Quadratic Form
				CO3	Evaluation of integrals by using Laplace Transforms.
				CO4	Appraise the Laplace transform technique and use it to solve various engineering problems.
				CO5	Find Fourier series for certain functions.

4	2017-2018	ENG 1104	CHEMISTRY	CO1	To understand the determination of hardness of water sample by EDTA method
				CO2	To describe the principles concerning solid state structures
				CO3	To become familiar in moulding methods of preparation of different types of plastic materials
				CO4	To understand the methods of prevention of corrosion of metals
				CO5	To understand the properties of engineering materials and their applications
				CO6	To become familiar about lubrication techniques
5	2017-2018	ENG 1106	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS	CO1	Able to learn the basic concepts and develop C programs for Decision making statements, Branching statements, Looping statements, Arrays and Strings.
				CO2	Able to Develop C programs using Function calls and Pointer Variables.
				CO3	Able to Develop C programs using Structures, Unions and Files.
				CO4	Able to Develop the programs in the concepts of Numerical Methods.
6	2017-2018	ENG 1108	HISTORY OF SCIENCE AND TECHNOLOGY	CO1	Demonstrate knowledge of broad concepts in the history of science, technology ranging over time, space and cultures and appreciate the science and technological contributions for the development of various sectors of the economy.
				CO2	Recognise the values of a wide range of methodologies, conceptual approaches and policies for the development of science and technology.
				CO3	Think independently and critically, using appropriate methodologies and technological developments in the critical areas of science and technology that lead to human welfare.
				CO4	Proficiently use contemporary technologies.
7	2017-2018	ENG 1110	CHEMISTRY LAB	CO1	Determination of concentrations of various elements in different compounds and salts using suitable techniques

8	2017-2018	ENG 1112	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS LAB	CO1	Able to learn the basic concepts and develop C programs for Decision making statements, Branching statements, Looping statements using Arrays and Strings, Function calls and Pointer Variables, Structures, Unions and Files, and concepts of Numerical Methods.
1st Year 2nd Semester					
9	2017-2018	ENG 1201	MATHEMATICS-III	CO1	Calculate the double and triple integral of a function of two or three variables.
				CO2	Apply the knowledge of multiple integral, to find areas, volumes and moment of inertia.
				CO3	Have deal with some elementary complex functions.
				CO4	Solve the complex integration of a function and find the singularities of a function
				CO5	Acquire the skill of contour integration to evaluate complicated real definite integrals via residue calculus.
10	2017-2018	ENG 1202	PHYSICS	CO1	Learnt the fundamental laws and their applications in thermodynamics.
				CO2	Gained the basic and origin of electromagnetism from electrostatics and magnetism and Summarize the basic theories of electrostatics and electromagnetics to solve a variety of problems
				CO3	Learnt the basics of physical optics and its corresponding applications.
				CO4	Known how a laser light is different from ordinary light, how a laser light can be produced and its different applications in present day technology.
				CO5	To comprehend the principles of Optical Fiber.
				CO6	Learnt the concepts of modern physics and its applications in technology.
				CO7	Explore the knowledge of nanomaterials for various applications.
11	2017-2018	ENG 1204	ENGINEERING GRAPHICS	CO1	Graphically construct and understand, the importance of mathematical curvesand scales inEngineering applications
				CO2	Visualize Orthographic projections of points and lines, develop theability to construct the planes and solids in different orientations.

				CO3	Construct and develop the sectioned surfaces of geometrical solids
				CO4	Interpret and draw the Orthographic and Isometric views of different solids.
12	2017-2018	ENG 1206	PROFESSIONAL ETHICS AND MORAL VALUES	CO1	The students will understand the definitions of values, Ethics, morals. The students will also understand the classification of values and university of values.
				CO2	The students will understand the definitions and importance of profession, professionalism, and professional. The students will understand the code of ethics in engineering practise.
				CO3	The students will understand the different roles of an Engineer, Life skills for an engineer and the balanced outlook of law from an engineering perspective.
				CO4	The students will understand the importance of safety and risk moral responsibility of engineers, professional's rights and also the problems of sexual harassment at workplace.
				CO5	The students will learn the meaning o environment ethics, Globalisation, computers, ethics .cyber crimes and concept of harmony in life
13	2017-2018	ECE 1208	BASIC ELECTRONICS ENGINEERING	CO1	The ability to understand electronic components and properties of semiconductors.
				CO2	To understand the concept of active and passive components, Analysis of electrical circuits by using circuit theorems
				CO3	To understand the construction, characteristics and applications of all semiconductor diodes.
				CO4	The ability to understand the construction, operation and characteristics of BJT, FET and MOSFET.
				CO5	The ability to understand the characteristics of power dives and basic concepts of integrated circuits
14	2017-2018	ENG 1209	PHYSICS LAB	CO1	Experiment and evaluate basic principles of physics
15	2017-2018	ENG 1211	WORKSHOP	CO1	Able to identify and use various tools required for performing operations in the trades of carpentry, tinsmithy and fitting

16	2017-2018	ENG 1213	ENGLISH LANGUAGE LAB	CO1	By the end of this course, the student will acquire and be efficient in all the four skills of language i.e Listening, Speaking, Reading and Writing.
2nd Year 1st semester					
17	2017-2018	EEM 2101	MATHEMATICS-IV		(i) operate the differential operator 'del' to the scalar and vector point functions, Calculate the Gradient,Divergence and Curl, Vector normal to a surface, maximum rate of change of a scalar field, testwhether two surfaces are to cut orthogonally or not.
				CO1	(ii) find the rate per unit volume at which the physical quantity is issuing from a point, the rate of inflow minus out flow using the Divergence and the angular velocity of rotation at any point of the vector field using the Curl.
					(iii) test whether the given motion is irrotational or rotational, whether a vector force acting on a particle isconservative or not
					(iv) find out the potential function from a given vector field.
					(v) obtain the well-known Laplace and poisson equations from an irrotational field.
				CO2	CO2 (i) understand to determine the work done by a force field and circulation using a Line integral.
					(ii)find out the Line, Surface and Volume integrals - find the flux using surface integral and volumes usingthe volume integral double and triple integrals as these are used to find areas and volumes.
				CO3	CO3: (i)know the methods of solving Linear and Non-linear first order and first degree partial differential equations.
					(ii)solve the Linear Partial Differential Equations with constant coefficients (homogeneous and nonhomogeneous) and know the procedure for finding the complementary function and particular integrals
				CO4	(i) apply the method of separation of variables to obtain solutions of most of the boundary value problemsinvolving Linear partial differential equations occurred in engineering studies

				CO4	(ii)solve, in particular the wave equations, heat equations and Laplace's equations in Cartesian and polarcoordinates using the method of separation of variables.
				CO5	apply and extend the knowledge of Fourier transform techniques in solving several Initial andBoundary value problems of Engineering, such as in Conduction of heat/Thermodynamics,Hydraulics transverse vibrations of a string, oscillations of an elastic beam, bending of beams,electrical circuits, free and forced vibrations of a membrane and transmission lines, etc.
18	2017-2018	EEE 2102	NETWORK THEORY ANALYSIS	CO1	By the end of the course the student would be able to analyze a linear DC network.
				CO2	By the end of the course the student would be able to analyze a linear two port network.
				CO3	By the end of the course the student would be able to analyze a linear RL, RC and RLC (series and parallel) circuits with or without DC excitation and evaluate their overall response.
				CO4	By the end of the course the student would be able to apply the concept of pharos to analyze a linear network excited by sinusoidal forcing function.
				CO5	By the end of the course the student would be able to evaluate the network functions of a two port network consisting linear elements and analyze it’s stability by applying the restrictions on the function’s poles and zeros.
				CO6	By the end of the course the student would be able to evaluate a given function for its positive realness.
19	2017-2018	EEE 2103	ELECTRICAL MACHINES	CO1	Able to understand the behavior of direct current machines and its operation under no load and loaded conditions.
				CO2	Ability to understand basic concepts of transformer and its operation under loaded and unloaded conditions.
				CO3	Ability to understand the working of 3-phase induction motor and its performance characteristics.

				CO4	Ability to understand the working of synchronous machines under loaded and unloaded conditions.
				CO5	Ability to understand the concepts of single phase motor and its working and its applications.
20	2017-2018	ECE 2104	ELECTRONIC DEVICES AND CIRCUITS	CO1	Able to define and understand the concepts in semiconductor physics.
				CO2	Able to explain the Construction and working of PN junction semiconductor diodes.
				CO3	Able to analyze the BJT configurations, BJT amplifiers and FET Amplifiers.
				CO4	Able to analyze the frequency response of BJT, FET and multistage amplifiers.
				CO5	Able to analyze the small signal analysis of transistor circuits.
21	2017-2018	ECE 2105	SWITCHING THEORY AND LOGIC DESIGN	CO1	Able to manipulate numeric information in different forms, e.g. different bases, signed integers, various codes such as ASCII, gray, and BCD.
				CO2	Able to manipulate simple Boolean expressions using the theorems and postulates of Boolean algebra and to minimize combinational functions.
				CO3	Able to design and analyze small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits.
				CO4	Able to design and analyze complex combinational circuits by using standard combinational functions/building blocks.
				CO5	Able to design and analyze small sequential circuits and devices and to use standard sequential functions/building blocks to build larger more complex circuits.
				CO6	Able to design and analyze sequential machines by using standard sequential functions/building blocks.
22	2017-2018	ECE 2106	DATA STRUCTURES	CO1	Use functions to solve the given problem and understand pointers, structures and unions and Implement file Operations in C programming for a given application.
				CO2	Master the implementation of linked data structures such as linked lists and binary trees.

				CO3	Be familiar with advanced data structures such as balanced priority queues and stacks.
				CO4	Be familiar with some graph algorithms such as shortest path and minimum spanning tree.
				CO5	Be familiar with some Searching technique Breadth First Search and Depth First Search.
23	2017-2018	ECE 2107	NETWORK AND MACHINES LAB	CO1	Analyze various basic laws & theorems for linear electrical circuits.
24	2017-2018	ECE 2108	ELECTRONIC DEVICES & CIRCUITS LAB	CO1	An ability to verify the characteristic of diodes, BJT and JFET and its applications also analyze its parameters.
2nd Year 2nd semester					
25	2017-2018	EEM 2201	MATHEMATICS-V	CO1	Use the concepts of complex variable theory, complex integration, singularities and acquire the skill of contour integration to evaluate complicated real definite integrals via residue calculus.
				CO2	Use the concept of sampling theory to collect and analyze the data statistically, describe sampling distributions of sample means and sample proportions and perform hypothesis tests for means.
				CO3	Evaluate Z-transforms and apply inverse Z-transforms to solve difference equations arising in engineering problem.
26	2017-2018	ECE 2202	ELECTROMAGNETIC FIELD THEORY & TRANSMISSION LINES	CO1	To understand and analyze electrostatic and magneto static fields and develop various filed concepts using vector calculus and differential coordinate system.
				CO2	To analyze and derive Maxwell’s equation in different forms and apply in real time applications.
				CO3	To study the propagation characteristics of EM wave in bounded and unbounded media.
				CO4	To introduce the fundamental theory of electromagnetic wave in transmission lines and their practical applications.

27	2017-2018	ECE 2203	ANALOG ELECTRONIC CIRCUITS	CO1	Comprehend the Design concepts of small signal high frequency Transistor hybrid- model circuits. Analyze multistage amplifiers, design for frequency response and calculate Gain bandwidth product.
				CO2	Identify the different feedback amplifier topologies, effect of negative feedback on amplifiers and analyze.
				CO3	Design various low frequency and high frequency oscillators and analyze using h-parameter model.
				CO4	Analyze power and various tuned voltage amplifiers.
28	2017-2018	ECE 2204	PULSE AND DIGITAL CIRCUITS	CO1	Understand the complete response of High pass RC, RL circuits & Low pass RC, RL circuit
				CO2	Analyze various switching devices such as diode, transistor, UJT the applications of diode as integrator, differentiator, clippers, and clamper circuits.
				CO3	Ability to design mutivibrators for various applications like Flip-flop, triggering circuit.
				CO4	Ability to generate time base waveform using miller integrator and bootstrap circuits using the concepts of constant current and exponential charging.
				CO5	Ability to understand synchronization techniques and able to realize logic gates using diodes and transistors.
29	2017-2018	ECE 2205	PROBABILITY THEORY AND RANDOM PROCESSES	CO1	Understand the axiomatic formulation of modern Probability Theory.
				CO2	Characterize probability models and function of random variables based on single random variables.
				CO3	Characterize probability models and function of random variables based on multiple random variables Evaluate and apply moments & characteristic functions and understand the concept of inequalities and probabilistic limits.
				CO4	Understand the concept of random processes and determine covariance and spectral density of stationary random processes.
				CO5	Demonstrate the specific applications to Poisson and Gaussian processes.

				CO6	Representation of low pass and band pass noise models.
29	2017-2018	ECE 2206	SIGNALS & SYSTEMS	CO1	Characterize and analyze the properties of CT and DT signals
				CO2	Classify and analyze CT and DT systems.
				CO3	Represent CT and DT systems in the Frequency domain using Fourier analysis tools like CTFS, CTFT, DTFS and DTFT.
				CO4	Analyze Convolution, Correlation and Sampling process.
				CO5	Analyze CT and DT systems using Laplace transforms and Z Transforms.
30	2017-2018	ECE 2207	ENVIRONMENTAL STUDIES	CO1	Gain knowledge on environment and structure, functions of various ecosystems
				CO2	Know the importance of renewable energy resources as alternative to non-renewable resources.
				CO3	Understand social and ethical values of biodiversity and need of its conservation.
				CO4	Understand different ways of pollution of environment and its consequences.
				CO5	Gain awareness on local and global issues.
				CO6	Know various environmental legislative acts.
31	2017-2018	ECE 2208	DIGITAL IC'S AND HDL LAB	CO1	Design and Analyze and Implement combinational and sequential circuits for given specifications.
32	2017-2018	ECE 2209	ANALOG ELECTRONIC & CIRCUITS LAB WITH SIMULATION	CO1	Design and analyze its parameters of transistor amplifiers, FET amplifiers, oscillators and operational amplifiers IC.
3rd Year 1st semester					
33	2017-2018	ECE 3101	LINEAR ICS & APPLICATIONS	CO1	Understand the basic building blocks of linear integrated circuits and its characteristics.
				CO2	Describe the characteristics of linear and nonlinear applications of operational amplifier.
				CO3	Understand the theory & design of Active filters using Op-Amp and analyze the internal modules of PLL, 555 timer and their applications.
				CO4	Understand various types of DAC/ADCs.

34	2017-2018	ECE 3102	ANALOG COMMUNICATIONS	CO1	By the end of the course the student would be able to analyze a Linear Modulation System.
				CO2	By the end of the course the student would be able to analyze an Angle Modulation System.
				CO3	By the end of the course the student would be able to analyze a Linear Modulated and Angle Modulated systems corrupted by additive noise.
				CO4	By the end of the course the student would be able to analyze an Amplitude modulated and Frequency Modulated Radio Transmitters.
				CO5	By the end of the course the student would be able to analyze an Amplitude Demodulated and Frequency Demodulated Radio Receivers.
				CO6	By the end of the course the student would be able to analyze Pulse Analog Modulation Techniques.
35	2017-2018	ECE 3103	COMPUTER ARCHITECTURE & ORGANIZATION	CO1	Ability to understand the register level language and internal organization of a computer.
				CO2	Ability to understand the CPU and Control unit mechanism.
				CO3	Ability to understand the Memory and I/O organization of a computer system.
				CO4	Ability to understand various Multiprocessor Systems.
36	2017-2018	ECE 3104	ANTENNAS &WAVE PROPAGATION	CO1	Define various antenna parameters and mechanism of radiation.
				CO2	Analyze and synthesize radiation patterns of antenna arrays.
				CO3	Design HF, VHF, UHF antennas and microwave antennas for given specifications.
				CO4	Illustrate techniques to measure antenna parameters like Gain, Radiation pattern & VSWR.
				CO5	Familiar with concepts of radio wave propagation.
37	2017-2018	EEE 3105	CONTROL SYSTEMS	CO1	Analyze electromechanical systems using mathematical modelling

				CO2	Analyze Block Diagram systems and Signal Flow graphs modelling
				CO3	Determine Transient and Steady State behavior of systems using standard test signals
				CO4	Able to analyze stability of system by using RH Criteria and Root Locus
				CO5	Able to Analyze System in frequency domain using Bode Plot, Nyquist plot and Polar Plot
38	2017-2018	ECE 3106	DIGITAL SIGNAL PROCESSING	CO1	Analyze discrete-time systems in both time & transform domain.
				CO2	Understand the meaning and implications of the properties of systems and transforms.
				CO3	Understand the Transform domain and its significance and problems related to computational complexity.
				CO4	Be able to specify, design and analyses IIR and FIR digital filters and also to learn different applications.
39	2017-2018	ECE 3108	LINEAR ICS & PULSE CIRCUIT LAB	CO1	Study and analyze wave shaping circuits using discrete components and analog ICs
40	2017-2018	ECE 3109	ANALOG COMMUNICATIONS LAB	CO1	By the end of the course the student for a given analog input signal would be able to demonstrate Analog modulation, filtering, SNR improvement by Pre-Emphasis and De-Emphasis and attenuation.
3rd Year 2nd semester					
41	2017-2018	ECE 3201	COMPUTER NETWORK ENGINEERING	CO1	Ability to understand the terminology used in networks and necessity of layered architecture with the help of OSI model.
				CO2	To be familiar with usage of transmission media in data transmission and application of Switching.
				CO3	To be familiar with multi access protocols and collisions detection techniques used in MAC and protocols used in LAN and MAN.
				CO4	To be familiar with design issues of data link layer and ability to understand the importance of networking devices and IP addressing schemes.
				CO5	Ability to understand the concepts in Application layer with protocols.

42	2017-2018	ECE 3202	MICRO PROCESSOR & MICRO CONTROLLERS	CO1	Understand the basic architecture of 8086 microprocessors.
				CO2	Ability to write ALP programs using instruction sets for small applications
				CO3	Understand the various memory interfacing concepts.
				CO4	Understand the various peripheral interfacing concepts.
				CO5	Understand the basic architecture of 8051 microcontrollers and advanced microcontrollers like PIC & ARM and also the ability to write programs for small applications.
43	2017-2018	ECE 3203	DIGITAL COMMUNICATIONS	CO1	Comprehend pulse code modulation, delta modulation and illustrate various digital modulation and demodulation schemes.
				CO2	Evaluate the Error performance of Digital Modulation schemes and familiar with different criteria in direct spread spectrum and Frequency Hop modulation scheme and its applications.
				CO3	Calculate the efficiency of source coding technique.
				CO4	Comprehend error detection and correction codes.
44	2017-2018	ECE 3204	MICRO ELECTRONICS	CO1	Able to understand the fabrication process of NMOS, PMOS, CMOS, BJT and BiCMOS.
				CO2	Able to design and analysis of logic gates using NMOS, CMOS, ECL technologies.
				CO3	Able to design and analyze small combinational circuits and devices and to use standard combinational functions/building blocks to build larger more complex circuits.
				CO4	Able to design and analyze small sequential circuits and devices and to use standard sequential functions/building blocks to build larger more complex circuits.
45	2017-2018	ECE 3205	CELLULAR AND MOBILE COMMUNICATION	CO1	To have an overview of wireless and mobile communications in different generations and study the operation of basic cellular system, performance criterion and planning the cellular system.
				CO2	To Study the concept of Mobile propagation models, Interference, Cell Splitting, Sectorization and handoff.

				CO3	To Study the design of cellular mobile system and different multiple access techniques.
				CO4	To Study the concept of Handoff and it types and to develop the ability to search, select, organize and present information on new technologies in mobile and cellular communications.
46	2017-2018	ECE 3206	DIGITAL IMAGE PROCESSING	CO1	By the end of the course student would be able to analyze:
					(i) the process of digital image capturing, image capturing system,
					(ii) basic relationships between pixels in an image,
					(iii) mathematical tools used in digital image processing, and
					(iv) use of image transform and calculate basis images of a given binary /gray level
					image.
				CO2	By the end of the course for a given binary /gray level image the student would be able to:
					(i) perform intensity transformation,
					(ii) Process histogram,
					(iii) Smooth and sharpen using spatial filters and Fuzzy logic, and
					(iv) Smooth and sharpen in frequency domain using Fourier Transform
				CO3	By the end of the course student would be able to:
					(i) restore a given noisy and/or degraded binary /gray level image, and
					(ii) reconstruct the 3D version of a binary /gray level image
				CO4	By the end of the course for a given colour image belonging to any of the colour models RGB or CMY or CMYK or HSI the student would be able to perform:
					(i) smoothing, sharpening,
					(ii) segmentation, and
					(iii) compression
				CO5	By the end of the course the student would be able to:

					(i) analyze wavelet transform in one and two dimensions and apply two dimensional wavelet transform on a given binary/ gray level image,
					(ii) compress a given gray level/binary image, and
					(iii) perform water marking on a given gray level/binary image
				CO6	By the end of the course for a given binary /gray level image the student would be able to:
					(i) extract image components that are useful in the representation and description of region shape in that image, and perform segmentation of a given binary /gray level image
47	2017-2018	ECE 3208	DSP LAB	CO1	The student will be able to carry out simulation of Digital Signal processing concepts using MATLAB
48	2017-2018	ECE 3209	MICROPROCESSOR & MICRO CONTROLLERS LAB	CO1	The Student will be able to write assembly language programs using the instruction set of 8085 microprocessors and its interfacing.
4th Year 1st semester					
49	2017-2018	ECE 411	DIGITAL SIGNAL PROCESSING	CO1	Analyze discrete-time systems in both time & transform domain.
				CO2	Understand the meaning and implications of the properties of systems and transforms.
				CO3	Understand the Transform domain and its significance and problems related to computational complexity.
				CO4	Be able to specify, design and analyses IIR and FIR digital filters and also to learn different applications.
50	2017-2018	ECE 412	INFORMATION THEORY AND CODING	CO1	Design the channel performance using Information theory.
				CO2	Ability to design and demonstrate lossless data compression codes for discrete memoryless sources.
				CO3	Apply linear block codes for error detection and correction.
				CO4	Analysis and application of convolution and cyclic codes for error detection and correction.

51	2017-2018	ECE 413	TV AND SATELLITE COMMUNICATION	CO1	Understand the different functions of TV transmitters and receivers.
				CO2	Understand and analyze the composite video signal.
				CO3	Understand the construction of picture tubes, TV camera tubes and TV receiver.
				CO4	Understand Design of color TV systems.
				CO5	Understand the launching of a satellite, satellite control system operation, communication between satellite and earth station
52	2017-2018	ECE 414	MICROWAVE ENGINEERING	CO1	Describe the various waveguide components and applications of Microwaves and s parameter analysis of microwave components
				CO2	Design of waveguide components and microwave solid state device and analysis of various types of Microwave tubes.
				CO3	Identify the measurement techniques for different parameters like VSWR, impedance, frequency, power of microwave sources and loads
				CO4	Design of MMICs and analysis of CMOS, NMOS Fabrication techniques.
53	2017-2018	ECE 415	CELLULAR AND MOBILE COMMUNICATION	CO1	To have an overview of wireless and mobile communications in different generations and study the operation of basic cellular system, performance criterion and planning the cellular system.
				CO2	To Study the concept of Mobile propagation models, Interference, Cell Splitting, Sectorization and handoff.
				CO3	To Study the design of cellular mobile system and different multiple access techniques.
				CO4	To Study the concept of Handoff and it types and to develop the ability to search, select, organize and present information on new technologies in mobile and cellular communications.

54	2017-2018	ECE 416	DIGITAL COMMUNICATION LABORATORY	CO1	By the end of the course the student for a given analog/digital input signal would be able to perform Analog/Digital to Digital/Analog Conversion. For a given analog input signal perform pulse and delta modulation. For a digital input signal perform digital modulation, time-division multiplexing and Channel Encoding & Decoding.
55	2017-2018	ECE 417	DIGITAL SIGNAL PROCESSING LABORATORY	CO1	The student will be able to carry out simulation of Digital Signal processing concepts using MATLAB and Digital Logic Design using VHDL
4th Year 2nd Semester					
56	2017-2018	EHM 421	ENGINEERING ECONOMICS AND MANAGEMENT	CO1	Describe and explain how microeconomic models can be used to consider fundamental economic choices of households and firms.
				CO2	Describe and explain how macroeconomic models can be used to analyses the economy as a whole.
				CO3	Describe and explain how government policy influences microeconomic choices and macroeconomic outcomes.
				CO4	Interpret and use economic models, diagrams and tables and use them to analyses economic situations.
57	2017-2018	ECE 422	RADAR ENGINEERING AND NAVIGATIONAL AIDS	CO1	Understand the essential principles of operation of radar systems and acquired knowledge about Radar range Equations.
				CO2	Analyze the principle of CW, FM-CW and Pulse radar.
				CO3	Understanding the working principle of MTI and Pulse Doppler Radar.
				CO4	Students are expected to be familiar with various radar detection and tracking systems.
58	2017-2018	ECE 423	DATA COMMUNICATIONS	CO1	Student will able to understand basic concepts related data communication systems.
				CO2	Ability to understand different transmission Medias and concept of modulation techniques and functionality of modems.

				CO3	Ability to understand the error detection and correction methods.
				CO4	Understand and building the skills of internetworking and routing mechanisms.
				CO5	Identify the different types of network devices and their functions within a network.
59	2017-2018	ECE 424	FIBER OPTIC COMMUNICATIONS	CO1	Recognize and classify the structures of Optical fiber and types.
				CO2	Discuss the channel impairments like losses and dispersion.
				CO3	Analyze various coupling losses.
				CO4	Classify the Optical sources and detectors and to discuss their principle.
				CO5	Familiar with Design considerations of fiber optic systems.
60	2017-2018	ECE 426	MICROWAVE ENGG. & ANTENNA LABORATORY	CO1	Ability to measure frequency, wave length of Microwave signal by using Microwave bench set up and analyze characteristics of different wave guides.
61	2017-2018	ECE 427	PROJECT	CO1	Apply knowledge of basic science and engineering to electronics and communication Engineering problems.
				CO2	Recognize the real world applications and to solve with core engineering knowledge.
				CO3	Analyze and work on multidisciplinary tasks.
				CO4	Choose latest tools, software and equipment to solve real world problems.
				CO5	Identify, formulate, and model engineering equipment.

COURSE OUTCOMES 2017-2018

MECHANICAL ENGINEERING

1st Year 1st Semester

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	ENG 1101	ENGLISH	CO1	To improve the language proficiency of the students in English with emphasis on LSRW skills.
				CO2	To enable the students to study and comprehend the prescribed lessons and subjects more effectively relating to their theoretical and practical components.
				CO3	To develop the communication skills of the students in both formal and informal situations.
2	2017-2018	ENG 1102	MATHEMATICS-I	CO1	Analyze problems involving two or more variables and their interpretation
				CO2	Apply the techniques of multivariable differential calculus to determine extrema and series expansions etc. of functions of several variables.
				CO3	Understand some basic definitions and terminology associated with differential equations and their solutions.
				CO4	Solve practical problems which give rise to differential equations of the first order.
				CO5	Develop the ability to solve linear differential equations of higher order.
3	2017-2018	ENG 1103	MATHEMATICS-II	CO1	Solve the linear system of equations analytically and compute Eigen values and eigenvectors of a square matrix.

				CO2	Reduce the Quadratic Form to Canonical Form and find the nature of a Quadratic Form
				CO3	Evaluation of integrals by using Laplace Transforms.
				CO4	Appraise the Laplace transform technique and use it to solve various engineering problems.
				CO5	Find Fourier series for certain functions.
4	2017-2018	ENG 1104	CHEMISTRY	CO1	To understand the determination of hardness of water sample by EDTA method
				CO2	To describe the principles concerning solid state structures
				CO3	To become familiar in moulding methods of preparation of different types of plastic materials
				CO4	To understand the methods of prevention of corrosion of metals
				CO5	To understand the properties of engineering materials and their applications
				CO6	To become familiar about lubrication techniques
5	2017-2018	ENG 1106	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS	CO1	Able to learn the basic concepts and develop C programs for Decision making statements, Branching statements, Looping statements, Arrays and Strings.
				CO2	Able to Develop C programs using Function calls and Pointer Variables.

				CO3	Able to Develop C programs using Structures, Unions and Files.
				CO4	Able to Develop the programs in the concepts of Numerical Methods.
6	2017-2018	ENG 1108	HISTORY OF SCIENCE AND TECHNOLOGY	CO1	history of science, technology ranging over time, space and cultures and appreciate the science and technological contributions for the development of
				CO2	Recognise the values of a wide range of methodologies, conceptual approaches and policies for the development of science and technology.
				CO3	methodologies and technological developments in the critical areas of science and technology that lead to human welfare.
				CO4	Proficiently use contemporary technologies.
7	2017-2018	ENG 1110	CHEMISTRY LAB	CO1	Determination of concentrations of various elements in different compounds and salts using suitable techniques
8	2017-2018	ENG 1112	COMPUTER PROGRAMMING WITH C AND NUMERICAL METHODS LAB	CO1	programs for Decision making statements, Branching statements, Looping statements using Arrays and Strings, Function calls and Pointer Variables,
1st Year 2nd Semester					
9	2017-2018	ENG 1201	MATHEMATICS-III	CO1	Calculate the double and triple integral of a function of two or three variables.
				CO2	Apply the knowledge of multiple integral, to find areas, volumes and moment of inertia.
				CO3	Have deal with some elementary complex functions.

				CO4	Solve the complex integration of a function and find the singularities of a function
				CO5	Acquire the skill of contour integration to evaluate complicated real definite integrals via residue calculus.
10	2017-2018	ENG 1202	PHYSICS	CO1	Learnt the fundamental laws and their applications in thermodynamics.
				CO2	Gained the basic and origin of electromagnetism from electrostatics and magnetism and Summarize the basic theories of electrostatics and electromagnetics to
				CO3	Learnt the basics of physical optics and its corresponding applications.
				CO4	Known how a laser light is different from ordinary light, how a laser light can be produced and its different applications in present day technology.
				CO5	To comprehend the principles of Optical Fiber.
				CO6	Learnt the concepts of modern physics and its applications in technology.
				CO7	Explore the knowledge of nanomaterials for various applications.
11	2017-2018	ENG 1204	ENGINEERING GRAPHICS	CO1	Graphically construct and understand, the importance of mathematical curvesand scales inEngineering applications
				CO2	Visualize Orthographic projections of points and lines, develop theability to construct the planes and solids in different orientations.
				CO3	Construct and develop the sectioned surfaces of geometrical solids

				CO4	Interpret and draw the Orthographic and Isometric views of different solids.
12	2017-2018	ENG 1206	PROFESSIONAL ETHICS AND MORAL VALUES	CO1	The students will understand the definitions of values, Ethics, morals. The students will also understand the classification of values and university of values.
				CO2	The students will understand the definitions and importance of profession, professionalism, and professional. The students will understand the code of
				CO3	The students will understand the different roles of an Engineer, Life skills for an engineer and the balanced outlook of law from an engineering perspective.
				CO4	and risk moral responsibility of engineers, professional's rights and also the problems of sexual harassment at workplace.
				CO5	The students will learn the meaning o environment ethics, Globalisation, computers, ethics .cyber crimes and concept of harmony in life
13	2017-2018	MEC 1208	METALLURGY AND MATERIALS ENGINEERING	CO1	Crystal structures can be identified and characterized
				CO2	Types of binary phase diagrams can be catagorised and iron-iron carbide phase diagram and other binary phase diagrams can be notated and characterized
				CO3	Different heat treatment regimes in steels and their transformation according to the heating applied, different surface heat treating and precipitation hardening
				CO4	Iron alloys and non ferrous alloys can be identified depending on the various alloying elements
				CO5	Composite materials can be categorized and commented upon depending on the methodology of preparation
14	2017-2018	ENG 1209	PHYSICS LAB	CO1	Experiment and evaluate basic principles of physics

15	2017-2018	ENG 1211	WORKSHOP	CO1	identify different carpentry tools and prepare the wooden pieces into various joints
				CO 2	identify different fitting tools and prepare the metel pieces into various joints
				CO 3	identify different tinsmithy tools and prepare the various models using galvanized iron sheet
16	2017-2018	ENG 1213	ENGLISH LANGUAGE LAB	CO1	By the end of this course, the student will acquire and be efficient in all the four skills of language i.e Listening, Speaking, Reading and Writing.
2nd year 1st semester					
1	2017-18	**ME 2101**	MATHEMATICS IV	CO 1	Operate the differential operator 'del' to the scalar and vector point functions, Calculate the Gradient, Divergence and Curl, Vector
				CO 2	Find the rate per unit volume at which the physical quantity is issuing from a point, the rate of inflow minus out flow using the
				CO 3	Test whether the given motion is irrotational or rotational, whether a vector force acting on a particle is conservative or not
				CO 4	Find out the potential function from a given vector field.
				CO 5	Obtain the well-known Laplace and poisson equations from an irrotational field
				CO 6	Understand to determine the work done by a force field and circulation using a Line integral
				CO 7	Find out the Line, Surface and Volume integrals - find the flux using surface integral.

2	2017-18	ME 2102	ENGINEERING MECHANICS	CO 1	The student will be able to solve problems dealing with forces in a plane or in space and equivalent force systems.
				CO 2	The student will be able to solve truss, beam, frame and cable problems and understand distributed force systems.
				CO 3	The student shall be able to solve friction problems and determine moments of inertia and centroid using integration methods.
				CO 4	The student will be able to apply kinematic and kinetic equations to analyse the motion of a particle/rigid body under rectilinear.
				CO 5	The student will understand the concept of torsional vibration and know how to solve problems related to compound pendulum.
3	2017-18	ME 2103	MECHANICS OF SOLIDS	CO 1	The students will be able to understand the basic concepts of stress, strain and relations based on linear elasticity and also will be able
				CO 2	The students will be able to understand different types of beams and loads and also able to calculate SF & BM and draw the SFD
				CO 3	The students will be able to derive the torsion equation and solve problems on torsion of mechanical components, understand and
				CO 4	Provides inputs useful for structural and mechanical design of components
	2017-18	**ME 2104**	BASIC THERMODYNAMICS	CO 1	Students realize the practical importance of ideal gas theory and the use of real gases in combustion engines such as IC Engines and
				CO 2	Students are able to calculate the properties of the gases such as internal energy, enthalpy and entropy.
				CO 3	Students are able to estimate the losses which occur during operation of the heat engines, and their maximum possible operating

				CO 4	Students can estimate the maximum work-output delivered by the heat engines and maximum work consumed by the reversed
5	2017-18	**ME 2105**	MANUFACTURING PROCESS	CO 1	Understand the process of casting and various methodologies (sand, advanced methods) of casting ferrous and non-ferrous materials.
				CO 2	Evaluate and understand the type of process to be used for manufacturing the components using various forming techniques.
				CO 3	Able to identify Different forging methods being used in manufacturing products with higher strength.
				CO 4	Acquires the ability for assessing the weld methodology to be followed for attaining better weld quality.
6	2017-18	**ME 2106**	INDUSTRIAL ELECTRONICS	CO 1	1. Describe how electronic input and output circuits are used to control automated manufacturing and/or process systems
				CO 2	2. Identify basic elements used for input, output, timing, and control
				CO 3	3. Define how programmable electronic systems use input data to alter output responses
				CO 4	4. Troubleshoot a representative system
				CO 5	5. Demonstrate how system operation can be altered with software programming
				CO 6	6. Electronics Design Engineer
				CO 7	7. To provide graduates with skills to assist them in the following job roles

				CO 8	8. In addition to the above, this module will provide support to other modules Automation/Facilities Engineer
7	2017-18	**ME 2107**	MECHANICAL ENGINEERING DRAWING	CO 1	Know drawing of Temporary Fastenings and Permanent Fastenings such as Screw threads, Screw Fastenings, Riveted joints, Keys.
				CO 2	Draw Couplings (Shaft couplings: Box and split muff couplings, Flanged, Flexible,
8	2017-18	**ME 2108**	MOS LAB	CO 1	Ability to identify different types of loads and measure them.
				CO 2	Ability to measure material properties of different materials using different methods.
				CO 3	Ability to measure bulking property and fineness of sand grains
9	2017-18	**ME 2109**	ME I LAB	CO 1	Students are now aware of the use of drawing valve timing diagrams of an engine and method to evaluate the volumetric efficiency
				CO 2	They are also aware of method of calibrating pressure gauge, the importance of flash and fire points and calorific values of fuels.
				CO 3	The importance and application by calculating viscosities of oil samples are understood.
				CO 4	The use of moment of inertia and modulus of rigidity is understood.
				CO 5	They are also now able to identify the parts of boiler and engines etc.
				CO 1	Students will be able to use standard methods to determine accurate modelling/simulation parameters for various general purpose

10	2017-18	**ME 2201**	ELECTRICAL TECHNOLOGY	CO 2	Students will be able to use modelling/simulation parameters with standard equalent circuit models to predict
				CO 3	Students will demonstrate and understanding of the fundamentals control practices associated with AC and DC machines.
				CO 4	Students will be able to use concepts in trigonometry, complex algebra and phasors to find correct solutions to electrical machines
2nd year 2nd semester					
11	2017-18	**ME 2202**	ADVANCED STRENGTH OF MATERIALS	CO 1	The student is equipped with the requisite knowledge to evaluate the moments of fixed beams under different loading conditions.
				CO 2	The student has the capability to solve the moments realized when a continuous beam is under different loading conditions and
				CO 3	The student is capable of evaluating any engineering column or strut under different end conditions and under different specified
				CO 4	The student will be able to find out stresses induced in curved beams of varying cross sections, rotating objects and thick and
12	2017-18	ME 2203	THEORY OF MACHINES	CO 1	Understanding the knowledge of machine and mechanism, ability to draw the kinematic analysis by displacement, velocity and
				CO 2	Cognize the lower pair mechanism by straight line motion mechanism, pantographs, engine indicator mechanisms, Automobile steering
				CO 3	To apprehend various types of friction and friction on bearings and clutches, various drives like gears, gear trains.
				CO 4	To be able to understand how the static and dynamic strength parameters for a material are measured in standardized tests.

				CO 5	Learning the principle of governors its types and Sensitiveness of a governor
13	2017-18	ME 2204	METAL CUTTING AND MACHINE TOOLS	CO 1	The student can be able to know the mechanism of metal cutting
				CO 2	They will be in a position to work on the metal cutting machines directly without a little assistance.
				CO 3	They can calculate the machining times on all metal cutting machines.
				CO 4	They can calculate the forces developed on all metal cutting machines.
				CO 5	They will be in a position to use different types of cutting fluids for different metals on all types of machines.
				CO 6	They know the importance, use, applications, advantages and limitations of various Unconventional machining methods
				CO 7	They will know the specifications and how to specify the metal cutting machines.
14	2017-18	ME 2205	ENVIRONMENTAL SCIENCE	CO 1	gain knowledge on environment and structure, functions of various ecosystems
				CO 2	know the importance of renewable energy resources as alternative to non renewable resources
				CO 3	understand social and ethical values of biodiversity and need of its coservation
				CO 4	understand different ways of pollution of environment and its consequences

				CO 5	gain awareness on local and global issues
				CO 6	know various environmental legislative acts
15	2017-18	ME 2206	ENGINEERING ECONOMICS	CO 1	With the fast changing environment, an engineer has to make himself aware of new improvements, trends and changes and
				CO 2	Engineering Economics will help engineers to achieve their role in changed environment.
				CO 3	Will be able to prepare and evaluate project proposals efficiently.
				CO 4	Capable to understand different market situations and also of finding breakeven points and depreciation.
16	2017-18	ME 2207	PRODUCTION DRAWING	CO 1	To gain knowledge about understanding and representing notations and symbols used as per ASME and ISO standard in
				CO 2	To study Component drawing, Assembly drawing, Machine shop drawing, Pattern-shop Drawing, Sheet metal drawing, Limits.
				CO 3	Production drawings of Spur, Bevel and Helical gears, swivel bracket, main spindle, and crank, revolving centre, jigs and fixtures.
				CO 4	Drawing of Dies. Sheet metal dies. Forging dies, stock strip layouts in sheet metal work, process layout for forge and press operations.
17	2017-18	ME 2208	MFT LAB I	CO 1	Ability to prepare moulds, cores for a given component.
				CO 2	Capability to complete different joints, welds for given component by GAS and ARC welding processes.

				CO 3	Aptitude to made taper turning, thread cutting and off set turning on different materials by Lathe machine.Skill to made spur gears, key
18	2017-18	ME 2209	ELECTRICAL TECHNOLOGY LAB	CO 1	Analyze various basic laws (Ohm's law, Kirchoff laws) & theorems for linear electrical circuits & Apply the practical methods to find the performance
3rd year 1st semester					
19	2017-18	ME 3101	DYNAMICS OF MACHINERY	CO 1	Apply the knowledge of gyroscopic couple
				CO 2	Solve practical problems related to gears and gear trains in industries
				CO 3	Design cams for any application
				CO 4	Solve balancing problems in IC engines and automobiles
				CO 5	Analyse vibrations in engines
20	2017-18	ME 3102	ADVANCED THERMODYNAMICS I	CO 1	The student gets complete knowledge of steam and its properties.
				CO 2	The student learns the complete calculation procedures for designing steam turbines, steam condensers, nozzles etc. used in
				CO 3	The student is prepared to work in industry immediately after his course
				CO 1	Students will be able to apply management theories in organization and know personal management techniques to motivate the

21	2017-18	ME 3103	INDUSTRIAL ENGINEERING AND MANAGEMENT	CO 2	They are able to settle the industrial disputes in organization.
				CO 3	They are also acquire full knowledge on production planning and control procedures and understand the economics of plant layout
				CO 4	Students are aware of materials handling principles and equipment and will be able to apply maintenance practices with the
22	2017-18	ME 3104	OPERATIONS RESEARCH	CO 1	Proficiency with tools from optimization, probability, statistics, simulation, and engineering economic analysis, including
				CO 2	The facility with mathematical and computational modeling of real decision-making problems, including the use of
				CO 3	The facility with the design, implementation, and analysis of computational experiments.
23	2017-18	ME 3105	MESUREMENTS AND CNC	CO 1	Students will be able to write CNC part programming for various machining operations.
				CO 2	Students will get appropriate knowledge on ISO system of limits, fits and tolerances. Students will be able to gain knowledge on
				CO 3	Students will be able to gain knowledge on different measuring instruments i.e., tool makers microscope, sine bar, dial indicator,
				CO 4	Students will acquire knowledge on instrumentation (for measuring different parameters like force, torque, pressure etc.)
				CO 1	Understand the factors for low productivity, eliminate them and improve productivity.
				CO 2	Analyse the existing method of doing work, improve the method by eliminating unwanted steps in the process.

24	2017-18	ME 3106	ELECTIVE I (WORK STUDY)	CO 3	Will be able to measure the work and find the standard time required for doing the work.
				CO 4	Will be able to apply principles of motion economy and make work easier and improve the Performance of the workers.
				CO 5	Will be able to analyse the job and fix the monitory benefits.
				CO 6	Will be able to evaluate the performance of the workers.
				CO 7	Will be able to understand the importance of ergonomic and measure anthropometric data
3rd year 2nd semester					
25	2017-18	ME 3201	FLUID MECHANICS AND MACHINERY	CO 1	Understand and apply the basic concepts of physical parameters like absolute viscosity, kinematic viscosity, surface tension.
				CO 2	Have a thorough knowledge of different types of fluid flows and analyse the forces acting on a fluid in motion.
				CO 3	Derive the equation of motion –continuity equation, momentum equation and apply them to practical problems like flow through
				CO 4	Get a overall view of boundary layer concepts, flow separation and methods of controlling it.
				CO 5	Utilise a strong mathematical tool called dimensional analysis to form dimensionless groups of the parameters effecting any
				CO 6	Differentiate between compressible and in compressible fluid flows and get an idea on stagnation properties which are relevant to

26	2017-18	ME 3202	CAD/CAM	CO 1	Application of computer in design and manufacturing of different products
				CO 2	From the basic principles of production drawing the CAD/CAM techniques were utilized for the different engineering
				CO 3	Students will able to understand the industrial products by fundamental knowledge of geometric modeling and advanced
				CO 4	After successful completion of this course student can know the prerequisites to do the job in CAD/CAM industry
27	2017-18	ME 3203	DESIGN OF MACHINE ELEMENTS	CO 1	Apply the knowledge of gyroscopic couple
				CO 2	Solve practical problems related to gears and gear trains in industries
				CO 3	Design cams for any application
				CO 4	Solve balancing problems in IC engines and automobiles
				CO 5	Analyse vibrations in engines
28	2017-18	ME 3204	PRODUCTION PLANNING AND CONTROL	CO 1	Student is able to participate and can interact in real world scenario regarding production planning and production control and suggest
				CO 2	Student is able to forecast in a real world situation and will be able to suggest correct forecasting method/technique depending on
				CO 3	Student can understand the need of inventory control and can be able to undertake activities relating to inventory management.

				CO 4	The student is enlightened about MRP-1&2, JIT, aggregate planning can able to implement them in real world situation.
				CO 5	Student can understand and participate in the design of both forward and backward scheduling and Master scheduling and can
29	2017-18	ME 3205	ADVANCED THERMODYNAMICS II	CO 1	Able to identify the working of IC-Engines and their performance characteristics based on
				CO 2	Air-Standard cycles, and also various factor effecting the combustion phenomenon
				CO 3	Able to comprehend the working and performance of different types of compressors
				CO 4	Able to recognize various types of gas turbines and their performance characteristics
30	2017-18	ME 3206	ELECTIVE II (AUTOMOBILE ENGINEERING)	CO 1	Students will be familiar with the basic knowledge on parts of automotive vehicles, and various modes of vehicle driving.
				CO 2	Students can understand different types of combustion phenomena in conventional, advanced SI and CI engine designs and the
				CO 3	Students are able to understand the principle of transmission, suspension and vehicle control systems, and identify their inherent
				CO 4	Students will be able to understand various electrical and electronic circuitry used in the automobile Different maintenance and
31	2017-18	ME 3208	MECHATRONICS AND METROLOGY LAB	CO 1	Students will be able to understand the various logics involved in controlling mechanical industry equipment.
				CO 2	The student will be able to operate measurement instruments on their own and test different components for their

				CO 3	A project involving writing ladder logic for controlling a mechanical device, executing the program is required from each student and
32	2017-18	ME 3209	INDUSTRIAL ENGINEERING LAB	CO 1	Students will be able to find the quality of the product using different charts.
				CO 2	Can improve the method of doing work by applying principle of motion economy and method study charts.
				CO 3	Can find the standard time required for completing a job by different methods.
				CO 4	Understands the basic probability distributions.
				CO 5	Understands the impact of work on the human body and also the physiological constraints of the body
4th year 1st semester					
33	2017-18	MEC 411	DESIGN OF MACHINE ELEMENTS - II	CO 1	1. The main objectives are: Students will be acquainted with standards like ASTM, ASME etc.,
				CO 2	2. To Design and formulate, to analyse stresses and strains in machine elements like gears, clutches, bearings, etc. under static and dynamic load
				CO 3	3. To Design of Internal combustion engine parts like cylinder, pistons, connecting rod and crankshaft.
				CO 4	4. To understand the stresses on miscellaneous machine elements like crane hooks, wrenches, wire ropes etc.
				CO 5	5. Selection and application of composite materials.

34	2017-18	MEC 412	HEAT AND MASS TRANSFER	CO 1	Understand the conductive heat transfer through Cartesian, Cylindrical and Spherical coordinate systems and predict the thermal
				CO 2	Understand the design and performance analysis of heat exchangers and their practical applications.
				CO 3	Able to understand the concept and mechanism of natural and forced convection, the various empirical correlations used in
				CO 4	Understand the concept of radiation, mechanism of heat transfer in phase change processes of Condensation, Boiling and Mass
35	2017-18	MEC 413	FLUID MACHINERY AND SYSTEMS	CO 1	To analyse the forces exerted by the jet on various stationary and moving vanes.
				CO 2	To determine the performance of different propulsion systems.
				CO 3	To study and analyse the performance characteristic curves of hydraulic turbines and pumps at different working conditions.
				CO 4	To Understand and analyse the performance of various hydraulic systems such as Hydraulic lift, ram etc.
36	2017-18	MEC 414	STATISTICAL QUALITY AND CONTROL	CO 1	Student will be able to understand the term quality and its associated philosophies.
				CO 2	Student will be able to understand the concepts of different control charts and its applications.
				CO 3	The process capability analysis of N-type, L-type and S-type quality characteristics can be implemented by the student.
				CO 4	Student will be confident to work in any quality related team and use standard sampling plans to reduce rejection rate.

37	2017-18	MEC 415	ELECTIVE III (NCES)	CO 1	Acquire knowledge of solar energy basics and physics of the sun with the measurement methods of solar insolation.
				CO 2	Acquire and apply the principles on various solar energy collectors and accrue the knowledge about energy storage and
				CO 3	Identify and analyse wind energy characteristics and types of wind mills.
				CO 4	Understand the concept of bio energy conversion and their applications.
				CO 5	Understand the concepts of geothermal, ocean, tidal, wave energies, direct energy conversion systems like magneto
38	2017-18	MEC 416	OPERATIONS RESEARCH	CO 1	Proficiency with tools from optimization, probability, statistics, simulation, and engineering economic analysis, including
				CO 2	The facility with mathematical and computational modeling of real decision-making problems, including the use of
				CO 3	The facility with the design, implementation, and analysis of computational experiments.
39	2017-18	MEC 417	HMT LAB	CO 1	Students will learn applications of heat transfer in real time applications
				CO 2	Students will have hands on experience of handling various equipment’s used in heat transfer studies
				CO 3	This exposure will help students to undertake projects related to heat transfer studies
				CO 1	Measure the flow rate and efficiencies of turbines and pumps at various working conditions.

40	2017-18	MEC 418	FMM LAB	CO 2	Understand the experiments and draw the various performance characteristic curves of hydraulic machines.
				CO 3	Analyse and design fluid systems.Safely execute experiments, analyse and interpret results and errors, and formulate conclusions
4th year 2nd semester					
41	2017-18	MEC 422	CAD/CAM	CO 1	Application of computer in design and manufacturing of different products
				CO 2	From the basic principles of production drawing the CAD/CAM techniques were utilized for the different engineering
				CO 3	Students will able to understand the industrial products by fundamental knowledge of geometric modeling and advanced
				CO 4	After successful completion of this course student can know the prerequisites to do the job in CAD/CAM industry
42	2017-18	MEC 423	ENGINERING ECONOMICS	CO 1	With the fast changing environment, an engineer has to make himself aware of new improvements, trends and changes and
				CO 2	Engineering Economics will help engineers to achieve their role in changed environment. Will be able to prepare and evaluate project
				CO 3	Capable to understand different market situations and also of finding breakeven points and depreciation.
				CO 4	Capable of preparing Balance sheet, Trading Account and Profit and loss Account
43	2017-18	MEC 424	CAD/CAM LAB	CO 1	Students will be able to know to produce the industrial drawings by using CAD/CAM software’s.

43	2017-18	MEC 424	CAD/CAM LAB	CO 2	After successful completion of this laboratory student can do the job in CAD/CAM industry as a design engineer.

COURSE OUTCOMES Of MBA 2017-2018

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
Ist Semester					
1	2017-18	101	MANAGEMENT PROCESS AND	CO1	Students would be competent to deliver the basic managerial functions
				CO2	Student is able to acquire managerial decision making skills and ability to plan and implement.
				CO3	Student will be able to design appropriate organisational structures for smooth running of organisation.
				CO4	Students will develop interpersonal competencies by understanding the dynamics of individual behaviour.
				CO5	Students acquire motivational abilities and leadership skills.
2	2017-18	102	QUANTITATIVE TECHNIQUES FOR MANAGERS	CO1	Knowledge of statistical tools and inferences enable the student to take decisions in pricing of a product
				CO2	Students can identify important variables in decision making and forecasting.
				CO3	Student can identify the required limits/ range in production, marketing and pricing decisions
3	2017-18	103	ECONOMICS FOR MANAGERS	CO1	Student will be able to evolve price strategies for a product or a service given the demand, supply and elasticity, production cost and returns and forecast the demand.
				CO2	Enables the student to take equilibrium product and price decisions under different market situations. Also
				CO3	Enable the learner to react to international price changes for the good or service and act accordingly in
4	2017-18	104	INDIAN BUSINESS ENVIRONMENT	CO1	Students are able to assess the impact of various internal and external environmental factors influencing business trends.
				CO2	Students will develop an understanding on functioning of planning institutions, financial system and changing business policies
				CO3	Students will understand various types of enterprises such as public sector, private sector, joint sector and
				CO4	Students are able to understand the importance of ethics in business and corporate social responsibility.
5	2017-18	105	ACCOUNTING FOR MANAGERS	CO1	Students are able to prepare final accounts.
				CO2	Students can prepare statement of cost and can take managerial decisions.
				CO3	Students can prepare various types of budgets required by the organisations
6	2017-18	106	MANAGERIAL COMMUNICATION SKILLS	CO1	Student will acquire and demonstrate effective business writing and presentation skills
				CO2	Student is able to acquire the capability to understand the impact of intra and interpersonal factors on
				CO3	Student will acquire effective verbal and non verbal communication skills
				CO4	Student will learn to communicate cross culture and wide range of business audience
7	2017-18	107	BUSINESS LAW	CO1	Student will be able to handle disputes/legal challenges pertaining to organisation.
				CO2	Student can apply basic legal knowledge in business transactions.
				CO3	Student will be able to understand the legal environment of business pertaining to any organisation.
				CO4	Student will be able to react to the situations in the society by applying consumer protection Act,
IInd Semester					
8	2017-18	201	FINANCIAL MANAGEMENT	CO1	Students would become competent in analysing the financial performance of an organisation.

				CO2	Students can determine optimal capital structure to an organisation.
				CO3	Students can evaluate long-term and short term investment decisions.
				CO4	Students are capable of framing dividend policy to a firm.
9	2017-18	202	MARKETING MANAGEMENT	CO1	Student will be able to segment, target and position the products/ services by conducting consumer
				CO2	Ability to design marketing mix strategies for any product or services.
				CO3	Student will design optimum promotional mix elements to promote a product / service.
				CO4	Student will be oriented towards ethical Marketing Practices.
10	2017-18	203	HUMAN RESOURCE MANAGEMENT	CO1	Students would be competent to deliver the HR functions of procurement, development and maintenance.
				CO2	Student will be able to initiate and implement appropriate mechanisms to maintain industrial peace.
				CO3	Student can comprehend the HR challenges in the dynamic business environment.
11	2017-18	204	PRODUCTION AND OPERATIONS MANAGEMENT	CO1	Student will be able to efficiently manage Production Planning and Control.
				CO2	Adopt and implement different inventory management techniques.
				CO3	Student will be able to implement appropriate techniques of quality control that enhance productivity.
				CO4	Enables the student to start-up an entrepreneurial activity.
12	2017-18	205	RESEARCH METHODOLOGY	CO1	Students can gather right information with a proper methodology and use statistical techniques for efficient decision making in an uncertain business environment.
				CO2	Students will be equipped with proper statistical tools to assess the impact of human behavioural attributes
				CO3	Students will be equipped with advanced statistical techniques to derive proper inferences for preparation of
13	2017-18	206	INTERNATIONAL BUSINESS ENVIRONMENT	CO1	Students will be able to respond to global environmental factors on international business and adopt suitable measures to face global competition.
				CO2	Students understand the role of regional integration and the dynamics of foreign exchange rates and
				CO3	Students will be equipped to tap global opportunities among emerging sectors.
14	2017-18	207	BEHAVIORAL DYNAMICS AND CHANGE MANAGEMENT	CO1	Student will learn to manage the group dynamics and conflicts.
				CO2	Student will be capable to manage change and resistance.
				CO3	Student learns to be adaptive to different types of organisational structures.
				CO4	The student would be adept at starting and evaluating a new business venture, with a special emphasis on
15	2017-18	208	ENTREPRENEURSHIP	CO1	Student will be able to prepare project feasibility report, acquire skills on project management and design
				CO2	Student gains knowledge about the sources and accessibility to financial and non-financial institutions.
				CO3	The student will be able to build an organisation and run with entrepreneurial ethics and social
III rd Semester					
16	2017-18	301	OPERATIONS RESEARCH	CO1	Knowledge of optimization methods such as Linear Programming and dynamic programming equip the students to make decision making in the areas of production function, Logistics and job assignment
				CO2	Enable the student to determine the best strategy to be adopted in competitive decision making situations.
				CO3	Enables the student to schedule the activities of a project to minimize the project completion time with

17	2017-18	FM302	SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT	CO1	Students will gain knowledge on different activities in securities market.
				CO2	Student will be able to measure risk and return of a security and portfolio.
				CO3	Student can analyse securities to offer investment suggestions.
				CO4	Students can construct and evaluate portfolios.
18	2017-18	FM 303:	FINANCIAL INSTITUTIONS AND MARKETS	CO1	Students will be able to understand the Indian Financial System and contribute positively to the growth of the economy.
				CO2	Students will gain knowledge on short term and long term sources of funds.
				CO3	Students will understand the importance and functions of banking, non-banking and statutory organisations.
19	2017-18	FM304	INTERNATIONAL FINANCIAL MANAGEMENT	CO1	Students will be aware of developments in international monetary system and recent global financial crisis.
				CO2	Student is able to manage foreign exchange risk by adopting appropriate hedging strategies.
				CO3	Students will be able to evaluate cross-border investment opportunities and financing long term projects of an MNC.
				CO4	Students will be able to prepare consolidated financial reports and determine MNCs intrafirm Pricing
20	2017-18	FM305	WORKING CAPITAL MANAGEMENT	CO1	Students will be able to understand the importance of working capital and its estimation for short run financial survival.
				CO2	Students become capable of managing cash and accounts receivables.
				CO3	Student can adopt suitable inventory control techniques.
21	2017-18	FM306	FINANCIAL ENGINEERING	CO1	Students will be capable of understand the impact of interest rates on exchange rates.
				CO2	Students will be able to design innovative financial products.
				CO3	Students will be able to design hedging strategies.
22	2017-18	HR302	HUMAN RESOURCE PLANNING AND DEVELOPMENT	CO1	Students are able to identify factors affecting HRP and significance of succession planning.
				CO2	Students are able to adopt suitable HR demand and supply estimation techniques for manpower requirement.
				CO3	Students are able to evolve relevant career plans as a base for effective human resource planning.
				CO4	Students are able to design and implement appropriate HRD interventions.
				CO5	Students are able to design the training modules in relevance to the requirements of the job for efficiency.
23	2017-18	HR303	LEGAL FRAMEWORK IN HUMAN RESOURCE MANAGEMENT	CO1	The student is empowered to protect the interests of the employees' environment of the organisation by implementing suitable labour laws
				CO2	The student can execute the necessary legislations to the matters relating to settlement of industrial disputes

				CO3	Student acquires the competencies to facilitate organisational compliances with the relevant legal provisions
24	2017-18	HR304	ADVANCEMENT AND EMERGING ISSUES IN HUMAN RESOURCE MANAGEMENT	CO1	Students are able to understand the concepts such as talent management, rightsizing, and downsizing and implement them in the organisations
				CO2	Students are able to initiate various stress management techniques, work life balance mechanisms and
				CO3	Students are able to know about utilization of Information technology in performing human resource
25	2017-18	HR305	MANAGEMENT OF INDUSTRIAL RELATIONS	CO1	The student can guide the management on the various processes and procedures for maintaining harmonious Employee and Employer Relations.
				CO2	The student can adopt effective systems of collective bargaining, employee participation, grievance redressal, and discipline in industry.
				CO3	The student can be able to handle the industrial disputes according to the legislations prevailing in India and
26	2017-18	HR306	HUMAN RESOURCE INFORMATION SYSTEMS & TECHNOLOGY	CO1	Student will be able to design and implement an appropriate HRIS model in the organization.
27	2017-18	MM302	CONSUMER BEHAVIOUR AND CUSTOMER RELATIONSHIP MANAGEMENT	CO1	Students are able to design appropriate marketing strategy by analyzing determinants of individual and group behaviour of consumers.
				CO2	Student will be able to design a suitable strategy to influence consumer buying behaviour towards product
				CO3	Students design Customer Relationship Management strategy for retaining customer and widen the
28	2017-18	MM303	SALES AND DISTRIBUTION MANAGEMENT	CO1	Student can assess the market and sales potentiality along with forecasting the sales by using appropriate forecasting methods.
				CO2	Student will be able to adopt suitable recruitment, selection and training, compensation and controlling
				CO3	Student can plan appropriate marketing channel structures and manage the channel partners (recruitment,
				CO4	Student will be able to control the channel partners as well as sales personnel effectively.
29	2017-18	MM304	RETAIL MARKETING	CO1	Students will be able to plan store location, design store layout and adopt visual merchandising practices for efficient store operations
				CO2	Students will be able to formulate appropriate functional strategies in retailing.
				CO3	Students can forecast sales and handle merchandise management
				CO4	Students are able to establish his own franchise.
30	2017-18	MM305	RURAL MARKETING	CO1	Students will be able to study and analyse rural marketing environment and rural consumer behaviour to take suitable marketing decisions.
				CO2	Students can design an appropriate distribution and communication strategy to tap potential consumers in
				CO3	Student can train and promote rural youth to establish business entities to market rural products with
31	2017-18	MM306	E-MARKETING	CO1	Student will be able to design STP strategies for online consumers and develop effective E-CRM to build customer relations.
				CO2	Able to design E- marketing strategies to suit emerging trends for enhancing customer value.
				CO3	Able to formulate e marketing strategies in line with ethical and legal practices.
				CO4	Capable of applying integrated marketing communications strategy to manage & control the marketing

32	2017-18	BFS307	RETAIL BANKING	CO1	Student will learn about various products and services along with their disbursement process
				CO2	Students will get insight into Latest fund transfer mechanisms and technologies that support banking services
				CO3	Students will acquire knowledge on the role of CRM in retail banking for efficient customer service
				CO4	Students can manage NPA, recovery process and various agencies associated with it
33	2017-18	BFS308	INSURANCE	CO1	Students will be able to understand the concept, principles, purpose, types of Insurance.
				CO2	Students will be able to know and various policies of Life Insurance for transferring of risks.
				CO3	Students will be able to know and various policies of General Insurance for transferring of risks.
				CO4	Students will be aware of different Health insurance policies for covering of risk.
34	2017-18	BFs309	RURAL BANKING AND FINANCIAL INCLUSION	CO1	Student will be able to understand the rural poverty and can evaluate the impact of economic reforms on rural economy.
				CO2	Student will be able to suggest the programs initiated by GOI for priority sector lending through rural banking.
				CO3	Student will be able to connect the rural people with bank linkage programs to fulfil financial inclusion.
				CO4	Student will be able to identify the problems and prospects of rural banking.
35	2017-18	BFS310	TREASURY AND FOREX MANAGEMENT	CO1	Students are able to understand the structure and organisation of treasury management and money market.
				CO2	Student can handle various aspects of Asset-Liability Management in banks.
				CO3	Students are able to understand operations of foreign exchange markets and exchange rate determination.
				CO4	Student can minimise risk involved in foreign exchange exposure.
36	2017-18	BFS311	BEHAVIOURAL FINANCE	CO1	Students will be able to understand utility preference functions and determine decisions under risk and uncertainty.
				CO2	Students can become a wealth manager by properly predicting market fluctuation through the analysis of
37	2017-18	RM307	RETAIL STORE MANAGEMENT	CO1	The student would learn procedures for new store establishment and design and execute SOPs for store opening and closing.
				CO2	Student acquires necessary skills for stock management of a retail store and manages vendor relations.
				CO3	The student would be skilled at designing planogram, stock and cash management, and handling of
38	2017-18	RM308	E-TAILING	CO1	Students will be able to understand the online business activities and emerging trends
				CO2	Students will be capable of starting and manging e-tail business in global economy
				CO3	Able to design appropriate pricing and promotinal strategies to enhance online customer base
				CO4	Student can plan and execute appropriate merchandise and inventory strategies for e-tail business
39	2017-18	RM309	RETAIL MANAGEMENT	CO1	Students can evaluate consumer as well as consumption patterns towards different products at different target markets.
				CO2	Students will be able to take different strategic retailing decisions by scanning retail business environment
				CO3	Students can establish a scientific CRM practices for a retail store.
40	2017-18	RM310	SUPPLY CHAIN MANAGEMENT IN RETAILING	CO1	The student will be able to design supply chain management strategies in retailing.
				CO2	The student will be able to carry out supply chain operations from sourcing to delivery of merchandise

				CO3	The students will be able to integrate all supply chain actors effectively by using ICT.
41	2017-18	RM311	FRANCHISE AND BRAND MANAGEMENT	CO1	Student will be able to exploit any franchising opportunity into new entrepreneurial venture.
				CO2	The student will be able to address legal issues of franchising and explore international franchise
				CO3	The students are capable of designing branding programmes for a franchise business.
42	2017-18	HM307	PATIENT CARE AND BEHAVIOUR	CO1	Student is able to understand the functioning of different governing bodies like MCI, NCI, and NABH.
				CO2	Students will be able to acquire the knowledge to assess the health care service buying behaviour.
				CO3	Students have a better understanding and have insights related to patient's rights and ethical practices of
				CO4	Student is able to understand the role of health care delivery employees and records to be maintained.
43	2017-18	HM308	CLINICAL AND SUPPORT SERVICES IN HOSPITALS	CO1	Student will get better understanding of working environment in PSU, Govt, and Private, Corporate hospitals
				CO2	Students will be able to operate emergency and disaster teams
				CO3	Students are able to discriminate In- Patient/Out-Patient Management.
				CO4	Student will gain knowledge in operations management of clinical and non clinical departments.
				CO5	Students will gain knowledge in various screening/diagnostic and surgical procedures
44	2017-18	HM309	SUPPLY CHAIN MANAGEMENT IN HOSPITALS	CO1	Appreciate the significance of Supply Chain Management and execute efficient Supply chain management in hospital.
				CO2	Student will have a fair understanding of flow types of supply chain management and its relation to health care.
				CO3	Forecast demand, plan operations and develop appropriate purchase strategy for effective Supply Chain
				CO4	Manage inventory in Hospitals and implement cost - effective value management.
45	2017-18	HM310	HEALTH CARE MANAGEMENT AND HOSPITAL ENVIRONMENT	CO1	Student can understand and analyze the business environment of a hospital in different perspectives.
				CO2	Student would be able to handle a hospital offering multiple services such as surgical, paediatric, dental,
				CO3	Student will be able to manage a teaching hospital with adequate knowledge of international health care
				CO4	Student can grab opportunities in healthcare by applying knowledge of epidemiology, its analysis and uses
46	2017-18	HM311	HOSPITAL PLANNING AND ENGINEERING	CO1	Able to plan hospital location, size, kind of service, bed ratios, quality of facilities and services to start a new hospital.
				CO2	Able to design and execute appropriate functional plan for hospital.

				CO3	Able to organise and manage functions of a multi-speciality hospital ethically and efficiently.
				CO4	Able to participate in decision making with respect to hospital supportive service
IV th Semester					
47	2017-18	401	BUSINESS POLICY & STRATEGIC MANAGEMENT	CO1	Student, in the role of a strategist, can define vision, mission and objectives that drive an organisation.
				CO2	Student can conduct an analysis of the external and internal environment of business to get awareness on
				CO3	Able to formulate appropriate strategies using different models.
				CO4	Student can ensure proper implementation of strategies and policies.
				CO5	Student can design and adopt relevant control techniques and evaluate the effectiveness of the strategy.
48	2017-18	FM402	FINANCIAL DERIVATIVES	CO1	Student will acquire critical thinking, analytical and problem solving skills in the context of financial
				CO2	Students will be able to apply various hedging strategies using financial derivatives.
				CO3	Students will be able to perform the role of risk analyst.
49	2017-18	FM403	MANAGEMENT OF FINANCIAL SERVICES	CO1	Students acquire knowledge on SEBI guidelines relating to various financial services.
				CO2	Students become an expert in advising various financial services to meet cleint needs..
				CO3	Students will be able to understand the application of debt securitisation and the role of Depositories.
				CO4	Students can design appropriate marketing strategy for financial services.
50	2017-18	FM404	STRATEGIC FINANCIAL MANAGEMENT	CO1	The student is able to analyse and account for risk in the decision making process.
				CO2	The student can design appropriate financial and investment strategies.
				CO3	The student is able evaluate and adopt suitable merger, takeover and turnaround strategies.
51	2017-18	FM405	PROJECT MANAGEMENT	CO1	Students will be able to understand various aspects of project feasibility study.
				CO2	Student will be able to conduct market, technical and financial feasibility study of a project.
				CO3	Student will be able to implement, evaluate and control projects.
52	2017-18	FM406	INCOME TAX LAW AND PRACTICE	CO1	Students will be able to identify deductible and non-deductible expenses in tax point of view.
				CO2	Students can calculate income tax based on various sources of income.
				CO3	Students will be Equipped with the practical aspects of tax planning and procedure of e-filing.
53	2017-18	MM402	ADVERTISING AND BRAND MANAGEMENT	CO1	The student can develop a creative message and plan appropriate media mix for an advertisement.
				CO2	The student can design and evaluate brand marketing programmes for products and services.
				CO3	The student can practice ethical advertising considering economic and social aspects of business
54	2017-18	M403	SERVICES MARKETING	CO1	Student will be able to analyse different factors influencing consumer behaviour towards a service or a
				CO2	Student is able to design appropriate service marketing mix elements for a firm based on different factors to

				CO3	Student will be able to measure the service quality of a firm by adopting appropriate dimensions as well as
55	2017-18	MM404	GLOBAL MARKETING	CO1	Students are able to design appropriate STP strategy (Segmenting, Targeting and Positioning) for planning
				CO2	Students are equipped with skills to design global logistics and supply chain with necessary promotion strategies.
				CO3	Students are able to adopt appropriate global pricing and product strategies.
56	2017-18	MM405	BUSINESS TO BUSINESS (B2B) MARKETING	CO1	Students can evaluate business markets and design relevant B2B marketing plans.
				CO2	Students can analyse organisation buying behaviour to develop appropriate B2B product mix strategies.
				CO3	Students can adopt suitable pricing and distribution strategies for B2B products.
				CO4	Students can design appropriate IMC strategies for B2B markets.
57	2017-18	MM406	STRATEGIC MARKETING	CO1	Student can design and Develop Marketing strategies for business in line with Organizational Goals and Objectives.
				CO2	Student will be able to conduct SWOT analysis of the market and develop appropriate marketing strategies.
				CO3	Student can efficiently manage new product development for market growth and sustainability.
				CO2	Student will be able to adopt and apply ERP for better decision making by an effective usage of DBMS.
				CO3	Student will be able to compute and maintain payroll and time management.
58	2017-18	HR402	COMPENSATION AND WELFARE MANAGEMENT	CO1	Student will be able to understand basic compensation concepts and the context of compensation practice.
				CO2	Student will be able to undertake payroll administration.
				CO3	Student will be able to guide the management in implementation of statutory compliance.
				CO4	Student will be able to implement labour welfare and social security measures mandated by the government.
59	2017-18	HR403	INTERNATIONAL HUMAN RESOURCE MANAGEMENT	CO1	Students can deliver the HR functions of procurement and development in the context of multinational environment.
				CO2	Develop competency in handling cross cultural issues in MNCs, with special emphasis on compensation
				CO3	Students can manage diversified work environment.
60	2017-18	HR404	TALENT MANAGEMENT AND PERFORMANCE MANAGEMENT SYSTEM	CO1	The student can design and deliver an effective performance management system in line with the organisational mission and objectives.
				CO2	The student will be able to create appropriate environment for linking individual and team goals to
				CO3	Able to develop and implement best talent management practices in the organisation
61	2017-18	HR405	STRATEGIC HUMAN RESOURCE MANAGEMENT	CO1	Student will be able to develop HR strategies in alignment with business strategy for competitive advantage.
				CO2	Student would be able to comprehend strategic role of HR planning and design appropriate workforce
				CO3	Student will be able to develop competitive performance management and compensation systems.
62	2017-18	HR406	KNOWLEDGE MANAGEMENT	CO1	Students can adopt appropriate technological interventions for knowledge management.
				CO2	Students have the capability to manage knowledge workers.
				CO3	Students are able to create a learning organization.

				CO4	Students will be trained to properly understand the market dynamics taking into account precautionary measures for external factor influences.
63	2017-18	BFS407	CORPORATE BANKING	CO1	Student will able to learn various services provided by the corporate banking divisions.
				CO2	Student understands the functions of investment banking.
				CO3	Students are exposed to functions to be delivered as a corporate service advisor.
				CO4	Student will learn about Intricacies associated with project and infrastructure finance.
64	2017-18	BFS408	SECURITIES OPERATIONS	CO1	Enables the student to understand the structure of capital market and will be able to handle the role of market participant in securities operations.
				CO2	The student will be able to manage the trade at different stages of trade life cycle.
				CO3	Student will be able to apply the risk management practices and can also fulfil regulatory compliance with reference to SEBI.
				CO4	Student will be able to handle clearing and settlement process of equity and derivatives market.
				CO5	Student will be able to understand the role of redressal of investor grievance and arbitration
66	2017-18	BFS409	MARKETING OF FINANCIAL SERVICES	CO1	Students will acquire knowledge on financial services and understand the need of marketing in financial services.
				CO2	Students will be enable how to segment, Target and position various financial services to various interested
				CO3	Students will able to understand and apply various service mix strategies for various financial services
				CO4	Students can design various pricing and promotional strategies to market financial services.
				CO5	Students can design different marketing mix strategies to match demand supply of financial services.
67	2017-18	BFS410	INSURANCE RISK MANAGEMENT	CO1	Students will understand significance of risk and general structure of insurance market.
				CO2	Student will understand risk management, risk control and risk financing.
				CO3	Student will be able to understand risk evaluation, risk reduction and risk transfer.
68	2017-18	BFS411	WEALTH MANAGEMENT	CO1	The students acquire knowledge on key principles and practices involved in effective wealth management.
				CO2	Students acquaint knowledge on complexity of capital market clients and business relationships.
69	2017-18	RM407	RETAIL COMMUNICATION	CO1	The student will be able to design a retail communication programme.
				CO2	The student can develop a sales promotion programme for a retail store.
				CO3	The student will be capable of handling the communication challenges in retailing
70	2017-18	RM408	MERCHANDISE MANAGEMENT	CO1	The student would carry out category management and evaluate merchandise sources.
				CO2	The student would be able to develop strategies for planning, buying and controlling of merchandise.
				CO3	The student can formulate visual merchandising strategies.
71	2017-18	RM409	STRATEGIC RETAILING	CO1	Student will be able to design and develop strategic retail plan.
				CO2	Student can Identify appropriate Store location and develop effective retail management strategy after analyzing retail business environment
				CO3	Student can Manage retail business efficiently with a clear understanding on functional strategies of
72	2017-18	RM410	MALL MANAGEMENT	CO1	Student would be able to plan and implement relevant positioning strategies for shopping mall(s).
				CO2	Student can efficiently design, establish and manage key departments and articulate promotion mix
				CO3	Student will be able to profitably manage tenants and organize retail formats for sustainable growth of mall.

73	2017-18	RM411	VISUAL MERCHANDISING	CO1	Student acquires necessary skills to design store interiors and exteriors with appropriate planograms and
				CO2	The student becomes a successful store manager through expertise in merchandise presentation
74	2017-18	HM407	LEGAL AND ETHICAL ISSUES IN HEALTH CARE SERVICES	CO1	Students gain knowledge and execute various acts in the areas of hospital, ethical and legal issues.
				CO2	Students can adopt work flow pattern in Inter and Intra departments.
				CO3	Students learn different terminologies and procedures of Regulation and Prevent of Misuse Acts.
				CO4	Students gain knowledge in dealing with different drugs and its Acts.
75	2017-18	HM408	HOSPITAL INFORMATION SYSTEM	CO1	Students are able to analyse and understand areas needed to be improved with quality management.
				CO2	Students have opportunity to explore different types of records to maintain integrate database management.
				CO3	Students have broad scope to understand and integrate ICT with Hospital database.
				CO4	Students will be able to differentiate between importance of clinical and non clinical documentation.
76	2017-18	HM409	MEDICAL AUDIT AND QUALITY MANAGEMENT IN HOSPITALS	CO1	Students will be able to design, implement and manage TQM System for a hospital.
				CO2	Students Will be able to prepare appropriate documentation to comply with ISO 9001: 2008 Quality
				CO3	Students will be able to prepare document and apply audit tools for clinical audit
				CO4	Student will be able to use appropriate quality control tools for efficient hospital management.
77	2017-18	HM410	HOSPITAL AND PHARMACEUTICAL MANAGEMENT	CO1	The student will be able to efficiently manage, coordinate and address issues related to hospital and pharmacy interaction
				CO2	The student can acquire fair understanding on drug-body interaction, dosage and types of drugs.
				CO3	The student will be able to manage hospital affairs with a clear understanding of pharmacy law.
				CO4	The student will be able to leverage on technological advancements in different areas of healthcare for
78	2017-18	HM411	HOSPITAL WASTE MANAGEMENT	CO1	The student will be able to adopt measures to minimise the impact of hospital hazards on employees.
				CO2	The student can take appropriate steps to control nosocomial infection to patients as well as cross infection
				CO3	The student will be able to undertake appropriate measures for disposal of biomedical and human waste.

OPEN ELECTIVES FOR MBA					
S.NO	**YEAR**	**COURSE CODE**	**COURSE NAME**	**CO NUMBER**	**COURSE OUTCOMES**
1	2017-18	OPEN ELECTIVE 108	EXCEL	CO1	The student will be able to perform data processing operations using the various features available.
				CO2	The student will get practical exposure in dealing with different types of data.
				CO3	He will be in a position to present them in a meaningful form.
2	2017-18	OPEN ELECTIVE 108	HUMAN VALUES AND PROFESSIONAL ETHICS	CO1	The Students identify the importance of human values and Skills for Sustained happiness
				CO2	The Students strike a balance between profession and personal happiness/ goals.
				CO3	The Students develop/propose appropriate technologies and management patterns to create harmony in
3	2017-18	OPEN ELECTIVE 108	FRENCH	CO1	Students can recognize and describe the cultural forces (history,social values ,economic practises) that shape the professional practises in target cultural
				CO2	Students demonstrate an understanding of the nature of language through comparisons of the language studied
4	2017-18	OPEN ELECTIVE 111	SOFT SKILLS	CO1	Students will understand the basics of good written communication.
				CO2	Improves confidence in students to face job interviews.
				CO3	Students will be able to exhibit effective business correspondence.
					Enables students to get employment in corporate and other sectors.
5	2017-18	OPEN ELECTIVE209	TALLY	CO1	Students will be able to understand the power and potential of Tally Accounting software from the business
				CO2	Able to provide speedy solutions or different operations of business through Tally ERP9.
				CO3	Undertake major responsibilities in different arenas of the corporate world including accounting &Finance.
6	2017-18	OPEN ELECTIVE 210	BUSINESS DATA ANALYTICS	CO1	The student will be able to distinguish different kinds of decision making situations.
				CO2	The student will be in a position to identify the appropriate forecasting technique to be used in the given
				CO3	The student can make meaning of data by computing appropriate statistical measures and make inferences
7	2017-18	OPEN ELECTIVE 211	YOGA	CO1	After completion of the course the candidate is expected to apply the knowledge of yoga in solving the problems

Course Outcomes MCA

MCA 1stYear Ist Semester

S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MCA 1.1.1	Fundamental Programming Methodologies	CO1	Understand the basicconstructs of ‘C’ language.
				CO2	Attain the knowledge of pointers and functions in ‘C’ language.
				CO3	Apply the functionality of various C storage classes in programming.
				CO4	Acquire knowledge of object orientation concepts and basic programming constructs in C++.
				CO5	Procure in depth knowledge of inheritance, polymorphism, templates and exception handling in object orientated C++.
2	2017-2018	MCA 1.1.2	Computer Organisation	CO1	Understands about data representation and computer arithmetic.
				CO2	Acquires knowledge on Boolean Algebra and 8085 instruction set architecture.
				CO3	Understands the basics of computer organization.
				CO4	Ability to understand and design CPU of a computer.
				CO5	Ability to analyze the input and output organization of a computer.
3	2017-2018	MCA 1.1.3	Discrete Mathematical Structures	CO1	Ability to apply the rules and laws of propositional logic on statements.
				CO2	Understands the basic principles and operations on sets.
				CO3	Attains capability to solve recursive functions and permutations and combinations.
				CO4	Ability to understand graph theory and its applications.
				CO5	Obtains knowledge in applications of trees.
4	2017-2018	MCA 1.1.4	Probability Statistics and Queuing Theory	CO1	Solves various problems regarding probability and conditional probability.
				CO2	Examine, analyze and compare probability distributions.
				CO3	Prepares null and alternative hypothesis and test its validity based on random sample.
				CO4	Solves various types of regression problems.
				CO5	Understands various queuing models.
				CO1	Understands the role of accounting and its limitations.

5	2017-2018	MCA 1.1.5	Accounting and Finance Management	CO2	Ability to prepare profit-loss account and balance sheet.
				CO3	Ability to describe how investors and creditors use accounting.
				CO4	Ability to solve numerical problems of costing.
				CO5	Understands the preparation of budget and learn about budget control.
6	2017-2018	MCA 1.1.6	Programming Methodologies Lab	CO1	Student will be able to write basic C programs using iterative methods.
				CO2	Exercise programs using pointers, structures and files.
				CO3	Practice programs using objects and classes.
				CO4	Ability to write C++ Applications.
				CO5	Practice programs based on C++ features.
7	2017-2018	MCA 1.1.7	Computer Organization Lab	CO1	The student understands and learns the applications of Digital logic design.
				CO2	The student understands and learns the concept ofmemory design.
				CO3	The student understands and learns the concept of data interpretation.
				CO4	The student understands and learns theconcept of data transmission.
				CO5	The student develops the skill of writing microprocessor programming.

MCA 1stYear IInd Semester

S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MCA 1.2.1	Object Oriented Programming Using Java	CO1	Understands the basics of java programming.
				CO2	Understands the concepts of object orientation methods and inheritance using java.
				CO3	Obtain the overview of interfaces and java API.
				CO4	Gains knowledge on multithreading and exception handling in JAVA.
				CO5	Able to design GUI using applets.
				CO1	Acquires knowledge on implementationof Stacks and their applications.
				CO2	Develop knowledge on queues and linked lists.

2	2017-2018	MCA 1.2.2	Data Structures Using Java	CO3	Ability to implement various tree data structures and their properties.
				CO4	Acquires knowledge on graphs and its applications.
				CO5	Familiarizes with various sorting and searching techniques.
3	2017-2018	MCA 1.2.3	Operating Systems	CO1	Familiarizes with the fundamentals and different types of operating systems.
				CO2	Ability to learn Process Scheduling and synchronization.
				CO3	Acquaint knowledge about Deadlocks.
				CO4	Learns about memory management and CPU scheduling techniques.
				CO5	Studies about Disk Scheduling, Disk Management and Security issues.
4	2017-2018	MCA 1.2.4	System Programming	CO1	Learns the machine structure and assembly language perceptions.
				CO2	Ability to design a single pass and 2-pass assembler.
				CO3	Ability to design a single pass and 2-pass macroprocessor.
				CO4	Familiarizes with loaders and design of dynamic linking loader.
				CO5	Learns about the phases in compiler design.
			File Structures	CO1	Ability to learn file processing operations.
				CO2	Familiarizes with secondary storage devices and buffer management.
				CO3	Ability to understand the concepts of file structures.
				CO4	Analyze the concepts of File indexing.
				CO5	Learning B+ tree indexing and hashing concepts.
			Information System & Organizational Behavior	CO1	Familiarizes with organizational behavior and structure.
				CO2	Analyzes individual motivation and leadership skills.
				CO3	Understands the group behavior and conflicts.
				CO4	Understands the concepts of Information Systems in management.
				CO5	Learns the activities of Functional Information System in an organization.
				CO1	Familiarizes with various types of Finite Automata.
				CO2	Understand the types of Grammar and Regular expressions.

			Formal Languages and Automata Theory	CO3	Learn the concepts of Context Free Language, Normal Forms and Pushdown Automata.
				CO4	Ability to construct Turing machines and apply on its applications.
				CO5	Optimize computability using Recursivefunctions and Time Complexity using P & NP Completeness.
5	2017-2018	MCA 1.2.5	Ecology and Environiment	CO1	Recognize major concepts in environmental sciences and demonstrate in-depth understanding of the environment.
				CO2	Develop analytical skills, critical thinking, and demonstrate problem-solving skills using scientific techniques.
				CO3	Demonstrate the knowledge and training for entering graduate or professional schools, or the job market.
				CO4	
				CO5	
6	2017-2018	MCA 1.2.6	Data Structures Using Java Lab	CO1	Practice applications of stacks and queues.
				CO2	Able to write programs to implement linked list.
				CO3	Practice implementation of various searching and sorting techniques.
				CO4	Implementation of TREES and GRAPHS.
				CO5	Exhibit applications using data structures.
7	2017-2018	MCA 1.2.7	Operating Systems Lab	CO1	Differentiate the command set of MS Dos and UNIX.
				CO2	Familiarizes with shell programming and shell commands.
				CO3	Practice programs using system calls.
				CO4	Implementation of CPU Scheduling and Deadlock Algorithms.
				CO5	Implementation of Page replacement algorithms.

MCA 2nd Year Ist Semester

S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MCA 2.1.1	Computer Graphics	CO1	Understands graphics devices, software and their applications.
				CO2	Learns graphic transformation techniques.
				CO3	Familiarizes with graphics modeling using Bezier curves and surfaces.
				CO4	Gains knowledge of animation languages and motion specifications.

				CO5	Ability to understand compression techniques.
2	2017-2018	MCA 2.1.2	Database Management Systems	CO1	Understandsvarious database models.
				CO2	Obtain querying techniquesin Entity Relation model.
				CO3	Learn optimization of database design with Normalization.
				CO4	Familiarizewith the concepts of Serializability,Concurrency control and crash recovery.
				CO5	Gain an overview of storage and indexing structures.
3	2017-2018	MCA 2.1.3	Artificial Intelligence	CO1	Understands thehistory of Artificial Intelligenceand its foundations.
				CO2	Familiarizewith knowledge representation issues and concepts.
				CO3	Obtains the knowledge to represent the language sentences using predicate logic.
				CO4	Gains awareness about expert system.
				CO5	Develops awareness on neural networks models.
4	2017-2018	MCA 2.1.4	Operation Research	CO1	Develops ability to solve LPP problems using various methods.
				CO2	Ability to solve transportation, assignment and sequencing problems using several methods.
				CO3	Familiarize with PERT & CPM charts andsolves replacement & inventory theory problems.
				CO4	Learns to analyze non-linear programming and integer programming problems.
				CO5	Gains knowledge to solve simulation and game theory problems.
			Design and Analysis of Algorithms	CO1	Understands the algorithmic efficiency,asymptotic notations and brute force techniques.
				CO2	Familiarizewith divide and conquer strategy for several applications.
				CO3	Learns the techniques of transform and conquer.
				CO4	Develops knowledge on dynamicprogramming and greedy technique for real time applications.
				CO5	Analyze the limitations of algorithms.

5	2017-2018	MCA 2.1.5	Software Engineering	CO1	Develops ability to understandsoftware product using different software process models and agile programming.
				CO2	Understands requirements modeling.
				CO3	Develops an overview of concepts of designengineering.
				CO4	Familiarizes with software testing strategies.
				CO5	Learns about an overview of project management and scheduling.
			Embeded Systems	CO1	Understands the basics of Embedded systems, Microprocessors and Microcontrollers.
				CO2	Develops ability to write programs using 8051 Assembly Language instructions.
				CO3	Learns about various Interrupts and Software Architecture.
				CO4	Analyzes various design issues of RTOS.
				CO5	Familiarizes with embedded software development tools and debugging techniques.
			Compiler Design	CO1	Familiarizes with fundamental concepts of compiler design.
				CO2	Ability to design a Lexical Analyzer.
				CO3	Learns about various parsing techniques in compiler design.
				CO4	Develops knowledge on various compiler construction tools.
				CO5	Applies code optimization and generation techniques in design.
6	2017-2018	MCA 2.1.6	Graphics and Multimedia Lab	CO1	Understands the basic concepts of computer graphics.
				CO2	Practices scan conversion algorithms using C++ programming.
				CO3	Learns to implement transformations on object using 2D-Transformations.
				CO4	Applies clipping techniques for modifying an object.
				CO5	Exhibits Flash programming skills.
7	2017-2018	MCA 2.1.7	Database Management System Lab	CO1	Practices DDL, DML, DCL commands.
				CO2	Design and implement a database schema for a given problem-domain and normalize a database.
				CO3	Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS.
				CO4	Practice PL/SQL programming.
				CO5	Familiarizes with database connectivity.

MCA 2nd Year IInd Semester

S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MCA 2.2.1	Web Technologies	CO1	Ability to construct web based applications using Java script and XML.
				CO2	Learns to design application using java Servlets.
				CO3	Develops competency to design sophisticated Java Server Pages.
				CO4	Understands the concepts of JDBC connectivity.
				CO5	Gains knowledge on designing applications using PHP.
2	2017-2018	MCA 2.2.2	Object Oriented Analysis and Design With UML	CO1	Develops knowledge on various object oriented methodologies.
				CO2	Understands UML Modeling.
				CO3	Learns various analysis techniques.
				CO4	Applies the concepts of architectural design using corollaries and axioms.
				CO5	Familiarizes with Testing Strategies.
3	2017-2018	MCA 2.3.3	Data Communications and Computer Network	CO1	Understands the overview of Data Communications and Networks.
				CO2	Performs a thorough study of physical and data link layers.
				CO3	Familiarizes with frame formats of data link layer.
				CO4	Gains knowledge about network and transport layer functionalities.
				CO5	Learns practical applications of networks.
			Bio-Informatics	CO1	Ability to understand the importance and applications of Bioinformatics.
				CO2	Familiarizes with various biological databases.
				CO3	Understands the DNA Sequence analysis and its importance.
				CO4	Learns pair wise and multiple sequence alignment to predict the secondary and tertiary structures of protein sequences.
				CO5	Gains knowledge on various analysis packages and its structure.
				CO1	Understands the fundamentals of Image processing concepts.

5	2017-2018	MCA 2.2.4	Image Processing	CO2	Ability to understand various image transformation techniques.
				CO3	Acquires mathematical foundation on image enhancement.
				CO4	Gains knowledge on image compression techniques.
				CO5	Familiarizes with various methods of image segmentation and morphology.
			E-Commerce Technologies	CO1	Learns about E-Commerce models and its evolution.
				CO2	Understands the fundamental concepts of Supply Chain Management.
				CO3	Ability to describe various E-Commerce payment systems.
				CO4	Familiarizes with various E-security issues.
				CO5	Gains knowledge on Business Process Reengineering.
			Disritbuted Systems	CO1	Gains basic knowledge on distributed systems and system models.
				CO2	Ability to identify Distributed systems using various inter-process communication techniques.
				CO3	Understands the concepts of Distributed File Systems.
				CO4	Familiarizes with Transactions and Concurrency Control mechanisms.
				CO5	Learns the importance of Replicated Data in transactions and group communications.
5	2017-2018	MCA 2.2.5	MOOCS-I	CO1	Understands the concepts and devices of IoT.
				CO2	Familiarizes with IoT networking basics.
				CO3	Learns about various connectivity protocols and their applications.
				CO4	Ability to design IoT applications using Arduino programming.
				CO5	Understands the role of big data and cloud computing in IoT.
6	2017-2018	MCA 2.2.6	Web Technologies Lab	CO1	Practices web based applications using Java script and XML.
				CO2	Execute applications using java Servlets.
				CO3	Become skilled at database connectivity.
				CO4	Exhibit application development using PHP.
				CO5	Create applications using java server pages.

7	2017-2018	MCA 2.2.7	Data Communication Network Lab	CO1	Understands the difference between serial communication and parallel communication with direct cable software component.
				CO2	Learns the importance of Dialup networking and HyperTerminal.
				CO3	Ability to grasp the knowledge for different network configurations using star Topology.
				CO4	Acquires knowledge of using Cisco-packettracer simulator by configuring the different applications.
				CO5	Practices socket programming using TCP and UDP.

MCA 3rd Year Ist Semester

S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MCA 3.1.1	Network Security	CO1	Learns and understands the importance of cryptography.
				CO2	2. Familiarizes with the algorithms of various security services.
				CO3	Ability to understand various key management and authentication techniques.
				CO4	Understands various cryptographic algorithms for e-mail security and transport-level security.
				CO5	Gains knowledge about IP-security, malicious software and related attacks.
2	2017-2018	MCA 3.1.2	Data Mining and Warehousing	CO1	Learns about data mining concepts and functionalities.
				CO2	Familiarizes with various data preprocessing techniques.
				CO3	Gains knowledge about association rule mining techniques.
				CO4	Understands Classification and Prediction techniques.
				CO5	Analyzes Clustering techniques.
3	2017-2018	MCA 3.1.3	Dot Net Technologies	CO1	Learns the fundamental concepts of .NET framework and its features.
				CO2	Ability to develop applications using VB.NET.
				CO3	Gains knowledge about application development using ADO.NET.
				CO4	Ability to develop web applications using ASP.NET.
				CO5	Understands web service protocols WSDL, SOAP and UDDI.

4	2017-2018	MCA 3.1.4	Big Data Analatyics	CO1	Gain conceptual understanding of analytics concepts, algorithms and statistical tests.
				CO2	Gains knowledge on how to analyze data by using various classification and clustering techniques.
				CO3	Understands how Hadoop can store and process the data and its architecture.
				CO4	Ablility to learn how to read and write data in Hadoop distributed file system.
				CO5	Familiarizes with modern data analytic tools of Big Data.
			Cloud Computing	CO1	Understands cloud computing platforms and their migration issues.
				CO2	Learns about Virtual Machines Provisioning and Scheduling Techniques.
				CO3	Gains knowledge on Integration of Private and Public Clouds.
				CO4	Familiarizes with Federated Cloud Computing Architecture.
				CO5	Develops the knowledge of Architecting Cloud Applications in the AWS and Cloud Mashups.
			Mobile Computing	CO1	Acquires concepts and features of cellular technologies and mobile services.
				CO2	Gains knowledge on Wireless-LAN’s and their standards.
				CO3	Identifies the important issues of wireless networks and protocol mechanisms.
				CO4	Learns the functionalities of database in mobile communications and issues
				CO5	Familiarizes with Mobile IP and Wireless Application Protocol.
			Wireless Ad-hoc Networks	CO1	Ability to analyze various ad-hoc network technologies.
				CO2	Learns about transport layer protocols and its mechanisms.
				CO3	Acquaint with the knowledge on routing protocols.
				CO4	Acquires knowledge on issues and challenges on Quality of Services.
				CO5	Understands the architecture of wireless sensor networks.
				CO1	Familiarizes with the basics of Python language.
				CO2	Gains knowledge on Python data structures, functions, modules and packages.

5	2017-2018	MCA 3.1.5	MOOCS-II	CO3	Understands object oriented programming and exception handling.
				CO4	Learns multithreading implementation and database connectivity in python.
				CO5	Develops knowledge on Python file operations.
6	2017-2018	MCA 3.1.6	Data Mining and Warehousing Lab	CO1	Practices creating dataset in ARFF format.
				CO2	Learns to convert excel data sheets to ARFF.
				CO3	Applies knowledge on mining frequent patterns using apriori algorithm.
				CO4	Ability to design real time classification applications.
				CO5	Implements real time clustering techniques using WEKA tool.
7	2017-2018	MCA 3.1.7	Dot Net software Lab	CO1	Ability to develop simple interactive applications in .NET Framework environment.
				CO2	Designs windows form applications using VB.NET controls.
				CO3	Creates user interactive web pages using ASP.Net controls.
				CO4	Practices programming using .NET built-in controls.
				CO5	Implements applications using ADO.Net connectivity.

MCA 3rd Year IInd Semester

S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MCA 3.2	**Final Project**		

COURSE OUTCOMES 2017-2018

MHRM Ist Semester

Sl No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-18	101	HUMAN RESOURCE MANAGEMENT	CO1	Students would be competent enough to understand basic HRM knowledge to manage the HR functions in Organisations.
				CO2	Contribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes.
				CO3	Able to prepare the students on communication of the organisation's performance planning and development.
				CO4	Facilitate and support effective compensation plan and labour management relations in both union and non-union environments.
				CO5	Help them to gain insight on HR professional challenges and opportunities in the globalized era.
2		102	GENERAL MANAGEMENT	CO1	Students are prepared to discuss and communicate about processes of management and how they impact future managers in organisation.
				CO2	Enable them to identify and evaluate social responsibility and ethical, environmental issues involved in business situations.
				CO3	Help them to practice the core functions of management such as planning, organising, leading and controlling.
				CO4	Prepare them to practice the functions of leadership and management by way of motivation at work place.
				CO5	The knowledge of other functional areas enables them to practice the management science effectively at the work place.
3		103	LABOUR LEGISLATION AND CASE LAW -I	CO1	Able to learn the aspects of emergence and historical development of labour legislation in India.
				CO2	Understand the ways to protect the interests of the employee's environment of the organisation by implementing suitable labour laws.
				CO3	Acquire the competencies to facilitate organisational compliances with the appropriate legal provisions governing labour management relations (Employees and Organisations).
				CO4	Enable them to learn the statutory framework and institutions regulating industrial relations, collective bargaining and working conditions in India.
				CO5	Helps to consider the understanding of issues around ethnicity, class, gender and discrimination at work place.

4		104	INDUSTRIAL AND MANAGERIAL ECONOMICS	CO1	Understand basic labour economics theory and modelling techniques and able to apply them to 'real world issues'.
				CO2	Construct and evaluate the theories of employment to comprehend work situations.
				CO3	Investigate the significance of industrial economics and apply them for the locational advantage of industrial organisations.
				CO4	Able to understand the role of managers in firms by way of analysing real time business problems with a systematic theoretical framework of managerial economics.
				CO5	Able to understand the techniques of demand forecasting and different costs of production and measure their effects on short run and long run decisions.
5		105	ORGANISATIONAL BEHAVIOUR- I	CO1	Able to learn and understand the fundamental concepts and approaches of Organisational Behaviour for better practice in Organisations.
				CO2	Able to analyse both individual and group behaviour and understand their impact on Organisational processes.
				CO3	Able to analyse and interpret the group behaviour and understand their impact on Organisational processes.
				CO4	Have knowledge of conflict management and able to evaluate the appropriateness of conflict management strategies in Organisations
				CO5	Evaluate the appropriateness of various leadership styles and conflict management strategies used in organizations.
6		106	FINANCIAL MANAGEMENT	CO1	Students would be able to analyse the financial health of the organisation and prepare financial plan.
				CO2	Student can take asset mix decisions.
				CO3	Students can take capital mix decisions.
				CO4	Students are capable of framing dividend policy to a firm.
				CO5	Would be able to understand the regulations of the stock markets and can analyse the balance sheet of the organisation.
2nd SEMESTER					
7		201	INDUSTRIAL RELATIONS	CO1	Demonstrate descriptive knowledge of the field of industrial relations.
				CO2	Apply the essential concepts of industrial relations and their interrelationship at the personal, organizational and national levels.
				CO3	Investigate solutions to industrial relations problems based on research and assessment of current practices.
				CO4	Able to understand the Structural issues, leadership and problems of Trade Unions and can analyze the emerging trends in unionism at the work place

				CO5	Identify different forms of industrial conflict and apply suitable conflict resolution mechanisms for promoting industrial peace and harmony
8		202	BUSINESS ENVIRONMENT	CO1	Able to assess the impact of various internal and external environmental factors influencing bossiness trends.
				CO2	Develop an understanding of technological, political and economic environments influencing business.
				CO3	Gain knowledge and understanding of new economic policy and its implication on business and awareness of business laws.
				CO4	Able to gain an insight on corporate re-organisations for a better understanding of today's workplace.
				CO5	Develop a compressive understanding of globalization and its impact on business event.
9		203	ORGANISATIONAL BEHAVIOUR II	CO1	Students would be able to understand and identify different Motivational Theories and their implications at work place.
				CO2	Able to understand and learn the appropriateness of various leadership theories, styles and implications to managers
				CO3	Able to describe and assess the basic elements of organisational theory, effectiveness and evaluate their impact on work place performance
				CO4	Able to understand organisational effectiveness and its approaches and can apply them in effectively in the organisation environment
				CO5	Students would emulate the organisational culture and change practices including organisational development to achieve organisational outcomes.
10		204	LABOUR LEGISLATION AND CASE LAW II	CO1	Able to learn the aspects of emergence and historical development of labour legislation in India.
				CO2	Understand the ways to protect the interests of the employee's environment of the organisation by implementing suitable labour laws.
				CO3	Acquire the competencies to facilitate organisational capabilities with the appropriate legal provisions governing labour management relations (Employees and Organisations).
				CO4	Enable them to learn the statutory framework and institutions regulating industrial relations, collective bargaining and working conditions in India.
				CO5	Helps to consider the understanding of issues around ethnicity, class, gender and discrimination at work place.
11		205	MARKETING MANAGEMENT	CO1	Student would be oriented towards Marketing Environment and information system and can understand Marketing research phenomenon
				CO2	Student would be able to segment, target and position the products/ services by conducting consumer behaviour studies.
				CO3	Able to design marketing mix strategies for any product or services

				CO4	Students would be able to prepare pricing policies and strategies and can apply their knowledge on product distribution, channel design and management
				CO5	Student would be able design optimum promotional mix elements to promote a product / service.
12		206	INFORMATION TECHNOLOGY & HUMAN RESOURCE INFORMATION SYSTEM	CO1	Have knowledge and understanding about history of computers and digital logic.
				CO2	Able to get Familiarity with Management Information systems
				CO3	Gains the knowledge about Enterprise Resource Planning
				CO4	Proficient with Human Resource Information System models.
				CO5	Able to work with MS-Office Applications.
3rd SEMESTER					
13		301	HUMAN RESOURCE DEVELOPMENT	CO1	Students would be able to understand the significance, Scope and dimensions of HRD for the basic operation of HRD systems.
				CO2	Students would be able to practice the functions of HRD effectively in the organisation.
				CO3	They would be able to blend learning theories and practice for better organisational performance.
				CO4	Students will have deeper understanding of T&D activities of the organisation and contribute for developing competencies.
				CO5	Students will have through knowledge of T&D activities of the organisation and contribute for leadership building .
14		302	EMPLOYEE COMPENSATION ADMINISTRATION	CO1	Able to learn the basic compensation concepts and the context of compensation practice.
				CO2	Able to implement and administer a compensation system according to the firm’s policies and needs.
				CO3	Able to design and maintain a equitable and pay system which is consistent for employees in the organisation. (Internal equity & Consistency) .
				CO4	Identify and describe a variety of Incentives and reward systems used to determine the organisational performance effectiveness.
				CO5	Develop a compensation structure that ensures firm’s competitiveness with other similar firms and discuss recent trends executive remuneration.
15		303	SOCIAL RESEARCH METHODS AND STATISTICS	CO1	Able to understand the basic theory and methods of social research.

				CO2	Students would be able to learn appropriate statistical tools to assess the impact of human behavioural attributes on decision making pertaining to HR aspects of business
				CO3	Students will have a deeper understanding of social research process to conduct various surveys in the organisation.
				CO4	Students can gather right information with proper methodology and use relevant statistical tools and techniques for effective decision making.
				CO5	Students will have the knowledge of scaling techniques used in HRM research which enable them to conduct micro project
16		304	MANAGEMENT OF UNORGANISED LABOUR	CO1	Able to Understand the basic conception of unorganized labour, problems of informal sector and its role in the national economy
				CO2	Able to Improve productivity and wage levels that influence living standards of workers in informal (Unorganized) sector.
				CO3	Enable the establishment of flexible mechanism with the help of legal provisions that respond to the characterises of various categories of unorganised workers.
				CO4	Students will have comprehensive knowledge of special categories of unorganised labour(Women and child) including the legal provisions and various ILO conventions and recommendations pertaining to them.
				CO5	Able to attract investments in skill development, creating opportunities for disadvantaged groups to acquire skills and thereby strengthening the competitiveness of informal sector and facilitating coordination between various agencies of central and state for the development of informal sector.
17		305	HR SKILLS AND ORGANISATIONAL COMMUNICATION	CO1	Students will become familiar with the main aspects involved in creating a comprehensive communication plan for any organisation
				CO2	Able to gain and understanding of interpersonal communication effectiveness and learn to use written communication appropriate at workplace
				CO3	Understand and effectively make use of specific HR management skills for a better practice in organisational environment
				CO4	Gain an understanding of oral communication and learn to use for the conduct of meetings, negotiate and resolve conflicts at workplace
				CO5	Able to organise effective meeting at workplace by making use of appropriate skill sets
18		306	PARTICIPATIVE MANAGEMENT AND COLLECTIVE BARGAINING	CO1	Students would be able to gain insight on practices of Participative Management for the smooth conduct of ER/IR system at work place.

				CO2	Able to understand different forms and levels of participative management to ensure harmonious IR
				CO3	Gain an insight on working of participative management schemes at various levels of participative in both India and other nations (Germany,UK etc.)
				CO4	Able to process Collective Bargain agreements in the organisation harmoniously
				CO5	Able to differentiate the challenges for unions and employers and address them separately
4th SEMESTER					
19		401	INTERNATIONAL HUMAN RESOURCE MANAGEMENT	CO1	Recognize, outline and illustrate the enduring global / International context if International HRM.
				CO2	Develop, Prepare International staffing operations (Recruiting and selecting staff) for sustained global growth.
				CO3	Use concepts and tools for explaining and developing methods which can be integrated into practical applications of IHRM with regard to International training and development, Repatriation.
				CO4	Make use of an in depth understanding of research in IHRM to critically analyze approaches, perspectives and practical problems of International compensation and rewards in the context of multi-national firm's (MNC's) performance Management
				CO5	Systematically illustrate and define, categorise and analyze a broad range of issues and problems faced by MNC's in the matters of labour-Management relations and conflict resolution in MNC's and also to understand IHRM practices in different countries.
20		402	STRATEGIC HUMAN RESOURCE MANAGEMENT	CO1	Able to identify the key HRM functions and operations and their impact on business performance
				CO2	Describe the Dynamic nature of global competition and social, technological trends and their significance for HRM practice.
				CO3	Identify the linkages between HRM functions and operations and organisational strategies, structures and culture
				CO4	Describe how HR strategies can be informed by knowledge of manpower requirement and utilization
				CO5	Recognize and understand the performance impact of HR practices on business and evolution of strategic contribution of HRM on business performance
21		403	PERFORMANCE MANAGEMENT AND COUNSELLING	CO1	Able to learn and understand the employee performance management system in the organisation and can draw effective reward and development plans for employees.

				CO2	Able to design integrated performance management frame work in the organisation by understanding goal setting process.
				CO3	Able to understand of traditional performance management frame work and align it to the new dimensions of integrated performance management system
				CO4	Able to develop effective feedback mechanism in the organisation and can operationalize change through modern performance management systems like (learning organisation, balance score card, competency mapping etc)
				CO5	Able to implement effective systems of counselling and mentoring for employee.
22		404	EMPLOYEE WELFARE AND LABOUR ADMINISTRATION	CO1	Able to know and understand the development of labour welfare with reference to (in the context of Indian Constitution) Judicial framework of labour laws for better implementation in the organisations
				CO2	Able to learn the salient features of labour welfare, agencies and their roles including financing of welfare programes in order to implement them at the workplace effectively
				CO3	Develop an understanding of statutory and non-statutory labour welfare programmes in an organisation for an effective implementation
				CO4	Learn and understand the procedures to implement social security measures at workplace in a better way.
				CO5	Have through knowledge of labour administrative procedures/machinery (both central and state) for effective implementation of labour welfare and social security schemes
23		405	CONTEMPORARY HUMAN RESOURCE MANAGEMENT	CO1	Able to understand the changing Human Resource environment, describe and address the emerging issues, challenges of HRM.
				CO2	Able to Summarize the ways in which the New People Management practices support organisational flexibility and expansion
				CO3	Able to understand the new practices of HRM in the contemporary areas such as knowledge management, Talent Management, Mentoring and new people management (NPM)etc
				CO4	Discuss how technological developments at workplace can address human problems in organisations.
				CO5	Explain how the natures of employment relationships are changing at workplace.
24		406	MANAGEMENT OF DISCIPLINE	CO1	Students would be able to understand the principles and aspects of disciple industry for an object implementation at work place
				CO2	Students would be able to demonstrate the knowledge of discipline in Industry and apply the essential concepts and approaches for the amelioration of IR
				CO3	Investigate solutions to disciplinary issues / Problems in Industry with a pragmatic approach of Judicial Interference

				CO4	Identify and understand various disciplinary matters in industry with judicial interference and develop the ways to handle industrial disputes
				CO5	Identify various positive disciplinary interventions and apply them with a blend of judicial activism for promoting peaceful Industrial action

Course Outcomes

MSc Computers					
IST SEMESTER					
Sl No	**Year**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
1	2017-2018	MSCS 1.1.1	Discrete Mathematical Structures	CO1	Ability to apply the rules and laws of propositional logic on statements.
				CO2	Understands the basic principles and operations on sets.
				CO3	Attains capability to solve recursive functions and permutations and combinations.
				CO4	Ability to understand graph theory and its applications.
				CO5	Obtains knowledge in applications of trees.
2	2017-2018	MSCS 1.1.2	Computer Organization	CO1	Understands about data representation and computer arithmetic.
				CO2	Acquires knowledge on Boolean Algebra and 8085 instruction set architecture.
				CO3	Understands the basics of computer organization.
				CO4	Ability to understand and design CPU of a computer.
				CO5	Ability to analyze the input and output organization of a computer.
3	2017-2018	MSCS 1.1.3	Data Structures Using Java	CO1	Learns the fundamental concepts of C++.
				CO2	Acquires programming skill in core JAVA.
				CO3	Gains knowledge on Stacks and Queues and their implementation using arrays.
				CO4	Familiarizes with linked lists, doubly linked along with implementation and learn various searching and sorting techniques.
				CO5	Learns about data structures like trees and graphs.
4	2017-2018	MSCS 1.1.4	Database Management Systems	CO1	Understandsvarious database models.
				CO2	Obtain querying techniquesin Entity Relation model.
				CO3	Learn optimization of database design with Normalization.
				CO4	Familiarizewith the concepts of Serializability,Concurrency control and crash recovery.
				CO5	Gain an overview of storage and indexing structures.
				CO1	Familiarizes with various types of Finite Automata.
				CO2	Understand the types of Grammar and Regular expressions.

5	2017-2018	MSCS 1.1.5	ormal Languages and Automata Theor	CO3	Learn the concepts of Context Free Language, Normal Forms and Pushdown Automata.
				CO4	Ability to construct Turing machines and apply on its applications.
				CO5	Optimize computability using Recursivefunctions and Time Complexity using P & NP Completeness.
6	2017-2018	MSCS 1.1.6	Systems Programming	CO1	Learns the machine structure and assembly language perceptions.
				CO2	Ability to design a single pass and 2-pass assembler.
				CO3	Ability to design a single pass and 2-pass macroprocessor.
				CO4	Familiarizes with loaders and design of dynamic linking loader.
				CO5	Learns about the phases in compiler design.
7	2017-2018	MSCS 1.1.7	Computer Organization Lab	CO1	The student understands and learns the applications of Digital logic design.
				CO2	The student understands and learns the concept ofmemory design.
				CO3	The student understands and learns the concept of data interpretation.
				CO4	The student understands and learns theconcept of data transmission.
				CO5	The student develops the skill of writing microprocessor programming.
8	2017-2018	MSCS 1.1.8	Database Management Systems Lab	CO1	Practices DDL, DML, DCL commands.
				CO2	Design and implement a database schema for a given problem-domain and normalize a database.
				CO3	Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS.
				CO4	Practice PL/SQL programming.
				CO5	Familiarizes with database connectivity.
9	2017-2018	MSCS 1.1.9	Data Structures Using Java Lab	CO1	Gains basic programming skills in C++ and core JAVA.
				CO2	Ability able to write programs to implement stacks and queues
				CO3	Practices applications using searching and sorting techniques.
				CO4	Ability to implement programs using trees and graphs.
				CO5	Develops skills in designing applications using data structures.

IInd Semester					
S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MSCS 1.2.1	Operating Systems	CO1	Familiarizes with the fundamentals and different types of operating systems.
				CO2	Ability to learn Process Scheduling and synchronization.
				CO3	Acquaint knowledge about Deadlocks.
				CO4	Learns about memory management and CPU scheduling techniques.
				CO5	Studies about Disk Scheduling, Disk Management and Security issues.
2	2017-2018	MSCS 1.2.2	Object Oriented Analysis and Design with UML	CO1	Develops knowledge on various object oriented methodologies.
				CO2	Understands UML Modeling.
				CO3	Learns various analysis techniques.
				CO4	Applies the concepts of architectural design using corollaries and axioms.
				CO5	Familiarizes with Testing Strategies.
3	2017-2018	MSCS 1.2.3	Web Technologies	CO1	Ability to construct web based applications using Java script and XML.
				CO2	Learns to design application using java Servlets.
				CO3	Develops competency to design sophisticated Java Server Pages.
				CO4	Understands the concepts of JDBC connectivity.
				CO5	Gains knowledge on designing applications using PHP.
4	2017-2018	MSCS 1.2.4	Data Communications and Networks	CO1	Understands the overview of Data Communications and Networks.
				CO2	Performs a thorough study of physical and data link layers.
				CO3	Familiarizes with frame formats of data link layer.
				CO4	Gains knowledge about network and transport layer functionalities.
				CO5	Learns practical applications of networks.
			Artificial Intelligence	CO1	Understands thehistory of Artificial Intelligenceand its foundations.
				CO2	Familiarizewith knowledge representation issues and concepts.

			Artificial Intelligence	CO3	Obtains the knowledge to represent the language sentences using predicate logic.
				CO4	Gains awareness about expert system.
				CO5	Develops awareness on neural networks models.
			E-Commerce Technologies	CO1	Learns about E-Commerce models and its evolution.
				CO2	Understands the fundamental concepts of Supply Chain Management.
				CO3	Ability to describe various E-Commerce payment systems.
				CO4	Familiarizes with various E-security issues.
				CO5	Gains knowledge on Business Process Reengineering.
5	2017-2018	MSCS 1.2.5	Distributed systems	CO1	Gains basic knowledge on distributed systems and system models.
				CO2	Ability to identify Distributed systems using various inter-process communication techniques.
				CO3	Understands the concepts of Distributed File Systems.
				CO4	Familiarizes with Transactions and Concurrency Control mechanisms.
				CO5	Learns the importance of Replicated Data in transactions and group communications.
			Embedded Systems	CO1	Understands the basics of Embedded systems, Microprocessors and Microcontrollers.
				CO2	Develops ability to write programs using 8051 Assembly Language instructions.
				CO3	Learns about various Interrupts and Software Architecture.
				CO4	Analyzes various design issues of RTOS.
				CO5	Familiarizes with embedded software development tools and debugging techniques.
6	2017-2018	MSCS 1.2.6	Web Technologies Lab	CO1	Practices web based applications using Java script and XML.
				CO2	Execute applications using java Servlets.
				CO3	Become skilled at database connectivity.
				CO4	Exhibit application development using PHP.
				CO5	Create applications using java server pages.
7	2017-2018	MSCS 1.2.7	Operating Systems Lab	CO1	Differentiate the command set of MS Dos and UNIX.
				CO2	Familiarizes with shell programming and shell commands.
				CO3	Practice programs using system calls.
				CO4	Implementation of CPU Scheduling and Deadlock Algorithms.

				CO5	Implementation of Page replacement algorithms.
8	2017-2018	MSCS 1.2.8	ata Communications and Networks La	CO1	Understands the difference between serial communication and parallel communication with direct cable software component.
				CO2	Learns the importance of Dialup networking and HyperTerminal.
				CO3	Ability to grasp the knowledge for different network configurations using star Topology.
				CO4	Acquires knowledge of using Cisco-packettracer simulator by configuring the different applications.
				CO5	Practices socket programming using TCP and UDP.
IIIrd Semester					
S.No	**Year**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
1	2017-2018	MSCS 2.1.1	Network Security	CO1	Learns and understands the importance of cryptography.
				CO2	2. Familiarizes with the algorithms of various security services.
				CO3	Ability to understand various key management and authentication techniques.
				CO4	Understands various cryptographic algorithms for e-mail security and transport-level security.
				CO5	Gains knowledge about IP-security, malicious software and related attacks.
2	2017-2018	MSCS 2.1.2	Data Mining and Data Warehousing	CO1	Learns about data mining concepts and functionalities.
				CO2	Familiarizes with various data preprocessing techniques.
				CO3	Gains knowledge about association rule mining techniques.
				CO4	Understands Classification and Prediction techniques.
				CO5	Analyzes Clustering techniques.
3	2017-2018	MSCS 2.1.3	Dot Net Technologies	CO1	Learns the fundamental concepts of .NET framework and its features.
				CO2	Ability to develop applications using VB.NET.
				CO3	Gains knowledge about application development using ADO.NET.
				CO4	Ability to develop web applications using ASP.NET.
				CO5	Understands web service protocols WSDL, SOAP and UDDI.
				CO1	Understands graphics devices, software and their applications.

4	2017-2018	MSCS 2.1.4	Computer Graphics	CO2	Learns graphic transformation techniques.
				CO3	Familiarizes with graphics modeling using Bezier curves and surfaces.
				CO4	Gains knowledge of animation languages and motion specifications.
				CO5	Ability to understand compression techniques.
5	2017-2018	MSCS 2.1.5	Big- Data Analytics	CO1	Gain conceptual understanding of analytics concepts, algorithms and statistical tests.
				CO2	Gains knowledge on how to analyze data by using various classification and clustering techniques.
				CO3	Understands how Hadoop can store and process the data and its architecture.
				CO4	Ablility to learn how to read and write data in Hadoop distributed file system.
				CO5	Familiarizes with modern data analytic tools of Big Data.
			Cloud Computing	CO1	Understands cloud computing platforms and their migration issues.
				CO2	Learns about Virtual Machines Provisioning and Scheduling Techniques.
				CO3	Gains knowledge on Integration of Private and Public Clouds.
				CO4	Familiarizes with Federated Cloud Computing Architecture.
				CO5	Develops the knowledge of Architecting Cloud Applications in the AWS and Cloud Mashups.
			Mobile Computing	CO1	Acquires concepts and features of cellular technologies and mobile services.
				CO2	Gains knowledge on Wireless-LAN's and their standards.
				CO3	Identifies the important issues of wireless networks and protocol mechanisms.
				CO4	Learns the functionalities of database in mobile communications and issues
				CO5	Familiarizes with Mobile IP and Wireless Application Protocol.
				CO1	Ability to analyze various ad-hoc network technologies.
				CO2	Learns about transport layer protocols and its mechanisms.
				CO3	Acquaint with the knowledge on routing protocols.

			Wireless Ad-hoc & Sensor Networks	CO4	Acquires knowledge on issues and challenges on Quality of Services.
				CO5	Understands the architecture of wireless sensor networks.
6	2017-2018	MSCS 2.1.6	MOOCS - I	CO1	Understands the concepts and devices of IoT.
				CO2	Familiarizes with IoT networking basics.
				CO3	Learns about various connectivity protocols and their applications.
				CO4	Ability to design IoT applications using Arduino programming.
				CO5	Understands the role of big data and cloud computing in IoT.
7	2017-2018	MSCS 2.1.7	Graphics and Multimedia Lab	CO1	Understands the basic concepts of computer graphics.
				CO2	Practices scan conversion algorithms using C++ programming.
				CO3	Learns to implement transformations on object using 2D-Transformations.
				CO4	Applies clipping techniques for modifying an object.
				CO5	Exhibits Flash programming skills.
8	2017-2018	MSCS 2.1.8	)ata Mining and Data Warehousing La	CO1	Practices creating dataset in ARFF format.
				CO2	Learns to convert excel data sheets to ARFF.
				CO3	Applies knowledge on mining frequent patterns using apriori algorithm.
				CO4	Ability to design real time classification applications.
				CO5	Implements real time clustering techniques using WEKA tool.
9	2017-2018	MSCS 2.1.9	Dot Net Technologies Lab	CO1	Ability to develop simple interactive applications in .NET Framework environment.
				CO2	Designs windows form applications using VB.NET controls.
				CO3	Creates user interactive web pages using ASP.Net controls.
				CO4	Practices programming using .NET built-in controls.
				CO5	Implements applications using ADO.Net connectivity.
IVth Semester					
S.No	Year	Course Code	Course Name	CO Number	Course Outcome
1	2017-2018	MSCS 2.2.1	**Final Project**		

Course Outcomes

M.Sc Organic Chemistry					
1st semester					
Sl No	**Year**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
1	2017-18	101	**GENERAL CHEMISTRY –**	CO1	The difference between classical and quantum mechanics and the connection to be made to quantum mechanical operators to observables
				CO2	To solve the simple quantum mechanical problems such as simple harmonic oscillator, particle in a 1D- box, rigid rotor, H atom etc.
				CO3	Calculation of energy and wave functions of multi electron systems using perturbation and variation theorems.
				CO4	Connection between common approximation methods and standard chemical frameworks
2	2017-18	102	**INORGANIC CHEMISTRY – I**	CO1	Predicting geometries of molecules using VSEPR, VBT and MO theory.
				CO2	Learning various aspects of inorganic chains, rings, cages and fundamentals of the chemistry of the main group elements.
				CO3	Splitting of d-orbitals in various geometries, and to predict the stability of complexes.
				CO4	Determination of spectral properties of complex compounds and predict the colour, magnetic properties of the complex compounds.
3	2017-18	103	**ORGANIC CHEMISTRY – I**	CO1	Basic concepts of mechanisms in organic chemistry
				CO2	To determine the stereochemistry of different organic molecules and various possible conformations of organic compounds
				CO3	The construction of various heterocyclic rings using different organic transformations.
				CO4	Different natural products with biological activity and their synthesis.
4	2017-18	104	**PHYSICAL CHEMISTRY –**	CO1	The application of mathematical tools for calculation of thermodynamic and kinetic parameters and learning of basic concepts in classical thermodynamics and thermodynamic aspects of various processes and reactions.
				CO2	Different aspects of statistical thermodynamics and their applications
				CO3	Chemistry of surfaces of materials and different types of surface phenomenon.
				CO4	Different theories and factors affecting reaction rates and effect of ionic strengths on reaction rates.
II nd Semester					
5	2017-18	201	**GENERAL CHEMISTRY –**	CO1	The basic principle of different spectroscopic techniques (Microwave, IR) employed in molecular spectroscopy
				CO2	Applications of Raman and Electronic Spectroscopy for chemical analysis.
				CO3	Prediction the point group of important molecules and know how they are classified
				CO4	Basic ideas of computational chemical calculations.
6	2017-18	202	**INORGANIC CHEMISTRY**	CO1	The basic concepts of structure and bonding of metal clusters.

				CO2	Acquire knowledge on ligands and fluxional molecules, different organic ligands and metal complexes
				CO3	Methods to determine stability of metal complexes
				CO4	Different types of reaction mechanisms of metal complexes.
7	2017-18	203	**ORGANIC CHEMISTRY –**	CO1	Basic aspects of mechanism in organic chemistry
				CO2	Different types named reactions which are having industrial importance.
				CO3	Determination of structures of organic molecules using spectroscopic techniques like UV, IR, NMR, Mass Spectrometry.
				CO4	Certain natural products having biological activity and their synthesis.
8	2017-18	204	**PHYSICAL CHEMISTRY –**	CO1	Determination of structures of molecules using NMR and ESR
				CO2	Different types of polymerization reactions useful in polymer industry.
				CO3	Basic concepts of photochemistry and how reactions will be affected in presence of light.
				CO4	Calculations of solubility product and EMF of a cell.
III rd Semester					
9	2017-18	301	**ORGANIC REACTION MECHANISMS-I AND PERICYCLIC REACTIONS**	CO1	To know synthetically the processes relevant organic-chemical reactions and be able to discuss the mechanism of these reactions
				CO2	To familiarize the different types of nucleophilic and radical substitution reactions
				CO3	To give theoretical basis of pericyclic reactions and helps them to carry out these reactions.
				CO4	To learn analysis of pericyclic reactions by correlation diagrams
10	2017-18	302	**ORGANIC SPECTROSCOPY**	CO1	To learn Infrared spectroscopy, principle, instrumentation and molecular structure determination
				CO2	To learn UV spectroscopy and its applications and molecular structure determination
				CO3	To know the principle, instrumentation and applications of NMR Spectroscopy
				CO4	To know the principle, instrumentation and applications of mass Spectroscopy
11	2017-18	303	**ORGANIC SYNTHESIS-I**	CO1	To learn the synthesis of compounds containing C-C bonds by coupling and cross coupling reactions
				CO2	To learn the synthesis of compounds containing C=C bonds by elimination and Fragmentation reactions
				CO3	To learn the synthesis and applications of the organic reagents like 9-borabicyclo(3.3.1)nonane (9-BBN) and other boranes
				CO4	To learn the synthesis of compounds using various oxidizing agents
12	2017-18	304	**NATURAL PRODUCTS AND**	CO1	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of actogenins and antibiotics
				CO2	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of terpenes - forskolin, taxol and azadirachtin

				CO3	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of alkaloids – morphine, reserpine and vincristine
				CO4	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of Peptides - a-Aminoacids, oxytocin and dolastatin-10
IVth Semester					
13	2017-18	401	**MECHANISMS-II AND ORGANIC PHOTOCHEMISTRY**	CO1	To learn the addition to carbon-carbon multiple bond, addition to carbon-hetero atom multiple bonds and elimination reactions
				CO2	To learn Mechanisms of modern organic synthetic reactions and multicomponent reactions
				CO3	To learn the basic concepts of organic photochemical reactions
				CO4	To study the photochemistry of carbonyl compounds, alkenes, dienes and aromatic compounds
14	2017-18	402	**ORGANIC SPECTROSCOPY**	CO1	To learn the principle and applications of ORD, CD and Octant rule
				CO2	To learn FT NMR spectroscopy, 2D-NMR, cosy and ESR and their applications in molecular structure determination
				CO3	To know the Fragmentation processes and its applications to structural elucidation of organic compounds by a combined application of the UV, IR mass and NMR.
				CO4	To know the various chromatographic separation techniques. Principle and instrumentation of GC , HPLC and XRD
15	2017-18	403	**ORGANIC SYNTHESIS-II**	CO1	To learn the synthetic applications of organo silanes
				CO2	To learn the synthesis of compounds using various reducing agents
				CO3	To learn the principles and applications of asymmetric synthesis
				CO4	To learn the synthesis of organic compounds by retrosynthesis approach
16	2017-18	404	**NATURAL PRODUCTS AND**	CO1	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of acetogenins and shikimates - prostaglandin 15 R PGA2, podophyllotoxin, etoposide and rotenone.
				CO2	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of Terpenes and Steroids – cholesterol, progesterone and b-amyrin
				CO3	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of alkaloids – strychnine, colchicine and camptothecin
				CO4	To study isolation, structure, stereochemistry, synthesis, biogenesis and biological properties of nucleic acids - RNA and DNA and their hydrolysis products.