PROGRAM OUTCOMES,PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES

Department: Electrical Engineering

<table>
<tr><th colspan="3">Bachelor of Technology (EE)</th></tr>
<tr><td>Programme Outcome</td><td colspan="2">Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</td></tr>
<tr><td rowspan="3">Programme Specific Outcome</td><td colspan="2">Able to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all electrical courses in particular to identify, formulate and solve real life problems faced in industries and/or during research work.</td></tr>
<tr><td colspan="2">Able to provide socially acceptable technical solutions to complex electrical engineering problems with the application of modern and appropriate techniques for sustainable development.</td></tr>
<tr><td colspan="2">Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.</td></tr>
<tr><td>Course Code</td><td>Course Name</td><td>Course Outcomes</td></tr>
<tr><td>EE 213</td><td>Circuit Analysis-I</td><td>Student will be able to analyse continuous time signals & systems Apply Laplace transforms techniques. Apply network theorems practically. Evaluation of two port networks. Analyze positive real functions. Solve most simple and some complex circuits for their parameters (Voltage, current, power, etc.) using different network theorems and transforms</td></tr>
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EE 209	Electrical Measurements and Instrumentation	Student will be able to measure the AC and DC electrical quantities(voltage, current and energy) Measurement of single and three phase ac power Calibrate the voltmeter, ammeter by the help of potentiometer Measurement of earth resistance Measure the value of capacitance and inductance by the help of different type of bridges Identify the appropriate type of measuring instrument to be used in each case, and how to make the measurements more accurately
EE 219	Electrical Machines-I	Explain principles of electromechanical energy conversion Armature reaction, commutation parallel operation of generators Speed Control of DC Motor: Armature voltage and field current control methods Voltage regulation, effect of frequency, parallel operation of transformers Use various types of DC electrical machines in the industry
EE 206	Generation of Electrical Power	Solve the problems on power plant economics Solve the problems on power factor and tariff. Evaluate the need of new of renewable energy Prepare base for further study in power engineering. Enable students to solve real life problems of power factor and tariff. Work in industry on power system grids, knowing the various factors guiding the power system generation and economy.
EE 208	Circuit Analysis-II	Understand the basic principle construction, operation rotating machine Understand the basic principle construction, operation performance characteristics and steady state and transient analysis of induction machines, Understand the basic principle construction, operation performance characteristics and steady state and transient analysis of synchronous machines, Understand the principle, construction, operation, control and applications of special electric motors, To make the students familiar with different types of AC rotating electrical machines, and how to test, operate and control (speed, voltage, etc.) them.
EE 301	Power Electronics	Understand characteristics of different power electronic devices and differentiate between them. Understand how to trigger and protect SCR. Understand the applications of converters in industries. Understand the applications of pulse width modulation in industries. Understand the application of dc to dc converter in industries. Make students familiar with various types of power converters, thus making them ready for work in industry.
EE 307	Control Systems	Identify basic open-loop and closed-loop control systems, and determine their transfer function by various techniques given. Predict the stability of a given system by using techniques like Routh-Hurwitz criterion, Nyquist plots, etc. Determine time response and frequency response analysis of basic first order and second order systems using standard inputs, and also do transient and steady-state analysis of any given LTI system. Design different types of power factor compensations, and design various types of controllers like P, PI, PID, etc.
EE 305	Transmission and Distribution of Electrical Power	Understand the concept of supply systems and distribution systems. Discuss mechanical features of overhead lines. To understand parameters of transmission lines. Discuss corona and ABCD line constants. To understand behaviour insulators and underground cables. Use different transmission line parameters to improve their performance and reduce the unwanted effects occurring in them and

		reduce faults.
EE 311	Power System Instrumentation	Measure the AC and DC electrical quantities (voltage, current and energy). Measure single and three phase ac power. Calibrate the voltmeter, ammeter by the help of potentiometer. Measure earth resistance. Measure the value of capacitance and inductance by the help of different measuring transformers.
EE 310	Advanced Control Systems	Represent the dynamics of any simple mechanical, electrical or analogous system as a state-space equatioDerive the transfer function of any simple state-space model using signal flow graph representation or block diagram representation. Solve any state space equations using State Transition Matrix technique. Determine controllability and observability of any system, and make a system controllable using pole placement technique. Represent any discrete system into difference equations, and solve them using z-transform technique.
EE 304	Modern Power Electronics	Student will be able to understand the application of AC voltage controller. Understand the different type of inverters, their applications and their harmonic reduction Understand how to change frequency with the help of cyclo-converter, Understand different type of DC power supply, Understand different type of AC power supply, Understand and work on different types of modern Power electronic devices, and use them in industry.
EE 314	Renewable Energy Sources	Analyse and understand the basic and characteristics of Solar/ PV Cell. Apply applications of Renewable energy sources. Apply network theorems practically on Wind Energy. Evaluation of intensity of sun rays and its usability. Work with all types of Renewable energy sources, like Tidal energy, Solar energy, Wind energy, Geothermal energy, Nuclear energy and Biomass energy, in the industry.
EE 401	Power System Analysis	Understand and implement basic equations governing the operation of power. Develop a control scheme for the overall control of the Faults. Able to evaluate the performance of Impedance and Admittance Model and its applications. Calculate the evaluating parameters for Symmetrical Components. The student will have a better understanding of the applications and trends of Load Flow Solutions in the current industry. Analyse any type of symmetrical or unsymmetrical fault and calculate fault parameters of the power system.
EE 407	Electrical Drives	Understand and implement basic equations governing the operation of drives. Design converters based on the Electric Motor being used in the Drive. Develop a control scheme for the overall control of the Drive. Able to evaluate the performance of a designed drive and its applications. Calculate the evaluating parameters for Electric Drives. The student will have a better understanding of the applications and trends of Electric Drives in the current industry.
EE 413	Power System Engineering	Identify the most economic generation unit. Understand the different type of stability in power system and stability limit in power system. Determine the transient stability, its limit and its improvement method. Understand how to excite synchronous generator and control terminal voltage by different excitation system. Learn how to control active and reactive power. Improve the Steady-state stability limit, Dynamic

		stability limit and Transient stability limit for a given Power System.
EE 415	High Voltage Engineering	Understand the discharge phenomenon in solid, liquid and gaseous insulating mediums. Understand the basics of high voltage generation and measurement for testing purposes. Understand the basics of measurement of capacitance and tan delta of insulating mediums. Understand the phenomenon of partial discharges. Understand the phenomenon of travelling waves. Understand the phenomenon of over voltages in power system, protection from these over voltages and the insulation coordination. To be able to visualize above related field problems. Use High Voltage generation, transmission and protection devices and techniques in the industry.
EE 411	Power System Reliability	Help the learner understand the basic applications, principles and concepts of System Reliabilty. Learn about the different types of Interconnected Systems. Obtain a detailed understanding of Necessity short-term forecasting by preliminary analysis control. Understand the Outage Definition. Use Reliability Analysis to make strategies for Generation, Transmission and Distribution networks using Reliability Analysis.
CP 425	Artificial Intelligence and Neural Networks	Student will be able to explain AI. Get knowledge about Knowledge based expert system, How search techniques can be used. Get knowledge about fuzzy logic, Use genetic algorithm.
EE 404	EHV AC/DC Transmission	Solve the problems EHV AC transmission, Understand and solve the problems on voltage control. Evaluate the need of HVDC transmission. Prepare for further study in power system. Solve practical problems of power system. Control Load Frequency, Voltage and Power Flow in the EHV AC/DC Transmission systems.
EE 414	Protection of Power System	Design and work on basic Power System Protection devices, like CTs, PTs, Relays and Circuit Breakers. Understand the causes of Over-current in Power System and implement measures to protect system from them. Implement various Protection techniques for different Power System components used in the industry, like - Synchronous Generator, Induction Motor, Bus bars, Transformers and Transmission Line.
EE 418	Power System Planning	Student will be able to explain power system planning. Get knowledge about Knowledge based expert system. How search techniques can be used. Get knowledge about power economics. Plan for various aspects of Power System, and will be able to implement them in industry.
EE 412	Utilization of Electrical Power & Traction	Help the learner understand the basic applications, principles and concepts of Different methods of electric heating. Learn about the different types of Classification of Electric Welding. Obtain a detailed understanding of Concept of Principles and applications of electrolysis. Understand the Electric Traction and Means of Supplying Power. Utilize Electric Power and Traction in various applications in the industry.
EE 420	FACTs Devices & Their Applications	Work with various devices used for Power Factor control in FACTS systems, like Static Shunt Compensators, Static Series Compensators, TSSC, TCSC, etc. Use various types of Voltage and Phase Angle Regulators, like TCVR, TCPAR, etc. in industry. Understand the basic operating principles and characteristics of Power Flow Controllers like UPFC and IPFC.

Department: Electrical Engineering

Master in Technology (Power Systems)		
Programme Outcome	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	
Programme Specific Outcome	Able to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all electrical courses in particular to identify, formulate and solve real life problems faced in industries and/or during research work.	
	Able to provide socially acceptable technical solutions to complex electrical engineering problems with the application of modern and appropriate techniques for sustainable development.	
	Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.	
Course Code	**Course Name**	**Course Outcomes**
EE 501	Advanced Power System Analysis	Understand and analyse the behaviour of the power systems under different fault conditions. Understand and analyse the behaviour of induction machines under unbalanced operations Understand the mathematical model for synchronous machines. Understand the concept of linear graph theory and its use to solve electrical problems. Solve and analyse the load flow problems Calculate fault parameters in any 3-phase Induction machine or Synchronous machine in a Power System.

EE 505	Advanced Power Electronics	Student will be able to understand the application of phase controlled converter , Understand the different type of chopper and their application, Understand the 1 phase and 3 phase inverters and their applications and harmonic reduction techniques, Understand AC voltage controller
EE 553	Power System Design using PSCAD	Apply the theory covered in courses to obtain working simulations of advanced Electrical Engineering circuits. Will be able to use PSCAD for designing of circuits/systems that have been covered in their theoretical topic thus far. Through the project development, students will be able to showcase their skills in modelling an Electrical Engineering/Power System through PSCAD. Understand the process of implementing design in the simulation. Simulate any Power System component or scenario in the industry.
EE 502	Advanced Power System Stability	Student will be able to model various synchronous machines. Solve swing equation and understand various stability, Able to develop SMIB system & solve coherent non coherent system, Give solution to various stability problems eg fault clearing time, critical clearing angle etc.
EE 504	HVDC Transmission	Measure and calculate the switching behaviour of thyristor and IGBT valves Design power electronic converters (AC- DC, DC - DC) Understand control schemes for HVDC systems and their control Measure and remove harmonics. Understand the application of MTDC systems. Work on and design the widespread HVDC Power Systems in the industry.
EE 508	Advanced Power System	Student will be able to analyse voltage stability Understand distribution automation and SCADA Able to apply FACTS devices Able to audit electrical utilities. Understand superconductivity and applications Understand the methods to charge for the transmission line uses and for the power losses in transmission system. Work on the relatively newer components of Power Systems in industry, like SCADA, FACTS and Superconductors.
EE 512	Smart Grid: Design & Applications	.Acquire in-depth understanding on recent development of power grids, i.e. smart grid; Apply advanced analysis tools in planning and operation of smart grids, Acquire skills in presentation and interpretation of results.
EE 506	Power System Transients and Protection	Understand the transient wave phenomenon in power systems Understand the impact of grounding on the behaviour of power systems Understand the working of static relays in power systems Understand the working of comparators in static relays and to use them in various protective schemes. Understand the operation of switchgear in power systems. To be able to understand the above related field problems. Calculate the values of Power System Transients in any basic scenario, and suggest the appropriate protective relay or circuit breaker for that case.
EE 601	Power System Planning and Reliability	Perform reliability analysis on electrical systems. Evaluate possible sources of unreliability in the system and its possible causes. Perform analysis using the Reliability concept for systems under study. Plan an electrical system with proper reliability analysis while

		taking into consideration the future loads. Evaluate Reliability of different components of Power System in industry, like Static Generating Capacity, Spinning Generating Capacity and Transmission Capacity.
EE 609	Restructured Power Systems	Understand the need of restructuring of the power industry and the behaviour of affected parties. Understand how the electricity is different from other commodities and how the mathematical tools be used to manage the congestion of the transmission lines using PTDF and LODF. Understand the basics of the methods to determine the electricity price at different nodes. Understand the concept of ancillary services in restructured power systems which are required to run the power system in a smooth manner.
EE 611	Solar Radiation & Energy Conversion	To familiarize students with the characteristics of solar radiation, its global distribution, and conversion methods of solar energy to heat and power
EE 603	Operation and Control of Power System	Student will be able to analyze various constraints of optimal power system operation Solve the unit commitment problem Solve the optimal generation scheduling Understand the speed governing system of steam turbine and analyse steady state and dynamic response. Understand power system security and AGC Suggest and implement methods for various aspects of Optimal Power System operation in the Power System industry.

Department: Electronics and Communication Engineering

B.Tech. Electronics and Communication Engineering	
Programme Outcome	Ability to apply knowledge of mathematics, science and engineering for the solution of Electronics and Communication Engineering problems. Ability to formulate and analyze complex Electronics and Communication engineering problems. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, and public health. Ability to design and conduct experiments, and to analyze, interprets data. Ability to use the techniques, skills, and modern engineering tools necessary for Electronics and Communication engineering practice. Ability to include social, cultural, ethical issues with engineering solutions. Ability to consider the impact of engineering solutions on environment and the need for sustainable development. Ability to function effectively on multidisciplinary teams. Ability to communicate effectively. Knowledge and understanding of principles of management and finance in relation to engineering projects. Appreciation of technological change and the need for independent life-long learning.
Programme Specific	The ability to absorb and apply fundamental knowledge of core Electronics and Communication Engineering subjects in the analysis, design, and development of various types of integrated electronic systems as well as to interpret and synthesize the experimental data leading to valid

Outcome	conclusions.	
	Competence in using electronic modern IT tools (both software and hardware) for the design and analysis of complex electronic systems in furtherance to research activities.	
	Excellent adaptability to changing work environment, good interpersonal skills as a leader in a team in appreciation of professional ethics and societal responsibilities	
Course Code	**Course Name**	**Course Outcomes**
EC 201	Electronic Devices and Circuits	Characterize the semiconductor under various given operating condition. Model and analyze the PN junctions. Design and analyze the transistor based circuits.
EC 203	Circuit Analysis and Synthesis	Students will be able to analyze the various electrical and electronic networks using the techniques they learn. Students will be able to construct a circuit to suit the need. Analyze two port networks. Analyze simple DC circuits.
EC 207	Electronic Materials and Processes	The students will be able to define the terms piezo, pyroand ferroand antiferroelectric and explain the interrelationships between the same and will be able to describe the polarisation behavior of a ferroelectric material as a function of temperature and of applied stress. This will include an understanding of the Curie temperature. The students will be able to explain the meaning of physical quantities related to magnetism, magnetic field, magnetic induction, magnetic moment, magnetization, magnetic susceptibility, and discuss their interrelations. The students will be able to explain the origin of bandgaps within the nearly free electron model and illustrate the difference between insulators, semiconductors and metals based on the value of the Fermi energy. The students will be able to describe the characteristics of different classes of superconducting materials, different theories of conductive, superconductivity and their ranges of validity in detail describing the difference between good conductors, perfect conductors and superconductor. An understanding of the structureproperty, relationships in nanomaterials as well as the concepts, not applicable at larger length scales, that need to be taken into consideration for nanoscience and nanotechnology. Introduce the student to synthesis, identification and characterization, properties, functionalization and use of solid materials and nanomaterials such as nanoparticles, carbon nanotubes and nanoporous materials.
EC 202	Analog Electronics	Model analyse and design of feedback amplifier. Analyse and design wave shaping circuit such as amplifier oscillators To classify the amplifier and design of amplifier for various ranges of frequency of operation and operating point (Qpoint).
EC 204	Digital Electronics	Have a thorough understanding of the fundamental concepts and techniques used in digital electronics. To understand and examine the structure of various number systems and its application in digital design. The ability to understand, analyze and design various combinational and sequential circuits. Ability to identify basic requirements for a design application and propose a cost effective solution. The ability to identify and prevent various hazards and timing problems in a

		digital design. To develop skill to build, and troubleshoot digital circuits.
EC 206	Electromagnetic Field Theory	Understand the meaning of divergence and curl; be able to calculate line integrals, surface and volume integrals in all coordinate systems. Understands the Use of Gauss Law, Coulombs law and Poissons's Equation to find fields and potentials for a variety of situations including different charge distributions. Use boundary conditions to find electric field in different mediums Understands the Use of Ampere's Law, to find magnetic fields and magnetic vector potentials for a variety of situations including different current distributions. Use boundary conditions to find magnetic field in different mediums.
EC 205	Electronic Measurement and Instrumentation	Find the type of error in instruments Design the electronics instruments Operate on Oscilloscope Generate different signals and analyse them
EC 245	Dynamic Systems & Optimization	Identify different types of optimization problems Understanding of different optimization technique Ability to solve various multivariable optimization problems Ability to solve optimization using software tools. Identify different types of test of Hypotheses. Ability to solve problems by using least square analysis. Understand Correlation and Regression
EC 234	RF Packaging And Electromagnetic Compatibility	Understand EMC regulatory requirements in North America, European Communi region. Be able to select proper passive components at high frequencies to minimize unwante Be able to apply the correct grounding and shielding methodologies for specific operating frequencies. Be able to apply the correct circuit layout and design techniques to resolve EMI pr crosstalk, radiation and conduction. Be able to avoid non-linear phenomena and (ESD) with good design practices. Understand the basic setup for a product-under-test to meet a specific EMC standard.
EC 235	Fuzzy Control	To expose the students to the concepts of feed forward neural networks. To provide adequate knowledge about feedback neural networks. To teach about the concept of fuzziness involved in various systems. To provide adequate knowledge about fuzzy set theory.. To provide comprehensive knowledge of fuzzy logic control and adaptive fuzzy log fuzzy control using genetic algorithm. To provide adequate knowledge of application of fuzzy logic control to real time systems
EC 307	Analog Communication	Understand the basic concept of information. Understand the performance of different modulation and demodulation techniques with respect to power and bandwidth. Have detailed understanding of amplitude and frequency modulation and demodulation methods including synchronous demodulation, nonlinear demodulation and phase locked. Analyze effect of noise in channel and systems. Have an understanding of design considerations for multiple access/use spectrum and multiplexing.

		Have detailed understanding of Pulse modulation schemes with concept of Multiplexing and Sampling..
EC 309	Microprocessor	Students will become familiar with 8085 microprocessor architecture and programmi Students get to know the interrupt I/O process of microprocessor. Students will be able to do interfacing with peripherals.
EC 305	Linear Integrated Circuits	The students will have a thorough understanding of operational amplifiers. They will have enough knowledge to design circuits using operational ampli applications. It will make them a clear understanding of linear and nonlinear applications of operati Student will be familiarized with application specific ICs such as Voltage regulat timer. They will be able to implement theoretical concepts practically
EC 301	Signals and Systems	Calculate the convolution of two signals or systems. Design a project based on communication. Easily understand the properties of signals. Design a communication system.
EC 303	Microwave Engineering-I	Able to apply electromagnetic theory to calculations regarding waveguides and transm Able to describe, analyze and design simple microwave circuits and devices e g couplers, antennas and amplifiers. Able to describe and coarsely design common systems such as radar and microwave t Able to describe common devices such as microwave vacuum tubes, high-speed tr devices. Able to handle microwave equipment and make measurements.
EC 302	Microwave Engineering-II	Measure the different parameters of different microwave components Analysis the different microwave transmission lines. Design and analysis the different microwave two/ multi port networks Analysis the semiconductor devices of microwave. Fabricate and measure the components using MIC technology.
EC 306	Digital Communication	After completion of this unit Student will able to understand modulation and demodulation systems, differentiate between PCM and DM and toknow their specific usage in specific application. how the data is transferred through different kinds of digital communication system Students will able to understand different type of coding of signals distinguish between source coding and channel coding , how the coding is done. Able To compare and contrast the ASK, BPSK, BFSK, QPSK, MSK digital carrier modulation schemes in terms of occupied bandwidth and complexity. framework for different digital modulation techniques for signal processing Students will be able To apply the basics of Information Theory to calculate channel capacity and other measures. They will be proficient in applying the different coding techniques
EC 308	Control Systems	Design a system which meets required specifications based on basic concept. Analyse errors in the system and have ability to reduce it using different techniques Design a stable system. check the controllability and observability of a system
EC 318	Engineering Nanoelectronics	The students should be able to understand basic and advanced concepts of nanoelectronic devices, sensors and transducers and their applications in nanotechnology.
EC 401	.Antenna and Wave	The students will have a thorough understanding of antennas and their types. They will have enough knowledge to design an antenna system, including the

	Propagation	shape of the antenna, feed property, the requirement on the arrangement of the radiating elements in an array, given the radiation parameters such as radiation pattern, operating frequency, and transmit/receive power. It will make them a clear understanding of the mechanism involved in radio wave propagation. They will be able to implement theoretical concepts practically
EC403	Wireless Communication	To understand the fundamental concept of wireless communication. To know the concepts about propagation phenomena of wireless signals. To understand the design concepts about line of sight Microwave communication. To design and function of cellular wireless networks. Likes – GSM, WLL, Mobile I protocol. Wireless LAN's:Technology, IEEE 802.11 standards and Blue tooth. Br 802.16. To understand and know the working of the concepts of satellite communication.
EC 405	Microcontroller and Embedded Systems	Program, build and test a microcontroller system. Interface a microcontroller system to user controls and other electronic systems. Describe the internal architecture of microcontroller systems, including counters, timers, ports, and memory.
EC 407	VLSI Design	Understand the general introduction to VLSI design and fabrication process of NMOS How the MOSFET works by studying electrical properties of MOS circuits and CMO To understand how to design the different logic gates using CMOS technology and c and Registers. Understanding of the back end tool of VLSI and layout designing
EC 411	IC technology	The students will be familiar with wafer prepration mehods. They can understand the of different processing steps used to improve wafer properties prior to fabrication. They will be able to understand the advantages of depositing oxide layer over the w along with kinetics of oxidation and diffusion. They will be able to understand the process involved in thick and thin films al advantages/disadvantages of these layers. They will understand the steps involved in designing of particular circuit over wafer lithography, masking and etching. They will understand different IC technologies and their comparison. Further, they wi why the CMOS technology is best suited for fabrication
EC 402	Optical Communication	An ability to understand the principle of optical wave propagation, characteristics o optical fibers and its manufacturing techniques with use of different types of materials An ability to know the use of appropriate optical source for particular industria optimum efficiency An ability to understand the different techniques of optical detection and receivers engineering An ability to know the process of optical joints, splicing, connectors, coupling and m the optical link for particular applications. An ability to understand the laboratory and field measurement techniques of differen for link design.

Department: Electronics and Communication Engineering

M.Tech. (DWCE +VLSI)	
Programme Outcome	Ability to apply knowledge of mathematics, science and engineering for the solution of Electronics and Communication Engineering problems.

	Ability to formulate and analyze complex Electronics and Communication engineering problems. Ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, and public health. Ability to design and conduct experiments, and to analyze, interprets data. Ability to use the techniques, skills, and modern engineering tools necessary for Electronics and Communication engineering practice. Ability to include social, cultural, ethical issues with engineering solutions. Ability to consider the impact of engineering solutions on environment and the need for sustainable development. Ability to function effectively on multidisciplinary teams. Ability to communicate effectively. Knowledge and understanding of principles of management and finance in relation to engineering projects. Appreciation of technological change and the need for independent life-long learning.	
Programme Specific Outcome	The ability to absorb and apply fundamental knowledge of core Electronics and Communication Engineering subjects in the analysis, design, and development of various types of integrated electronic systems as well as to interpret and synthesize the experimental data leading to valid conclusions.	
	Competence in using electronic modern IT tools (both software and hardware) for the design and analysis of complex electronic systems in furtherance to research activities.	
	Excellent adaptability to changing work environment, good interpersonal skills as a leader in a team in appreciation of professional ethics and societal responsibilities	
Course Code	**Course Name**	**Course Outcomes**
EC 516	Information Theory, Coding and Communication Theory	The course provides a general introduction to the topic of Information Theory with a focus on the application of Information Theory to communications. Students will be able To apply the basics of Information Theory to calculate channel capacity and other measures. They will be proficient in applying the different coding techniques for error detection and correction.
EC 529	Optimization technique	basic theoretical principles in optimization; formulation of optimization models; solution methods in optimization; methods of sensitivity analysis and post processing of results applications to a wide range of engineering problems
EC 531	Statistical modeling	Presented with data, students will choose the appropriate modeling technique, build validity of the model and revise if necessary, and employ the model for estimation and Students will summarize and present data in meaningful ways, test for relationship hypotheses, and carry out modeling techniques as described above Students will propose and carry out projects, presenting results in written and/or oral fo Given the intent of a study, students will identify data needed, the appropriate inst collect the data, and the means of analysis necessary to carry out the study Students will use the modern statistical computing environments SAS and R to carry data.

EC 617	Research methodology	To define research and describe the research process and research methods To know how to apply the basic aspects of the research process in order to plan and project To effectively use the library and its resources in gathering information related to the project To understand qualitative research and methods used to execute and validate qualitative To be able to present, review and publish scientific articles
EC 619	Estimation Theory	Presented with data, students will choose the appropriate modeling technique, build the model, check validity of the model and revise if necessary, and employ the model for estimation and prediction.
EC 513	Wireless Digital Communication System	Student will be able to understand that which digital modulation tech is best for power, B.W. and bit error rate point of view. How Inter symbol interference can be minimized or removed. Which type of spread spectrum tech is better according to application. Use of CDMA in cellular communication.
EC 515	Mobile and Cellular Communication	Understand the working, construction and type of cellular network. They can understand the concept of frequency reuse and handoff. Able to design cellular network. The student will understand the concept of GSM, CDMA WLL. The student will be able to know the difference between analog and digital cellular system The student will be able to know about fading and interference
EC 514	Antenna Theory and Technique	Understand the working, construction and type of Antenna. They can understand the concept of frequency range and application of antenna. Able to design an antenna. The student will understand the concept of microstrip line and microstrip antenna. The student will be able to know the antenna array. The student will be able to know about antenna applications.
EC 609	Satellite Communication	The student should be good at fundamentals of satellite communications link design and provides an overview of practical considerations. Topics include satellite orbits, link analysis, antenna and payload design, interference and propagation effects, modulation techniques, coding, multiple access, and Earth station design .Existing systems are described and analyzed, including direct broadcast satellites, VSAT links, and Earth-orbiting and deep space spacecraft. Aware from different orbits LEO, MEO, GEO and their advantages.
EC 613	Advanced Optical Communication Systems	To gain the knowledge about the optical fibres used in communication. Ability to design the the optical fibres used according to the application. Students can easily understand the WDM concept in the optical fibres. To gain the knowledge about the optical fibres used in communication. Ability to design the the optical fibres used according to the application.
EC 523	Digital Image Processing	To gain the complete knowledge about the fundamentals of digital image processing. To know the complete knowledge about the how an image produce. To gain the knowledge about the colour image processing
EC 517	Mobile Computing	By the end of the course, the student will be able to analyze and design wireless and mobile cellular systems.

		By the end of the course, the student will have the ability to work in advanced research wireless and mobile cellular programs To gain the knowledge about bluetooth technology which are used in wireless technology. The student an understanding digital cellular systems. By the end of the course, the student will have the ability to know about networking.
EC 525	Advanced Signal Theory	To gain the complete knowledge about the signals representation Complete knowledge about the filtering process. To know how the signals theory are important in the wireless technology The student will understand the concept of matched filter and optimum filter The student will be able to know the process. The student will be able to know about noise.
EC 527	Advanced Microwave Engineering	Able to apply electromagnetic theory to calculations regarding waveguides and transmission lines. Able to describe, analyze and design simple microwave circuits and devices e g matching circuits, couplers, antennas and amplifiers. Able to describe and coarsely design common systems such as radar and microwave transmission links. Able to describe common devices such as microwave vacuum tubes, high-speed transistors and ferrite devices Able to handle microwave equipment and make measurements. The student will be able to design microwave system.
EC 508	**SYNTHESIS OF DIGITAL SYSTEM**	An ability to describe, design, simulate, and synthesize computer hardware using the Verilog hardware description language. An ability to rapidly design combinational and sequential logic that works. An ability to rapidly design complex state machines (present in all practical computers) that work. An ability to synthesize logic and state machines using an Automatic Logic Synthesis program. An ability to implement state machines using Field-Programmable Gate Arrays. An ability to design high-speed computer arithmetic circuits An ability to design a computer so that it can test itself with built-in circuitry.
EC 605	Microelectronics	*Student will be able to design the circuit.* *Student will be able to simulate any of the circuit.* *Student will be able to* built and debug complex combinational and sequential circuits based on an abstract functional specification
EC 603	Reconfigurable Computing	An understanding of basic computer architecture including CISC, RISC and VLIW pro An understanding of pipelining and cache techniques for improving performance. An understanding of other common processing architectures such as SIMD and MIMD. An understanding of computer arithmetic standards, methods and algorithms. An understanding of reconfigurable architectures including CPLD, FPGA and coarse-g and how to programme them using VHDL. An understanding of heterogeneous architectures.

		An overview of custom, ASIC, Platform ASIC and SoC technologies
: EC506	**ADVANCED DIGITAL SIGNAL PROCESSING**	Understand the difference of DTFT and DFT. Concept of linear and circular convolution. They can understand the concept and deign of IIR filters. The student will understand the concept and deign of FIR filters. The student will be able to know the finite word length effects in FIR and IIR digital filters system. The student will be able to know Sampling and multi rate digital signal processing. The student will be able to know design of digital filters
EC 505	**System Level Design and Modeling of Digital System**	Be able to use VLSI design methodologies to understand and design complex digital systems. Be able to create circuits that realize specified digital functions. Be able to identify logic and technology-specific parameters to control the functionality, timing, power, and parasitic effects.Be able to complete a significant VLSI design project having a set of objective criteria & design constraints.
EC 504	**ANALOG ICs**	To analyze quantitatively the behaviour of MOS transistor in various regions of operation Use the time domain and frequency domain concepts in analysing the circuits To design a CMOS based system, component, or process within realistic constraints.

Department: Mechanical Engineering

B. Tech (ME)		
Programme Outcome	B.Tech students develop an attitude that makes them job oriented and our advanced practical labs help students understand the practical applications of the areas of mechanical engineering with the theoretical knowledge as well.	
Programme Specific Outcome	The student understand team work and group dynamism.	
	B.Tech Mechanical Engineering Curricula includes the industry visits,Summerr Training,Seminars Projects to develop the creativity and enhance the developed Attitude towards the industrial sector	
	The department aims to produce high quality engineers in technology with a sound theoretical and practical knowledge who can under take responsibility to contribute effectively in the progress of the country and society.	
	students will develop the capability for relevant research work	
Course Code	**Course Name**	**Course Outcomes**
HS 203	Economics and Social Sciences	Define Economics, Economic problem Economic laws and their nature. Relation between Science, Engineering, Technology and Economics.

		Various concepts of cost - Fixed cost, variable cost Nature and characteristics of Indian economy
EM 201	Employability Skill 2	Student will have a knowledge of team building, winning strategy, industrial mentoring and networking
MA 205	Advance Maths	To know advancement of maths in engineering field Solve Boundary value problems, wave equation in one dimension, Laplace's equation in two dimensions, Diffusion equation in one dimension. Complex variable: Taylor's series, Laurent's series, poles, residues.
ME 201	Mechanics of Solids	To Characterize the different metal properties, Deflection of beam, Bending and torsion equation ,Theories of failures
ME 203	Engineering Thermodynamics	To define the terms temperature, entropy and enthalpy, explain the refrigeration and heat pump cycle, to explain properties of pure substance, to understand working of different-different engines.
ME 251	Mechanics of Solid Lab	To perform various type of strength calculation ,calculation of hardness, calculation of toughness
ME 253	Industry Oriented Thermal Engineering Laboratory	To do comparative study of four stroke diesel and petrol engines, two stroke petrol and diesel engines. To study various types of Boilers.
ME 257	Material Science Lab	To differentiate between various materials .To understands structure of various materials. To Study of Iron-Carbon Equilibrium Diagram.
ME 207	Applied Material Science	Study of Crystal structure, miller indices, lattices, imperfections, elementary treatment of point and line defects and their relation to mechanical properties.
ME 265	Computer Aided Mechanical Engineering Drawing Lab	Compare different types of modeling techniques and explain the central role solid models play in successful completion of CAD/CAM based product development. Describe the concepts of computer aided design systems and the concepts of geometric modeling
ME 211	Manufacturing Technology	Apply the concept of different types of casting, welding, smithy, forging sheet metal work in manufacturing of product.
ME 259	Manufacturing Technology Lab	To provide various angles on single point cutting tool by using grinding machine. Able to perform various operation on different machine. Calculate Speed, Feed and Depth of cut.
ME 213	Manufacturing Machines	To study various types of lathe machines, drilling machines, grinding machines and operations performed on them

ME 261	Machine Practice Lab	Students will have a knowledge of operating various machines like lathe machines, drilling machines, grinding machines
ME 209	OOPS(Object Oriented Programming System)	Describe the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects. Describe the concept of functional overloading, virtual functions, and polmorphism
ME 263	OOPS lab	Develop solutions for a range of problems using objects and classes Programs to demonstrate the implementation of constructors, destructors and operator overloading
EM 202	Employability Skill 3	Student will have knowledge of various topics such as Negotiation & Reasoning Student will have knowledge of various reasoning topics such Number System, Ratio & Proportion, Partnership, Percentage, Profit &Loss Student will able to develop Self Esteem, Preparation of CV, Writing Application, Placement Mantra
MCBH (T)	Basic Hydraulics	Study about the fluid Study about measuring instrument Practical Application of Dimensionless Machine. Study about Boundary Layer
ME 204	Machine Element Design	Understand the types of design. The ability to formulate and solve some of the physical problems of engineering. Understand the stress and strain. Understands the standards of design
ME 210	Internal Combustion Engine	Students will be able to know the basics Air Standard Cycles. Apply the various functions in various problems. Also able to short out these problems. Students will be able to know the ic engine parts. Student will be know the modern developments in IC Engines.
ME 208	Kinematics Of Machines	To understand the degree of freedom To analyze different mechanism of various machines. To understand why the smaller pulley made as input. To analyze gear, how the step by step modification was done in gears and at present how many types of gears are available in the market & Need of gear trains.

ME 252	Basic Hydraulics Lab	Able to understand meta-centric height of a floating body. Able to determine head loss in pipe flow. Able to understand working of pitot tube,Venturi meter ,and nozzle meter.
ME 258	Industry Oriented Internal Combustion Engine Lab	To prepare variable speed performance test of a multi-cylinder/single cylinder petrol engine/diesel engine and Able to understand Working of petrol and diesel engines. To find the indicated horse power (IHP) on multi-cylinder petrol engine/diesel engine by Morse Test.
ME 260	Design/Simulation Lab(Software CREO/SOLIDWORKS based lab)	An ability to identify, formulate, and solve engineering problems An ability to communicate effectively A recognition of the need for an ability to engage in lifelong learning An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
ME 256	Kinematics Of Machines Lab	Able to understand Mechanism of various machine. Able to understand working principle of dynamometers, Brakes and Clutches. Able to analyze velocity and acceleration diagram of various mechanism.
ME 212	Instrumentation & Control	To Identify open and closed loop control system To Formulate mathematical model for physical systems. To Simplify representation of complex systems using reduction techniques. To Use standard test signals to identify performance characteristics of first and second-order systems.
ME 250	Instrumentation & Control Lab	Simplify representation of complex systems using reduction techniques. Use standard test signals to identify performance characteristics of first and second-order systems Apply root locus technique for stability analysis. Analyze performance characteristics of system using Frequency response methods
ME 216	Industrial Engineering	Understand human factor in the application of work study to draw the operation chart; flow process chart; flow diagrams; string diagram; man machine chart; two

		hand chart; Simon chart. Integrated system of people, materials, information, equipment, and energy to meet desired needs within realistic constraints (such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability). Understand the impact of engineering solutions in a global, economic, environmental, and societal context.
ME 262	Industrial Engineering Lab	Determination of time standard for a given job using stopwatch time- study. Preparation of flow process chart, operation process chart and man-machine charts for an existing setup and development of an improved process. To carry out a work sampling study. To conduct process capability study for a machine in the workshop. To design a sampling scheme based on OC curve.
EE 214	Electrical Machines	Explain principles of electromechanical energy conversion Armature reaction, commutation parallel operation of generators Speed Control of DC Motor: Armature voltage and field current control methods
EE 264	Electrical Machines Lab	Student will be able to measure the AC and DC electrical quantities(voltage, current and energy) Measurement of power loss in motors and find efficiency Determine the parameters of its equivalent circuit its voltage regulation and efficiency of machines Determine the load, speed and current characteristics
MCEH (T)	Electro Hydraulics	Understand hazards of hydraulic and pneumatic circuits and be able to work safely. Understand the concepts of fluid statics and dynamics as applied to commercial and industrial control. Recognize standard schematic symbols for common fluid power components. Understand and troubleshoot basic fluid power, electro-hydraulic, and electro-pneumatic circuits using schematic diagrams.
MCEH (L)	Electro Hydraulics	Understand the operation, application, and maintenance of common fluid power components such as pumps, compressors, valves, cylinders, motors, rotary actuators, accumulators, pipe, hose, and fittings. Be able to find component application data online. Be able to select components from manufacturer's

		catalogs.
ME 317	Fluid Mechanics & Hydraulic Machinery	The objective of this *course* is to enable the student to understand laws of *fluid mechanics* and evaluate pressure, velocity and acceleration fields for various *fluid* flows and performance parameters for *hydraulic machinery*. Identify importance of various *fluid* properties at rest and in transit.
ME 315	Machining Science and Machine Tools	To develop the machinery product by various machine operations and its calculation. Also gain the knowledge to develop the design, implement and refinement of products, services, processes.
ME 303	Machine Design	To gain the knowledge of variety of *mechanical* components available and emphasize the need to continue *learning*. To understand students how to apply *mechanical* engineering *design* theory to identify and quantify *machine* elements in the *design* of commonly used *mechanical* systems.
MCPH (T)	Proportional Hydraulics	This course is designed to develop understanding of hydraulic systems which are widely used for operation and controls in machine tools, material handling, automobile, marine, mining, metal processing, equipment and other fields. T
ME 307	Dynamics of Machines	At the end of this course, the student will understand concept of governors, gears, gears trains, gyroscopes and their applications to solve the problem in engineering field
ME 311	Mechanical Vibration & Noise Engineering	At the end of this course, the student will fully understand and appreciate the importance of ***vibrations*** in mechanical design of machine parts. Also students will get to know about balancing in machines.
EM-301	Employability Skill 4	At the end of this course, the student will come to know the leadership skills and group discussions and quantitative and reasoning and presentation skills.
ME 351	Dynamics of Machine Lab	At the end of this course, students will able to design linkage, cam and gear mechanisms for a given motion or a given input/output motion or force relationship use of mathematical methods to analyze the forces and motion of complex systems of linkages, gears and cams.
ME 363	Fluid Mechanics & Hydraulic Machinery Lab	To impart practical exposure on the performance evaluation methods of various flow measuring equipment and hydraulic turbines and pumps.
ME 355	Industry Oriented Production Process Lab	At the end of this course, students will able to differentiate various metal forming processes such as Hot and Cold Working, Rolling, Forging, Extrusion and

		Drawing Processes and also demonstrate operation such as Turning, Facing, Threading, Knurling and Grooving on Centre Lathe.
ME 357	Mechanical Vibration Lab	At the end of this course, students will able to learn how to treat the vibration phenomena by transforming the physical model into a mathematical model and solve it by using the appropriate mathematical operations to find the response and analyze this response and bring it back to its physical concept.
MCPH (L)	Proportional Hydraulics Lab	The lab elaborates principles of hydraulic and pneumatic devices, electro pneumatic components. It gives an overview of control systems associated with hydraulic applications.
ME 361	Practical Training Seminar I	In this session student will present the presentation of their training of 20 to 30 days.
ME365	Statistics for Decision Making	At the end of this course the students will able to deal with numerical and quantitative issues in business also will apply statistical, graphical and algebraic techniques wherever relevant. They will have a proper understanding of Statistical applications in Economics and Management.
ME 309	Fundamental of Aerodynamics	1.Study of Aerodynamic forces and moments over the body surface, concept of lift and drag, dimensionless force and moment coefficient, centre of pressure of an airfoil 2.Student will be able to understand blade theory and isentropic flow concepts 3.Measurement and analysis of shock wave relation. 4. Fanno line tables; entropy change; choking due to friction; flow through long ducts; Diabatic flow . 5.Student will be able to understand the different propulsion systems.
EM 302	Employability Skills 5	Student will have knowledge of group discussion, person interviews, current affairs, work culture, presentation skills.
ME 358	Project Stage-I(Minor Project)	1. Students will have an idea about their project and its fabrication. 2. Students will also have a layout of their project. 3. The estimated cost will also be available with the student.
ME 302	Heat & Mass Transfer	Students will acquire knowledge of various types of heat transfer, there ways and how it take. Students will be able

		to understand what happens to the heat transfer by conduction and convection once it reaches in the system and reason what changes to a form that can be eliminated from the system and the factors which can be controlled to avoid maximum heat transfer in the system.
ME 306	Automobile Engineering	1. Selection of power plant for automotive vehicle, requirements of vehicle. Characteristics of various power plants 2. Transmission requirements, general arrangement of clutch, gear box and rear axle transmission 3. Understanding Principle of friction clutch, single and multiplate clutches, centrifugal clutch. Friction materials 4. Study of various types of Wheels, Tyres and Brakes
ME 316	Finite Element Analysis	1. Upon completion of this course, the students can able to understand different mathematicalTechniques used in FEM analysis and use of them in Structural and thermal problem
ME 352	Project Oriented Heat & Mass Transfer Lab	1. Understand the basic concept of laws of heat transfer 2. Analyze the laws of heat transfer in different heat exchangers of different shapes. 3. Have detailed understanding of natural and forced convection. 4. Have an understanding of thermal radiation. 5. Understand basic principles of mass transfer.
ME 354	Automobile lab	Disassembly and Assembly of various automobile parts, Study of various automobile mechanisms
ME 362	Software Lab (Solidwork/ANSYS)	1. You will be know how to simulate and validate the performance of products of all manufacturing sectors including automotive, power electronic products, electronic equipment, electromechanical devices, and electrical systems. 2. You will know how to simulate every structural aspect, including linear static analysis, of a single part of a complex assembly with hundreds of components interacting through contacts or relative motions. 3. You will know how to perform fluid flow analysis to know the impact of fluid flows on your product while manufacturing and when used by customers in real world applications.

		4. With your mastery in simulation, you will contribute not only to success of products but also cost management, product integrity, designing smart products, and reduced time-to-market.
ME 308	Gas Dynamics &Propusion	1. Student will have a knowledge of Aerodynamic forces and moments over the body surface, concept of lift and drag, dimensionless force and moment coefficient, centre of pressure of an airfoil 2.Student will be able to understand blade theory and isentropic flow concepts 3.Measurement and analysis of shock wave relation. 4. Fanno line tables; entropy change; choking due to friction; flow through long ducts; Diabaticflow . 5.Student will be able to understand the different propulsion systems.
ME 304	Mechatronics	1. Student will have a knowledge of Mechatronics, scope of Mechatronics, application, process control automation and N/c Machines. 2. Student will be able to know the concept of Hydraulic And Pneumatic Actuation Systems 3. Student will be able to understand Sensors and transducers and application . 4. Design of Mechatronic systems
ME 318	Product Design & Development	1. Understanding the integration of customer requirements in product design 2. Application of structural approach to concept generation, selection and testing 3. Understanding of various aspects of design such as industrial design, design for manufacture , economic analysis and product architecture 4. Understanding of identification of risk areas, project execution and evaluation of product
ME 320	Engg. Metrology and Measurement	1. Student will be familiar with the different instruments that is available for linear, angular, roundness and roughness measurements. 2. Student will be able to select and use the appropriate measuring instrument according to a specific requirement (in terms of accuracy, etc.) 3. Student willdetermine straightness error of straight edge with the help of spirit level and auto collimator 4. Understanding of different types of irregularities, standard measures for assessment and

		measurement of surface finish.
ME 364	Metrology Lab	1. Understanding and recognize the concepts of metrology and measuring instruments. 2. Understanding and Measure the linear measuring instruments 3. Understanding, analyze and interpret the use of slip gauge to build required dimension 4. Measuring the angle by sine bar and universal bevel protractor and use of combination set
ME 310	Numerical Analysis & Programming	(1) Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems. (2) Apply numerical methods to obtain approximate solutions to mathematical problems. (3) Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations. (4) Analyze and evaluate the accuracy of common numerical methods. (5) Implement numerical methods in Mat lab. (6) Write efficient, well-documented Mat lab code and present numerical results in an informative way.
ME 356	Programming Lab-NMAS	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
MAS (T)	Sensoric	Knowledge of fundamentals of signal conditioning. In-depth study of sensors and it's circuit diagram.
MAS (L)	Sensoric Lab	1. Knowledge of various Sensors for Light Intensity like PhotoDiode, Photo Transistor, Photo Voltaic Cell and LDR. 2. Implementation of automation using sensors and actuators.
EM 401	Employability Skills 6	Student will have knowledge of group discussion, person interviews, current affairs, work culture, presentation skills.
ME 457	Practical Training Seminar II	Students will developed presentation preparation and delivery skills based on their industrial training.
ME 455	Project Stage-II	Student will learn out to fabricate their project and will be able to bring synopsis and their ideas into real practical

		work.
ME 401	Refrigeration & Air-conditioning	1. Student will be able to distinguish the properties and parameters Simple Vapour absorption system, Electrolux Refrigerator, Analysis of Ammonia absorption refrigeration system, Lithium Bromide Absorption Refrigeration System 2. Psychometric properties, psychometric relations, psychometric charts, psychometric processes, cooling coils, By-pass factor and air washer. 3. Internal heat gain, system heat gain, RSHF, ERSHF, GSHF, cooling load estimation, heating load estimation, psychometric calculation for cooling, selection of air conditioning, apparatus for cooling and dehumidification, Air conditioning system.
ME 409	Renewable Energy Technology	1. Students will have a good understanding of renewable energy systems, its components and interactions between the components. This includes all renewable energy technologies, different storage technologies, distribution grid, smart grid including sensors. Regulation and control, and both “stand alone” systems and large integrated distribution systems. 2. Student will have profound knowledge in a special field such as solar energy, storage, smart grid.
ME 405	Operation Research	1. Be able to understand the characteristics of different types of decision-making environments and the appropriate decision making approaches and tools to be used in each type. 2. Be able to build and solve Transportation Models and Assignment Models. 3. Be able to design new simple models, like: CPM, PERT to improve decision –making and develop critical thinking and objective analysis of decision problems. 4. Be able to build and solve Queuing Models and simulation.
ME 451	R.A.C Lab	1. The students will have a thorough understanding Refrigeration and second law of Thermodynamics, Refrigeration effect and unit of Refrigeration, Heat pump, reversed Carnot cycle. 2. Student will be able to distinguish the properties and parameters Simple Vapour absorption system, Electrolux Refrigerator, Analysis of Ammonia absorption refrigeration system, Lithium Bromide

		Absorption Refrigeration System 3. Psychometric properties, psychometric relations, psychometric charts, psychometric processes, cooling coils, By-pass factor and air washer. 4. Internal heat gain, system heat gain, RSHF, ERSHF, GSHF, cooling load estimation, heating load estimation, psychometric calculation for cooling, selection of air conditioning, apparatus for cooling and dehumidification, Air conditioning system.
ME 459	Programing Software Lab(MATLAB)	1. Student will able to programming operations to calculate solutions ***2.*** Determine better and more accurate solutions Perform and evaluate algebraic and trigonometric operations using built-in functions Assign and manage variables Manipulate vectors and matrices, use matrix indexing,
ME 403	Power Plant Technologies	1. To study about generation of electrical power 2. To study various types of power plant 3. Understand to calculate the power consumption 4. Study various parts of plant
ME 413	Computational Fluid Dynamics (use ANSYS CFX/ FLUENT software for tutorials)	1. To solve partial differential equations. 2. To converting derivatives to discrete algebraic expressions, spatial derivatives & time derivatives 3. To analyze stability of FD equation. 4. Implementation of FEM to various realistic problems.
ME 417	Nano Technology	1. Students will learn about the background on Nanoscience 2. Understanding the synthesis of nanomaterials and their application and the impact of nanomaterials on environment 3. Students will learn knowledge to develop Nanomaterial's.
ME 419	Non Destructive Evaluation & Testing	1. Understanding the basic principles of various NDT methods, fundamentals, importance of NDT, applications, limitations of NDT methods and techniques and codes, standards and specifications related to non-destructive testing technology.
MAP (T)	Basic Programmable Logic Controller	1. Examine the typical PLC hardware structure 2. Examine the typical I/O modules and their

		applications 3. Develop a simple PLC program in one or more of the following programming languages: (a) Structured text (b) Function block diagram (c) Instruction list (d) Sequential function chart
MAP (L)	Programmable Logic Controller Lab	1-Demonstrate knowledge of the basics of programmable logic controllers 2-Write PLC programs for the Allen Bradley ControlLogix 3-Gain experience implementing industrial controls
ME 421	Professional Ethics &Disaster Management	1. Understanding Disasters and Hazards and related issues social and environmental. Risk and Vulnerability. Types of Disasters, their occurrence/ causes, impact and preventive measures: 2. Understanding the co-existence with nature and to be aware of potential natural and manmade disasters.
ME 423	Principles & Practices of Management	1. Understanding the concepts related to Business. 2. Demonstrate the roles, skills and functions of management. 3. Analyze effective application of PPM knowledge to diagnose and solve organizational problems and develop optimal managerial decisions. 4. Understanding the complexities associated with management of human resources in the organizations and integrate the learning in handling these complexities.
HS 402	Intellectual Property Right	1. Skill to understand the concept of intellectual property rights. 2. Develops procedural knowledge to Legal System and solving the problem relating to intellectual property rights. 3. Skill to pursue the professional programs in Company Secretary ship, Law, Business(MBA), International Affairs, Public Administration and Other fields. 4. Employability as the Compliance Officer, Public Relation Officer and Liaison Officer. 5. Establishment of Legal Consultancy and service provide
ME 466	B-Tech Seminar	1. To study research papers for understanding of a new field, in the absence of a textbook , to summaries and review them. 2. To identify promising new directions of various cutting edge technologies. 3. To effectively communicate by making an oral

		presentation before an evaluation committee. 4. Augment effective oral skills that enable them to speak interpersonally.
ME 406	Computer Aided Mechanical Design	1. Apply/develop solutions or to do research in the areas of Design and simulation in Mechanical Engineering. 2. Have abilities and capabilities in developing and applying computer software and hardware to mechanical design and manufacturing fields. 3. Review and document the knowledge developed by scholarly predecessors and critically assess the relevant technological issues. Formulate relevant research problems; conduct experimental and/or analytical study and analyzing results with modern mathematical / scientific methods and use of software tools.
ME 404	CNC Machines & Programming	1. Explain applications and advantages of CNC machines and technology 2. Understand and explain difference between conventional & non-conventional machine tool 3. Prepare and understand line program for various profiles 4. Identify and set parameters for various simulators 5. Prepare and simulate various operation cycles for lathe and milling
ME 414	Non-Conventional Machining Methods	1. Understand the need of Non Traditional Machining Processes and able to Classify various processes 2. Recognize the role of mechanical energy in non-traditional machining processes. 3. Apply the knowledge on machining electrically conductive material through electrical energy in non-traditional machining processes.
ME 418	Operation Management	1. Identify the elements of operations management and various transformation processes to enhance productivity and competitiveness. 2. Analyze and evaluate various facility alternatives and their capacity decisions, develop a balanced line of production & scheduling and sequencing techniques in operation environment. 3. Develop aggregate capacity plans and MPS in operation environments. 4. Plan and implement suitable materials handling principles and practices in the operations.
ME 462	CAD/CAM lab (Based	1. Execute steps required for modeling 3D objects by

	on NX CAM software)	using protrusion, cut, sweep, extrude commands 2. Convert 3D solid models into 2D drawing-different views, sections Use isometric views and dimensioning of part models 3. Machine simple components on CNC machines
ME 460	Product Design & Development Lab	1. Describe an engineering design and development process 2. Create 3D solid models of mechanical components using CAD software 3. Demonstrate individual skill using selected manufacturing techniques, including drilling, pressing, tapping, and rapid prototyping 4. Employ engineering, scientific, and mathematical principles to execute a design from concept to finished product 5. Fabricate an electromechanical assembly from engineering drawings
ME 402	Robotics Engineering	1. Students will demonstrate knowledge of the relationship between mechanical structures of industrial robots and their operational workspace characteristics. 2. Students will demonstrate an ability to apply spatial transformation to obtain forward kinematics equation of robot manipulators. 3. Students will demonstrate an ability to generate joint trajectory for motion planning. 4. Students will demonstrate knowledge of robot controllers.
ME 420	Steam Engineering	1. Describe and analyze different types of sources and mathematical expressions related to thermodynamics and various terms and factors involved with power plant operation. 2. Analyze the working and layout of steam power plants and the different systems comprising the plant and discuss about its economic and safety impacts 3. Combine concepts of previously learnt courses to define the working principle of diesel power plant, its layout, safety principles and compare it with plants of other types.
ME 412	Reliability & Maintenance Engg	1. Understand the different statistical methods available for analysis of different processes. 2. Understand the various methodologies used in industry to estimate the level of reliability and

		remaining life of a critical component at a certain point in time, using statistical and mathematical techniques where appropriate. 3. Be able to conduct a reliability study and to make recommendations with respect to the maintenance plan and ongoing reliability program.
ME 422	Design & Manufacturing of Plastic Products	1. Understanding product and its design 2. Selection criteria for Moulds and Dies on the base on the product quality, quantity, geometry and accuracy 3. Understand the other processing techniques for designing and fabricating the moulds and dies 4. Understanding & preparation of layout of Mould drawings.
ME 424	Total Quality Management	1. Evaluate the principles of quality management and to explain how these principles can be applied within quality management systems. 2. Identify the key aspects of the quality improvement cycle and to select and use appropriate tools and techniques for controlling, improving and measuring quality. 3. Critically appraise the organisational, communication and teamwork requirements for effective quality management.
ME 426	Human Resource Management	1. Contribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes. 2. Administer and contribute to the design and evaluation of the performance **management** program. 3. Develop, implement, and evaluate employee orientation, **training**, and development programs.
ME 428	Self Employment& Entrepreneurship Development	1. Identify entrepreneurial quality. 2. Develop the ability to select potential areas for self-employment. 3. Select appropriate agency / ies for technical and financial support. Prepare project setup planning and project report. 4. Explain SWOT analysis and strategies to achieve goals.

Department: Civil Engineering

B.Tech Civil Engineering		
Programme Outcome	The ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. The ability to communicate effectively with a range of audiences.	
Programme Specific Outcome	On successful completion of the Programme, the students will have ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	
	Students will get the ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
	To develop expertise in large scale civil projects on national as well as international level	
	To create innovative ability for solving challenging problems.	
Course Code	**Course Name**	**Course Outcomes**
CE 201	Strength of Material-I	Utilize appropriate materials in design considering engineering properties, sustainability, cost and weight. Perform engineering work in accordance with ethical and economic constraints related to the design of structures and machine parts.
CE 203	Fluid Mechanics	Compute the total hydro static pressure &center of pressure. Describe the principle of pressure measuring devices. Identify the concept of fluid flow. Compute the loss of water flowing through pipes.

		Design most economical channel section Describe working of the velocity measuring devices
CE 205	Environmental studies	Brief knowledge about waste water. About different types of supply of water. Different types of collection of waste water. About different types of treatment process for waste water.
CE 207	Surveying-I	Brief knowledge about surveying About different types of instruments used in surveying. Use of chain, tape, compass, cross staff, theodolite, About different types of method by using compass, thedolite, plane table etc.
CE 209	Solar Architecture	
CE 211	Modern concrete technology	Brief knowledge about materials used in construction, About different types of materials used in building, Different types of door and windows. About different types of method for masonry.
CE213	Design of Pre-stressed Concrete Structures	Determine the properties of concrete ingredients i.e. cement. sand. coarse aggregate by conducting different tests. Use different types of cement as per their properties for different fields applications. Design economic mix proportion for different exposure conditions and intended purposes. Use different types of admixtures to improve the properties of concrete for different field applications.
CE 202	Strength of Material-II	Brief knowledge about structure. About different types of arches. Know how to find BMD & SFD. Well known how to compute SFD & BMD..
CE 204	Hydrology & Hydraulics	The student will be able to measure pressure and pressure head from different monometers. The student will be able to verify Bernoulli's equation with experiments. The student will be able to determine minor and major looses from pipes. The student will be able to know different hydraulic

		machine with their working process.
CE 206	Engineering Geology	It also also introduces students to the main tools and methods of Engineering Geology and the problems (directly and indirectly) that can create the geological conditions in the construction of civil works. Identify the main and most common igneous, sedimentary and metamorphic rocks encountered by foundations and construction.
CE 208	Surveying-II	Usage of survey instruments like the theodolite and plane table. Record the data in field book and plot the collected data. Find out horizontal and vertical distances with a tachometer Set out simple curve using Theodolite. Use of Modern Survey equipments - Micro Optic Theodolite and EDM. Apply principles of surveying and levelling for Civil Engineering works.
CE 212	Construction Equipment & Management	Associate the knowledge of construction of substructures and superstructures. Analyse the techniques of Erection of Construction units. Demonstrate basic knowledge about Construction equipment and machinery
CE 214	Green Building Technology	Brief knowledge of green building material and rating system, LEED, Usage of green material, environmental significant.
CE 216	Solid Waste Management	Brief knowledge about waste water. About different types of supply of water. Different types of collection of waste water. About different types of treatment process for waste water
CE 301	Theory of Structures – I	Brief knowledge about structure. About different types of arches. Know how to find BMD & SFD. Well known how to compute SFD & BMD..

CE 303	Concrete Structures-I	Student will be able to find different properties of cement by test. Student will be able to know different properties of aggregates by test.How to prepare concrete. What to do for mix design. Find out workability of coarse aggregate and fine aggregate.
CE 305	Steel Structures-I	Brief knowledge about properties of steel. Reaction of steel in civil structure.. Designing of bridges and Griders
CE 307	Building information Modeling(BIM)	Basic knowledge of civil engineering drawing, About different type of plan of any building. Know how to draw a plan for different portion of the building.
CE 309	Quantity Surveying & Valuation	Brief knowledge about tendering. Make and check any contract. Complete valuation of any section from respective methods. Make a estimate for any construction work.
CE 311	Repair And Rehabilitation of Structures	Student will be able to find different properties of cement by test. Student will be able to know different properties of aggregates by test.How to prepare concrete. What to do for mix design. Find out workability of coarse aggregate and fine aggregate.
CE 313	Remote Sensing and GIS	Analyse the principles and components of photogrammetry and remote sensing. : the process of data acquisition of satellite images and their characteristics Compute an image visually and digitally with digital image processing techniques.
CE 315	Theory of Pre-stressed	Brief knowledge about pre and post tensioning. About different types of slabs and beams. Different types of retaining wall. Brief knowledge of pre-stressed concrete.

CE 302	Theory of Structures – II	Student will be able know different properties of structure after test results. Learn different test over structure. And their application over different T & C.
CE 304	Concrete Structures-II	Brief knowledge about R.C.C. About different types of slabs and beams. Different types of retaining wall. Brief knowledge of pre-stressed concrete.
CE 306	Steel Structures-II	Brief knowledge about properties of steel. Reaction of steel in civil structure.. Designing of bridges and Griders
CE 308	Environmental Engineering– I	Student will be able to evaluate percentage available chlorine in bleaching powder. Student will be able to evaluate total and calcium hardness in water samples.
CE 310	Transportation Engineering-I	Brief knowledge about transportation engineering , About different types of design used in transportation , Different types of highway materials and their construction. About different points related to railway engineering
CE 312	Modern concrete technology and practice	Brief knowledge about materials used in construction, About different types of materials used in building, Different types of door and windows. About different types of method for masonry.
CE 314	Construction E	Brief knowledge about equipments . Able to know how to schedule any projects. Able to material management on construction sight. About tender, contract, and disputes. .
CE 316	Solid Waste Management	evaluate the subject from the technical, legal and economical points by learning of design principles related to general solid waste management. examine the technical points that are required to set up a solid waste management system. apply the legal legislation related to solid waste management design. make an economical analysis of the solid waste management system

CE 401	Geotechnical Engineering – I	To provide a coherent development to the students for the courses in sector of Geotechnical Engineering & Soil Improvement Techniques etc. To present the foundations of many basic Engineering tools and concepts related Geotechnical Engineering.
CE 403	Water Resources Engineering–I	Brief knowledge about irrigation engineering, About different properties of hydrology. Brief knowledge of canal.Brief knowledge cross drainage work..
CE 405	Environmental Engineering– II	Student will be able to evaluate percentage available chlorine in bleaching powder. Student will be able to evaluate total and calcium hardness in water samples.
CE 407	Building Design	Need to accelerate industry transformation• Need to redefine the project delivery process• Need to redefine the role and value of AEC contributions (particularly in delivery of outcome-based performance)• Need to engage owners to adopt new methods for capturing a property's value
CE 409	Transportation Engineering – II	Brief knowledge about tendering. Make and check any contract. Complete valuation of any section from respective methods. Make a estimate for any construction work.
CE 411	Earthquake Resistant building Design	To understand the behavior of building during earthquakes depends critically on its overall shape, size and geometry. To understand movement of the floors during ground shaking To understand the damaging effects during earthquake
CE 413	Ground Improvement Techniques	Will gain competence in properly devising alternative solutions to difficult and earth construction problems and in evaluating their effectiveness before, during and after construction. A study of the many different approaches to the ground modification broadens the mind of any engineer and inspires creativity and innovation in Geotechnical construction and related fields..
CE 415	Smart cities and Automation	Ability to understand the development of cities Ability to make a mapping system To understand the various projects for development of

		smart cities
CE 402	Geotechnical Engineering–II	Ability to understand the terminology and basic equations of subject. Ability to perform different tests on soil to determine the properties of soil Understand the different methods to determine Stress in soil Ability to Solve of Shear Strength problems. Understand the different methods to determine earth pressure on retaining structure. Understand the causes of Slope Failure and preventive measures.
CE 404	Water Resources Engineering-II	Brief knowledge about irrigation engineering, About different properties of hydrology., Brief knowledge of canal. Brief knowledge cross drainage work..
CE 406	Project Planning & Construction Management	Brief knowledge about project planning. Able to know how to schedule any projects. Able to material management on construction sight. About tender, contract, and disputes.
CE 408	Bridge Engineering	Understand Town planning and bridges designs Understand Planning, Design and Safety of Buildings Understand Architectural Drawing and building byelaws Understand various Building Services Understand Planning of Arches
CE 410	Advance Foundation Engineering	Ability to understand the methods of soil exploration To analyze the settlement of the footing To understand the bearing capacity of footing by different methods Ability to calculate the load bearing capacity of different piles To understand the techniques in design of foundation in BC soil To know concepts of soil reinforcement and geosynthetics material in soil structure
CE 412	Advanced Transportation Engg.	Student will be able to find the toughness of aggregates. Student will be able to determine specific gravity & water absorption of aggregates. Able to know different properties of material & perform also in lab.

Department: FIRST YEAR ENGINEERING DEPARTMENT

Department: FIRST YEAR ENGINEERING DEPARTMENT

B. Tech (1st Yr.)	
Programme Outcome	To develop the professionalism in the budding engineers by providing quality technical education and train the young minds to be technically competent, morally upright, creative and oriented technocrats. The programme aims of developing a keen insight of advanced concepts of engineering and technology in the budding

	engineering graduates thereby transforming them into future ready technocrats. Also, an initiative of overall personality development along with building a high moral character is aimed.	
Programme Specific Outcome	On successful completion of the Programme, the students will have distinct knowledge of various theoretical and experimental concepts.	
	They get well skilled and motivated towards the cutting edge technological aspects.	
	It focuses on multidisciplinary theoretical and experimental studies where engineering graduates look beyond the engineering domain into other disciplines.	
FIRST SEMESTER		
Course Code	**Course Name**	**Course Outcomes**
MA 101	Engineering Mathematics	To provide a keen insight of various computational techniques and applications of mathematical concepts.
CY 101	Engineering Chemistry	To impart a better understanding of various concepts of engineering of chemicals and materials.
ES 101	Environmental Studies	To create an understanding regarding the basics of environment, its type, problems arising due to pollution, development of method to reduce the pollution, natural disaster and their management.
HS 101	Human Ethics and Values	To provide a basic knowledge of human rights, duties for the society, basics of Indian ethics and professional ethics.
CP 103	Fundamental of Computers and IT	To develop an understanding of operation of computer, various operating systems, computer languages, internet, etc.
EN 105	Professional Communication- I	To improve the communication skills, interpersonal communication, listening abilities and efficient interactions among the students.
SECOND SEMESTER		
Course Code	**Course Name**	**Course Outcomes**
MA 102	Mathematics – II	Imparts knowledge of basics of Mathematics which includes Algebra, Geometry, Trigonometry, Differential and Integral Calculus.
EN 106	Professional Communication-II	To improve the communication skills, interpersonal communication, listening abilities and efficient interactions among the students.
CP 104	Computer Programming	1. Give a general knowledge about C languages. 2. Aware about programming languages. 3. To master basic procedural programming constructs for decision and iteration, to write and debug small programs. 4. To implement design principles like information

		hiding, use of parameters and return values to create flexible components.
PY 102	Engineering Physics	Engineering Physics provides valuable resources for industry and society through excellence in technical education and research. The objective of this course is to update student's knowledge about recent innovations and developments in Physics.
ME 154	Workshop Practice	Students will get a keen insight of analysis of material on the basis of their properties and thus assigning different weight age to their use for technical and research purposes.

Department: Computer Engineering & Information Technology

Bachelor of Technology(CSE)		
Programme Outcome	PO-1: Strong foundation in core Computer Science and Engineering, both theoretical and applied concepts. PO-2: Ability to apply knowledge of mathematics, science, and engineering to real-life problem solving. PO-3: Ability to analyses, design, model, and develop complex software and information management systems. PO-4: Ability to function effectively within teams. PO-5: Understanding of professional ethical responsibility. PO-6: Ability to communicate effectively, both in writing and oral. PO-7: Understanding the impact of Computer Science and Engineering solutions in the societal and human context. PO-8: Ability to engage in life-long learning. PO-9: Knowledge of contemporary issues. PO-10: The graduate will be able to use modern tools, software, equipments etc. to analyze and obtain solution to the problems. PO-11: The graduates will be able to participate in competitive examinations for success.	
Programme Specific Outcome	Able to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all Computer courses in particular to identify, formulate and solve real life problems faced in industries and/or during research work.	
	Able to provide socially acceptable technical solutions to complex Computer engineering problems with the application of modern and appropriate techniques for sustainable development.	
	Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.	
Course Code	**Course Name**	**Course Outcomes**
HS201	Economics and Social Sciences	At the end of this course student can understand Behavioral and managerial theories of the firm, growth of the firm.

		The students will be able to correlate industry with our economy, relation of technical knowledge with history and political science that how things are internally and externally correlated.
ES201	Employability Skill-II	Communicate effectively. Make effective presentations. Critically think on a particular problem. Solve problems. Can prepare CV. Work in Group & Teams. Become an effective leader.
CP201	Data Structures and Algorithms	Present arguments for the correctness or incorrectness of a given algorithm. Reason about and evaluate the efficiency behaviour of a given algorithm. Choose appropriate data structures and algorithms for a given problem. Implement the chosen data structures and algorithms. Recognize and analyze critical computational problems, generate alternative solutions to problems, and assess their relative merits. Understand, analyze, and characterize those factors that influence algorithmic computational performance and memory consumption. Design, implement, and document appropriate, effective, and efficient data structures & algorithms for a variety of real-world problems. Understand detailed algorithm structures and their underlying strengths and weaknesses. Perform detailed, code-level design and document the design in an understandable way.
CP203	Principles of Programming Languages	Ability to analyze the semantic differences of variables, data types, expressions, assignment statements, control structures, subprograms, data abstraction, concurrency, and exception handling in diverse programming language paradigms Ability to identify and use methods for describing the syntax and semantics of a programming language. Ability to understand the working of Compiler and Interpreter. Ability to understand the working of linker and loader. Ability to better understand Theoretical Computing.

EC223	Digital Logic Design	Apply knowledge of number systems, codes and Boolean algebra to the analysis and design of digital logic circuits. Identify and formulate arithmetic circuits to design digital logic to automate the computations required for implementing complex systems. Use the sequential circuits such as flip flops, counters, registers etc., to design practical projects, necessary for engineering practice. To design a practical digital system with the help of components such as RAM, ROM, PLA, PAL etc., to meet desired needs in realistic constraints. To function on multi-disciplinary teams through digital circuit experiments and projects. Design and analyse small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits. Design and analyse small sequential circuits and devices and to use standard sequential functions/building blocks to build larger more complex circuits.
CP202	Software Engineering	An understanding of professional and ethical responsibility. An ability to communicate effectively. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. The ability to analyze, design, verify, validate, implement, apply, and maintain software systems. The ability to appropriately apply discrete mathematics, probability and statistics, and relevant topics in computer science and supporting disciplines to complex software systems. Design applicable solutions in one or more application domains using software engineering approaches that integrate ethical, social, legal and economic concerns. Deliver quality software products by possessing the leadership skills as an individual or contributing to the team development and demonstrating effective and modern working strategies by applying both communication and negotiation management skill. Apply new software models, techniques and technologies to bring out innovative and novelistic solutions for the growth of the society in all aspects and evolving into their continuous professional development.
CP204	Discrete Mathematics and Graph Theory	Understand the structure and types of proofs in mathematics. Define and relate basic notions in graph theory. Apply algorithms and theorems from graph theory on solving

		problems. Use mathematics literature from variety of sources and at least one text processor and LMS suitable for mathematics. Structure and solve real work problems by tools from discrete mathematics and graph theory working in teams. Understand proofs by induction thoroughly and be fluent in their construction; Read and understand written descriptions of algorithms; Develop and apply simple algorithms to solve problems or prove theorems; Give the basic definitions of graph theory and a range of standard examples including, for example, complete graphs and bipartite graphs; Characterise planar graphs and prove the five-colour theorem. Apply the knowledge and skills obtained to investigate and solve a variety of discrete mathematical problems Communicate both technical and non-technical information in a range of forms (written, oral, electronic, graphic,) and work as an effective team member. Ability to learn theoretical computing.
CP206	Core Java	Ability to use the Java SDK environment to create, debug and run Java standalone and applet programs. Ability to design and build robust and maintainable web applications by creating dynamic HTML. Students will demonstrate their ability to work on larger, more complex projects by collaboratively designing and then individually implementing applications. Ability to learn advance java programming. Read and understand Java-based software code of medium-to-high complexity. Use standard and third party Java's API's when writing applications. Understand the basic principles of creating Java applications with graphical user interface (GUI). Understand the basic approaches to the design of software applications. Apply the above to design, implement, appropriately document and test a Java application of medium complexity, consisting of multiple classes.
CP301	Database Management System	Ability to understand the role of a database management system in an organization. Ability to manage database of an organization. Ability to develop logical data models. Ability to implement a relational database into a database management system. Ability to write SQL queries to fetch data from database. Ability to read data mining and data warehousing. Ability to work successfully on a team by design and development of a database application system as part of a team.

CP302	Computer Architectures	Ability to understand the operation of electronic logic elements. Ability to understand the organisation of a computer system in terms of its main components. Ability to understand the various parts of a system memory hierarchy. Ability to understand the operation of modern CPUs including pipelining, memory systems and busses. Ability to understand the principles of operation of multiprocessor systems and parallel programming. Ability to design and emulate a single cycle or pipelined CPU by given specifications using Hardware Description Language (HDL). Ability to work in teams to design and implement CPUs. Ability to write reports and make presentations of computer architecture projects.
CP308	Design & Analysis of Algorithms	Argue the correctness of algorithms using inductive proofs and invariants. Analyze worst-case running times of algorithms using asymptotic analysis. Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conquer algorithms. Derive and solve recurrences describing the performance of divide-and-conquer algorithms. Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize dynamic-programming algorithms, and analyse them.
CP304	Theory of Computation	Understand basic properties of formal languages and formal grammars. Understand basic properties of deterministic and nondeterministic finite automata. Understand the relation between types of languages and types of finite automata. Understand the challenges for Theoretical Computer Science and its contribution to other sciences
CP306	Computer Network	Independently understand basic computer network technology. Understand and explain Data Communications System and its components. Knowledge of basic network theory and layered communication architectures. Ability to solve problems in networking.
CP402	NETWORK SECURITY & CRYPTOGRAPHY FUNDAMENTALS(NSCF)	Define the concepts and definition of the information systems. Differentiate between several types of information system. Identify the threats to information security. Understand the difference between database and data warehouse.

		Differentiate between transaction processing system and functional area information system
CP405	Operating Systems	Master functions, structures and history of operating systems Master understanding of design issues associated with operating systems Master various process management concepts including scheduling, synchronization, and deadlocks be familiar with multithreading Master concepts of memory management including virtual memory Master system resources sharing among the users Master issues related to file system interface and implementation, disk management Be familiar with protection and security mechanisms Be familiar with various types of operating systems including Unix.
CP401	Asynchronous Transfer Mode	Implementation of different routing mechanism. Specifications and implementations of cell based structure. Implement the concepts of QOS parameter and service categories. Implement the various functions of ATM layers... Implement the network based cell routing protocols. Implement the OSI model in reference with ATM model. Implement the concept of different switching architecture. Implement the concept of input and output buffering.
CP409	Real Time Systems	To present the mathematical model of the system. To develop real-time algorithm for task scheduling. To understand the working of real-time operating systems and real-time database. To work on design and development of protocols related to real-time communication.
CP404	Advance Computer Architectures	Will know about computer performance, instruction set architecture design and implementation. Will know about microprocessor implementation alternatives (single- cycle, multiple-cycle, and pipelined implementations).
CP406	Compiler Construction	Be familiar with compiler architecture. Be familiar with register allocation. Be exposed to compiler optimization
CP412	Cloud Computing	Understanding the key dimensions of the challenge of Cloud Computing Assessment of the economics, financial, and technological implications for selecting cloud computing for own organization. Assessing the financial, technological, and organizational capacity of employer's for actively initiating and installing cloud-based applications. Assessment of own organizations' needs for capacity building and training in cloud computing-related IT areas.

Department: Computer Engineering and Information Technology

<table>
<tr><th colspan="3">Master in Technology (CSE)</th></tr>
<tr><td>Programme Outcome</td><td colspan="2">Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.</td></tr>
<tr><td rowspan="3">Programme Specific Outcome</td><td colspan="2">Able to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all Computer courses in particular to identify, formulate and solve real life problems faced in industries and/or during research work.</td></tr>
<tr><td colspan="2">Able to provide socially acceptable technical solutions to complex Computer engineering problems with the application of modern and appropriate techniques for sustainable development.</td></tr>
<tr><td colspan="2">Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.</td></tr>
<tr><td>Course Code</td><td>Course Name</td><td>Course Outcomes</td></tr>
<tr><td>CP502</td><td>Technical Writing</td><td></td></tr>
<tr><td>CP503</td><td>Advance Data Base Management System</td><td>Understand the difference between Data Warehousing and general databases
Familiar with multi-dimensional data cubes and related analysis
Describe and apply at least one of the algorithms used for Association rules in data mining
introduced to challenges in related advanced applications such as data mining for: Text, Time Series, Data Streams, or Multimedia applications</td></tr>
</table>

CP504	High Performance Scientific Computing	Appreciate the building blocks of scientific and engineering software. Demonstrate a basic knowledge of numerical computing using an appropriate programming language. Be competent in experimental computing in a numerical context and of the optimization of algorithms on high performance architectures. Be able to reason about the accuracy of mathematical and numerical models of real physical phenomena. Have an awareness of the modern field of computational science and engineering and of the impact of high performance computing on science and industry. Have an understanding of the various paradigms of high performance computing and their potential for performance and programmability. Be capable of writing algorithms that yield good performance on high-performance architectures, and to be able to estimate and evaluate their performance. Design a parallel solution to a scientific computing problem, including the selection, design and parallel implementation of appropriate numerical algorithms; Better understand the state of the art and frontiers of high performance scientific computing through case studies drawn from physics (heat flow, Schrodinger Equation, gravitational wave), geophysics (3D wave-equation), astrophysics (N-body problem) and chemistry (molecular dynamics, two-electron integrals, 3D quadrature);
CP505	Distributed Operating System	assess programming languages critically and in a scientific manner; analyze the principles of an imperative, functional, object oriented or logic oriented programming language; and use a formalism to describe a programming language.
CP511	High Performance Network	To design High performance computer networks. To design and implement CAC protocols in multimedia networks. Design and implement network protocols in HPCN. Analyse performance of network related issues using mathematical models. Compare the various methods of providing connection-oriented services over an advanced network with reference to MPLS, VPN.
CP512	Digital Multimedia System	Describe the basic issues and the scope (or principal applications) of image processing, and the roles of image processing and systems in a variety of applications; Demonstrate a good understanding of the history and the current state-of-the-art image processing systems and applications which constantly push the boundaries and raise challenges in other fields of studies such as mathematics, physics, and computer systems engineering; Identify areas of knowledge which are required, select an appropriate approach to a given image processing task, and

		critically evaluate and benchmark the performance of alternative techniques for a given problem by simulation using, e.g., Matlab; Implement image processing tasks with a high level of proficiency via software and hardware systems; Identify potential applications of image processing to advancement of knowledge in sciences and engineering with benefits in, e.g., policing, public safety and security, and social issues such as privacy; and Demonstrate a high level of self-directed learning ability and good oral and written communication skills on technical topics of image processing and systems engineering.
CP513	Object Oriented Software Engineering	Develop an organized methodology for implementing larger scale software systems Program effectively on a team Think innovate Independently teach yourself new software libraries, frameworks, and tools Orally communicate your ideas, designs and implementations
CP601	Software Project Management	Manage the selection and initiation of individual projects and of portfolios of projects in the enterprise. Conduct project planning activities that accurately forecast project costs, timelines, and quality. Implement processes for successful resource, communication, and risk and change management. Demonstrate effective project execution and control techniques that result in successful projects. Conduct project closure activities and obtain formal project acceptance. Demonstrate a strong working knowledge of ethics and professional responsibility. Demonstrate effective organizational leadership and change skills for managing projects, project teams, and stakeholders
CP602	Knowledge Management & Data Mining	assess programming languages critically and in a scientific manner; analyze the principles of an imperative, functional, object oriented or logic oriented programming language; and use a formalism to describe a programming language.
CP603	E-Secure Transactions	Ability to analyse the concept of E-Business models. Ability to work in one or more significant application domains and to manage the development of E-Commerce application. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Department: Diploma Civil Engineering

Diploma Civil Engineering

Programme Outcome	An ability to apply knowledge of mathematics, science, and engineering. An ability to design and conduct experiments, as well as to analyze and interpret data. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
Programme Specific Outcome	Plan, analyze, design, prepare cost estimates and execute all kinds of Civil Engineering Projects. Apply modern construction techniques, equipment and management tools so as to complete the project within specified time and funds.	
	Apply knowledge of mathematics, science and engineering.	
	Design and conduct experiments and analyze and interpretdata.	
	Understand the impact of engineering solutions in global, economic, environmental and societal context	
Course Code	**Course Name**	**Course Outcomes**
DME231	Strength of material	Utilize appropriate materials in design considering engineering properties, sustainability, cost and weight. Perform engineering work in accordance with ethical and economic constraints related to the design of structures and machine parts.
DCE231	Building Materials and construction	Brief knowledge about materials used in construction, About different types of materials used in building, Different types of door and windows. About different types of method for masonry.
DCE233	Surveying -I	Brief knowledge about surveying About different types of instruments used in surveying. Use of chain, tape, compass, cross staff, theodolite, About different types of method by using compass, thedolite, plane table etc.
DME271	Strength of material Lab	Ability to conduct standard tension tests of steel and other metals Ability to conduct compression tests of concrete, cast iron and steel Ability to conduct tests with materials subjected to torsion Ability to conduct simple tests of column buckling Ability to use strain gages for strain measurement
DCE273	Materials testing Lab	Brief knowledge about materials used in construction, Introduction and lab safety. Measurement devices and concepts. Test performs on various materials.

DCE275	Building drawing Lab-I	Student's ability to hand letter will improve. Student's ability to perform basic sketching techniques will improve. Students will be able to draw orthographic projections and sections. Student's ability to use architectural and engineering scales will increase Students will be able to draw orthographic projections and sections
DCE277	Surveying lab-I	Use conventional survey tools such as Chain tape compass and plane table level in the field of civil engineering. Take accurate measurement field book and adjustment of errors can be understood.
DHS231	Basic Economics & Social Science	The economic behavior of firms and individuals at micro and macro level, as well as the history of economic development. The principles of business management as well as the principles for preparing and reading financial statements.
DCE279	Building construction lab	To understand the physical characteristics of soil constituents, nature of soil deposits, engineering properties of soils, and soil classification systems. To understand field techniques for engineering soil investigations.
DCE232	Concrete technology	Determine the properties of concrete ingredients i.e. cement. sand. coarse aggregate by conducting different tests. Use different types of cement as per their properties for different fields applications. Design economic mix proportion for different exposure conditions and intended purposes. Use different types of admixtures to improve the properties of concrete for different field applications.
DCE234	Hydraulic And Hydraulic Machines	Compute the total hydro static pressure &center of pressure. Describe the principle of pressure measuring devices. Identify the concept of fluid flow. Compute the loss of water flowing through pipes. Design most economical channel section Describe working of the velocity measuring devices
DCE236	Surveying-II	Use survey instruments like the theodolite and plane table. Record the data in field book and plot the collected data. Find out horizontal and vertical distances with a tachometer Set out simple curve using Theodolite. Use of Modern Survey equipments - Micro Optic Theodolite and EDM. Apply principles of surveying and levelling for Civil Engineering works.
	Environmental engineering	Brief knowledge about waste water. About different types of supply of water. Different types of collection of waste water. About different types of treatment process for waste water.

DCE 238		
DCE272	Hydraulic and Hydraulic Machines Lab.	The student will be able to measure pressure and pressure head from different monometers. The student will be able to verify Bernoulli's equation with experiments. The student will be able to determine minor and major looses from pipes. The student will be able to know different hydraulic machine with their working process.
DCE274	Surveying lab-II	The course content gives full knowledge to learn how to used equipment of surveying. Find the area of any field or building by using theodolite. To find elevation from different points using thedolite. How to used total station
DCE276	Building drawing lab-II & CAD Lab	Basic knowledge of civil engineering drawing, About different type of plan of any building. Know how to draw a plan for different portion of the building.
DCE278	Environmental engineering lab	Student will be able to evaluate percentage available chlorine in bleaching powder. Student will be able to evaluate total and calcium hardness in water samples.
DCE 282	Concrete technology lab	Student will be able to find different properties of cement by test. Student will be able to know different properties of aggregates by test.How to prepare concrete. What to do for mix design. Find out workability of coarse aggregate and fine aggregate.
DCE331	Transportation engineering	Brief knowledge about transportation engineering , About different types of design used in transportation , Different types of highway materials and their construction. About different points related to railway engineering
DCE333	Theory of structure	Brief knowledge about structure. About different types of arches. Know how to find BMD& SFD. Well known how to compute SFD & BMD
DCE335	Construction management	Brief knowledge about project planning. Able to know how to schedule any projects. Able to material management on construction sight. About tender, contract, and disputes. .
DCE371	Transportation engineering lab	Student will be able to find the toughness of aggregates. Student will be able to determine specific gravity & water absorption of aggregates. Able to know different properties of material & perform also in lab.

DCE373	Structural lab	Student will be able know different properties of structure after test results. Learn different test over structure. And their application over different T & C.
DCE375	Surveying lab-IIIand camp	Student will be able to measurement of curves from different methods. Student will be able to used closed traverse. Due to survey camp , students able to measure all the horizontal distance, vertical distance and angles on different position, place and environment
DHS302	Industrial management	Enable students for Essential Imperatives and Steps in Industrial & Process Management. Find the solution of problem dependent on planning &organization. Determine the Need of Schools of Management thoughts. Solve the problems related to Hierarchy Theory &Planned Location. Enable students to use application of material management and scope of material management
DCE332	Design of Reinforced cement concrete	Brief knowledge about R.C.C. About different types of slabs and beams. Different types of retaining wall. Brief knowledge of pre-stressed concrete.
DCE372	Civil engineering estimating and costing lab	Student will be able to analyse rate of any activity. Student will be able to prepare estimate data for multi-storied residential building. Valuation process for any civil engineering work. To know name of work which are used in construction.
DCE374	Soil mechanics Lab	Basic knowledge of soil mechanics. About different test for soil. Know how to find specific gravity of the soil particle.
DCE376	R.C.C. LAB	Know prepare R.C.C slab Know prepare R.C.C beam Know prepare R.C.C. column Know prepare R.C.C singly beam.

DEE377	MAT Lab	Used in a range of applications including: signal processing and Communications image and video Processing control systems test and measurement computational finance computational biology.
DCE334	Irrigation engineering.	Brief knowledge about irrigation engineering, About different properties of hydrology., Brief knowledge of canal. Brief knowledge cross drainage work..
DCE336	Quantity survey and valuation	Brief knowledge about tendering. Make and check any contract. Complete valuation of any section from respective methods. Make a estimate for any construction work.
DCE 338	Design of steel structure	Brief knowledge about properties of steel. Reaction of steel in civil structure.. Designing of bridges and Griders

Department: Diploma in Computer Science

Computer System Programming		
Programme Outcome	Can learn about computer, learn Computer fundamentals, know how computer work and about computer languages, Learn Basic C programming and implement C programs, learn about structure, union, pointers and file handling.	
Programme Specific Outcome	Foundation of Computer System: Ability to understand the principles and working of computer systems. Students can assess the hardware and software aspects of computer systems.	
	Foundations of Software development: Ability to understand the structure and development methodologies of software systems. Possess professional skills and knowledge of software design process. Familiarity and practical competence with a broad range of programming language and open source platforms.	
	Foundation of mathematical concepts: Ability to apply mathematical methodologies to solve computation task, model real world problem using appropriate data structure and suitable algorithm.	
	Applications of Computing and Research Ability: Ability to use knowledge in various domains to identify research gaps and hence to provide solution to new ideas and innovations	
Course Code	**Course Name**	**Course Outcomes**
DCS203	Computer System Programming	Can learn about computer. learn Computer fundamentals know how computer work and about computer languages. Learn Basic C programming and implement C programs. learn about structure, union, pointers and file handling.

DCS204	Fundamentals of Data Structure and Algorithm	Get knowledge about the data structure, how to design an algorithm and importance of data structure How we represent an array in memory and all application of array How we implement the link list and its application How we implement the tree data structure and its application. How we implement the graph data structure and its application
DCS205	Operating System Basics & Pc Packages	Know about operating system and window XP. Learn about various features of window XP. Learn about installation of various software and know about explorer. Know about Linux system architecture. Can work with word processor and can use its features.
DCS206	Web Technology	Understand web basics. understand hierarchy of objects in HTML and XML can create good, effective and customized websites Know regarding internet related technologies Can develop an applet application
DCS207	FUNDAMENTALS OF INFORMATION TECHNOLOGY	Know about information technology and data types. Learn about e-commerce and its advantage Know Transmission media and signals types. Know various function of operating system. Learn application software and GUI interface.
DCS208	Computer Organization & Architecture	Describe computer architecture and organization, computer arithmetic, and CPU design. Describe I/O system and interconnection structures of computer. Identify high performance architecture design. Use assembly language to program a microprocessor system. Develop independent learning skills and be able to learn more about different computer architectures and hardware.
DCS209	Open Source Technology	Learn UNIX and LINUX concepts Will know about GNU Project and the Free Software Foundation Know Linux System Administration works. Use the concept of Memory Management Know Software package Management
DCS210	Data Base Management System	Students learn about the concepts of DBMS and proceeds over the file management system and they will also learn to design the database. Students learn, how write database queries to store and retrieve information from database by getting knowledge of relational algebra, relational calculus and SQL. Students come to know about the short comes in designing of

		relational database and refinement of relations for a good database design. Students learn about the security issues in database in mechanisms or concepts to employ security and transaction management in database. Students learn about indexing and hashing in database.
DCS212	E- Commerce in Business	Know E- Commerce. Use inter and intra ecommerce Use concept of Network Infrastructure behind E- Commerce Use Electronic Payments methods. Encryption and Transaction security issues.
DCS215	Computer System Programming Lab	Learn Conditional statement How to implement LOOPS. How to implement array both 1D and 2 D. Implement functions both recursive and non-recursive. How to implement pointers and file handling
DCS216	Fundamentals of Data Structure & Algorithm Lab	Learn the concept of C-language like-looping, array, function ,structure and pointers Implementation of array and linked list with Stack, Queue. Implementation of link list, doubly link list and circular link list in C Implementation of various sorting algorithm. Implement two way link list.
DCS219	Operating System Lab	Learn about Operating System Implement Linux commands Implement C programming in Linux To introduce Shell Scripting Implement Scheduling Algorithm
DCS220	LAN and windows 2000 Administration LAB	Learn different types of Network cables Know about different types of network devices Implement of Local Area Network Use basic Commands of Cisco Packet Tracer Know network programming
DCS221	Office Automation Lab	Install operating system. Install Hard disk, RAM,CD, ROM,CPU and other computer components. Work with MS-word, and use MS word features Use MS word Mail options. Work with MS-Excel, and use MS Excel features.
DCS222	OOPS(C++) Lab	Identify classes, objects, members of a class and the relationships among them needed to solve a specific problem. Use the concept of constructors and destructors. Implement data encapsulation and inheritance

		Implement polymorphism. Implement virtual functions
DCS223	Open Source Technology Lab	Learn UNIX and LINUX concepts Will know about GNU Project and the Free Software Foundation Know Linux System Administration works. Use the concept of Memory Management Know Software package Management
DCS224	Web Technology LAB	Use HTML basic tags. Learn to create web page. Learn how to link HTML pages Implement style sheets. Use Text fields of HTML
DCS225	PHP Lab	Can handle Troubleshooting Problems Learn about Motherboard BIOS, BIOS Features Implement Drive Testing& troubleshooting. Installing Memories Attach Printer and Install Printer Drivers
DCS228	DBMS Lab	Know about the database and File system. Use different commands used in DDL, Use different commands used in DCL, DML etc Use transfer control language commands Implement Nested Queries, Join Queries and Trigger
DCS302	ASP.NET with C#	Know the concept of Asp .net. Use the basic Ado.Net and Ado.Net object model Know the Catching concept Know and implement Application state, Session state Use the concept of Web Services and XML
DCS303	OOPs through Java	Demonstrate knowledge of Java technology, The Java programming language, and the product life cycle Use various Java programming language constructs to create several Java technology applications Use decision and looping constructs and methods to dictate program flow Implement intermediate Java technology programming and object-oriented (OO) concepts in Java technology programs.
DCS304	Data Mining & data warehousing	Get knowledge about data mining and warehousing and how data is preprocessed when amount of data is large They are able to understand how statistical and transactional data are handled and preprocessed How to use and implements the multidimensional data cubes and techniques which can handle these data's. How different types of prediction and classification based model and methods can handle these techniques. They can use OLAP tools and able to take backup and

		recovery of data.
DCS305	Desktop Publishing & Multimedia	Multimedia is a woven combination of text, audio, video, images and animation. The importance of text in multimedia and the difference between fonts and typefaces Character sets used in computers and their significance The Student learns various technique of Data compression. Audio is an important component of multimedia which can be used to provide
DCS306	Mobile Computing	Get knowledge about the how are data transmitted on wireless and the benefits of transferring the data using infrastructure and Ad-Hoc basis What is GPRS, GSM techniques of wireless network? How the mobile agents work and the usefulness of mobile agents architecture How the mobile data are stored and problems related to store the mobile data. How the Ad-Hoc algorithm works
DCS307	Network Security & Management	Get knowledge about the security and cryptographic rules which are applied on the information How the symmetric key algorithm like DES, IDEA, AES will work on the network How the asymmetric key algorithm like RSA, digital signature, SHA, HMAC will work on the network How virus can damaged our system and advantages of using firewall How our E-mail are transferred on the network and how security are taken on the network
DCS309	System Anaylsis & Designing	Learn System concepts and system development life cycle. Can perform secure feasible study. Know about tools of System Design. Learn the concept of system testing & quality. Know the concept of system security.
DCS225	PHP Lab	Work with PHP Implement basic data types in PHP. Implement control statement using PHP. Implement strings in PHP. Build web applications using PHP.
DCS312	ASP.Net with C# Lab	Use SQL commands. Implement data source in different views. Implement Ado.net. Create master page with various features. Know the concept of tier architecture and implement it.

DCS314	Data Mining & data warehousing Lab	Exercises shall be given on how to use and implement the data mining tools. Exercise using IBM OLAP Miner Exercise using Tera data Warehouse Miner Case study to Design a data mart from scratch to store the credit history of customers of a bank. Use this credit profiling to process future loan applications. Case study to Design and build a Data Warehouse using bottom up approach titled 'Citizen Information System'.
DCS315	OOPs Lab in Java	Students learn Object Oriented Programming features. Students learn inheritance, polymorphism, Learn access control and overloading and overriding. Students learn exception handling and file handling. Students able to develop applet applications.
DCS317	Python Lab	Students can create websites what they want from any multimedia software tools. Students can make games by using multimedia concepts. There are so many application of multimedia in various fields like in education, in schools, in business, in communication. So students by performing in this lab can make their future in one of field.
DCS319	Network Security Lab	Implement encryption and decryption techniques Implement fiestel Cipher model Implement Diffie- Hellman Key Exchange Implement Hashing Techniques and RSA algorithm Implement enveloping of keys
DEE377	MAT LAB	Find the Information of any input signal used in electrical equipments. Find the solution of problem dependent on Low and High pass filters. Determine the difference between Band reject and Band Pass Filters. Solve the problems related to AND and OR gate.
DHS231	BASIC ECONOMICS AND SOCIAL SCIENCES	The course content gives full knowledge to learn nature and scope of economics. Find the solution of problem dependent on Micro Economics. Solve the problems related to Law of Demand, Law of Supply. Enable students to solve difficulties face in social reforms and political economics.
DHS232	ENTREPRENEURSHIP	The course content gives full knowledge to learn hoe an entrepreneur can succeed. Find the solution of problem dependent on industrial units. Solve the problems related to Location and pricing of industrial

		units. Enable students to solve difficulties face by small units.
DHS301	INDUSTRIAL MANAGEMENT	Enable students for Essential Imperatives and Steps in Industrial & Process Management. Find the solution of problem dependent on planning & organization. Determine the Need of Schools of Management thoughts. Solve the problems related to Hierarchy Theory & Planned Location. Enable students to use application of material management and scope of material management.
MA231	ADVANCE MATHEMATICS	The course content gives full knowledge to learn Linear Programming. Find the solution of problem dependent on Project Scheduling. Solve the problems related to Transportation. Enable students to solve difficulties face in Numerical method and transform Calculus.

Department: Diploma in Electrical Engineering

Diploma in Electrical Engineering		
Programme Outcome	Diploma engineers will be able to demonstrate knowledge of electrical and electronics engineering. Diploma engineers will demonstrate an ability to analyze and interpret experiments for mathematical modeling and maintenance of the electrical systems.	
Programme Specific Outcome	Diploma engineers will demonstrate confidence to learn by self and exhibit ability for life-long learning.	
	Diploma engineers ability to design a System, Component, or Process to meet desired needs with in realistic constraints such as Economic, Environmental, Social, Ethical, Manufacturability, and Sustainability.	
	Diploma engineers an understanding of Professional and Ethical responsibility.	
	Diploma engineers will be able to understand impact of Electrical engineering on the societal and contemporary issues.	
Course Code	**Course Name**	**Course Outcomes**
DCS221	**OFFICE AUTOMATION LAB**	Install operating system. Install Hard disk, RAM, CD, ROM, CPU and other computer components. Work with MS-word, and use MS word features Use MS word Mail options. Work with MS-Excel, and use MS Excel features.
DCP371	**COMPUTER PROGRAMMING LAB**	Find the solution of problem dependent on Flowcharts and algorithm development.

		Determine the Need of programming languages. Solve the problems related to Design Conditional and control statements. Enable students to use application of Arrays, 2D array, user defined functions.
DEE231	**BASIC ELECTRICAL ENGINEERING**	The course content gives full knowledge to learn how R, L and C reacts with DC and AC circuit. Find the solution of problem dependent on designing of small iron core transformer. Solve the problems related to Kirchhoff's Law and Capacitance. Enable students to solve difficulties face by small units on basis of batteries.
DEE232	**ELECTRONICS DEVICES AND CIRCUIT**	The course content gives full knowledge to learn how Semiconductor diode used in rectification. Find the solution of problem dependent on BJT and its voltage, current and power gain. Solve the problems related to Power Amplifier. Enable students to solve difficulties face by feedback for gain, stability, frequency and nonlinear distortion.
DEE233	**ELECTRICAL MEASUREMENT & INSTRUMENTATION**	The course content gives full knowledge to learn how measuring instrument can also give some error. Find the solution of problem dependent on indicating type instrument. Solve the problems related to resistance measurement & bridges. Enable students to solve difficulties face by CRO & Transducer.
DEE234	**DESIGN OF ELECTRICAL INSTALLATION-I**	Increasing use of Fuses, MCB, isolators, E.L.C.B. and energy meters. Find the solution of problem dependent on Calculation of material and labor cost. Determine the Need of Earthing, Pipe and plate Earthing. Solve the problems related to Design for main switch boards and distribution board. Enable students to use application of Estimation of material required for distribution substation.
DEE235	**ELECTRICAL MACHINES-I**	The course content gives full knowledge to learn Fleming's rule of electromagnetic induction used in DC machines. Find the solution of problem dependent on electrical power due to losses. Determine the aspects of parallel operation of DC Machines. Solve the problems related to different connections of transformer. Enable students to use application of DC motor in day to day life.
DEE236	**GENERATION OF**	The course content gives full knowledge to learn economic

	ELECTRIC POWER	aspects of generation and transmission of electrical energy. Find the solution of problem dependent on electrical power demand. Determine the variable source of electrical power (Solar, Wind) Solve the problems related to Underground and Overhead transmission lines. Enable students to use application of different power stations and load allocation among different power station.
DEE237	**CIRCUIT THEORY**	The course content gives full knowledge to learn Network parameters and their application. Find the solution of problem dependent on electrical circuit voltage, current and power calculation. Determine the aspects of active and passive network parameters. Solve the problems related to circuit transients. Enable students to use application of two port network and resonance.
DEE238	**POWER ELECTRONICS - I**	The course content gives full knowledge to learn Power Electronics Devices. Find the solution of problem dependent on triggering and efficiency of SCR. Determine the different aspects of 1 and 3 Phase converter. Solve the problems related to source impedance and power factor by PWM. Enable students to use Control strategiesof Choppers.
DEE271	**ELECTRICAL ENGINEERING DRAWING LAB**	The course content gives full knowledge to non linear electrical devices. Find the solution of problem dependent on joints in electrical wiring. Solve the problems related to single phase transformer. Enable students to solve difficulties face in different types of winding of DC generator.
DEE272	**ELECTRICAL MEASUREMENT AND INSTRUMENTATION LAB-I**	The course content gives full knowledge to learnFrequency measurement using CRO. Find the solution of problem dependent on power in 3-phase circuits by two wattmeter method. Solve the problems related to Calibration of ammeter and voltmeter. Enable students to solve difficulties face in measurement using AC and DC Bridges.
DEE273	**BASIC ELECTRICAL ENGINEERING LAB**	The course content gives full knowledge to learn how R, L and C reacts with DC and AC circuit. Find the solution of problem dependent on designing of small iron core transformer. Solve the problems related to Kirchhoff's Law and Capacitance. Enable students to solve difficulties face by small units on basis

		of batteries.
DEE274	**ELECTRONICS DEVICES AND CIRCUIT LAB**	The course content gives full knowledge to learn how Semiconductor diode used in rectification. Find the solution of problem dependent on BJT and its voltage, current and power gain. Solve the problems related to Power Amplifier. Enable students to solve difficulties face by feedback for gain, stability, frequency and nonlinear distortion.
DEE275	**ELECTRICAL MACHINES LAB-I**	The course content gives full knowledge to learn Fleming's rule of electromagnetic induction used in DC machines. Find the solution of problem dependent on electrical power due to losses. Determine the aspects of parallel operation of DC Machines. Solve the problems related to different connections of transformer. Enable students to use application of DC motor in day to day life.
MA231	**ADVANCE MATHEMATICS**	The course content gives full knowledge to learnLinear Programming. Find the solution of problem dependent on Project Scheduling. Solve the problems related to Transportation. Enable students to solve difficulties face in Numerical method and transform Calculus.
DHS302	**INDUSTRIAL MANAGEMENT**	Enable students for Essential Imperatives and Steps in Industrial & Process Management. Find the solution of problem dependent on planning &organization. Determine the Need of Schools of Management thoughts. Solve the problems related to Hierarchy Theory &Planned Location. Enable students to use application of material management and scope of material management.
DHS232	**ENTREPRENEURSHIP**	The course content gives full knowledge to learn hoe an entrepreneur can succeed. Find the solution of problem dependent on industrial units. Solve the problems related to Location and pricing of industrial units. Enable students to solve difficulties face by small units.
DHS203	**BASIC ECONOMICS AND SOCIAL SCIENCES**	The course content gives full knowledge to learnnature and scope of economics. Find the solution of problem dependent on Micro Economics. Solve the problems related to Law of Demand, Law of Supply. Enable students to solve difficulties face in social reforms and political economics.
DEE377	**MAT LAB**	Find the Information of any input signal used in electrical equipments. Find the solution of problem dependent on Low and High pass

		filters. Determine the difference between Band reject and Band Pass Filters. Solve the problems related to AND and OR gate.
DEE377	**ESTIMATION & COSTING LAB**	Increasing use of Fuses, MCB, isolators, E.L.C.B. and energy meters. Find the solution of problem dependent on Calculation of material and labor cost. Determine the Need of Earthing, Pipe and plate Earthing. Solve the problems related to Design for main switch boards and distribution board. Enable students to use application of Estimation of material required for distribution substation.
DEE375	**SWITCH GEAR & PROTECTION LAB**	The course content gives full knowledge to learn economic aspects of generation, voltage regulation methods in power system and performance of EHV and HVDC transmission. Find the solution of problem dependent on Voltage Regulation of DC and AC distribution systems. Determine the variable application of different types of Relays. Solve the problems related to Underground and Overhead lines. Enable students to use application of different power stations and load allocation among different power station.
DEE374	**ANALOG & DIGITAL ELECTRONICS LAB**	Increasing use of electronic gadgets in control of analog electronics makes this course indispensable for having an insight into trouble-shooting techniques. Find the solution of problem dependent on Schottky&Zener diode. Determine the variable characteristics & applications of BJT & FET. Solve the problems related to Operational Amplifier. Enable students to use application of Logic Gates and Sequential and Combinational Circuits.
DEE373	**ELECTRICAL DESIGN & ESTIMATING LAB**	Idea of method used in RSEB to calculate the voltage regulation. Find the solution of problem dependent on **Design and estimate the list of materials**. Determine the Single line diagram of 220/132 KV G.S.S. and 33/11 KV substation. Solve the problems related to Design of distribution scheme for a small colony including load survey. Enable students to use application of Pole mounted substation, G.S.S. Earthing.
DEE372	**ELECTRICAL MACHINES LAB-II**	Find the Torque-Slip Characteristics of induction machines. Find the solution of problem dependent on parallel operation of alternators. Determine the difference between V and inverted V curve. Solve the problems related to transient behaviour of 3-phase machines. Enable students to use application of special machines for solvability of many problems.
DEE371	**POWER**	Increasing use of electronic gadgets in control of electrical

	ELECTRONICS LAB-II	machines makes this course indispensable for having an insight into trouble-shooting techniques. Solve the problem related to application of CSI & VSI in SMPS. Determine the various types of cycloconverter& their application. Solve the problems related to Speed control of motors using SCR. Enable students to use application of different types of Electronic stabilizer
DEE339	**ENERGY MANAGEMENT**	Enable students for Essential Imperatives and Steps in User Side Energy Planning. Find the solution of problem dependent on Energy and Economy. Determine the Need of Energy audit of electrical system. Solve the problems related to Design Power Generation and Electric Power Sector Planning in India. Enable students to use application of Combustion products of fossil fuels, Particulate matter, Fabric filter and Baghouse.
DEE338	**ADVANCE CIRCUIT THEORY**	Find the Power Relation of 3-phase networks. Find the solution of problem dependent on Power Calculation. Enable students to use the Active and Passive filters as their application. Solve the problems related to transient response of circuit. Enable students to use application of network synthesis.
DEE337	**POWER SYSTEM PROTECTION AND ANALYSIS**	The course content gives full knowledge to learn economic aspects of generation, voltage regulation methods in power system and performance of EHV and HVDC transmission. Find the solution of problem dependent on Voltage Regulation of DC and AC distribution systems. Determine the variable application of different types of Relays. Solve the problems related to Underground and Overhead lines. Enable students to use application of different power stations and load allocation among different power station.
DEE336	**ANALOG & DIGITAL ELECTRONICS**	Increasing use of electronic gadgets in control of analog electronics makes this course indispensable for having an insight into trouble-shooting techniques. Find the solution of problem dependent on Schottky&Zener diode. Determine the variable characteristics & applications of BJT & FET. Solve the problems related to Operational Amplifier. Enable students to use application of Logic Gates and Sequential and Combinational Circuits.
DEE335	**DESIGN OF ELECTRICAL INSTALLATION-II**	Increasing use of Fuses, MCB, isolators, E.L.C.B. and energy meters. Find the solution of problem dependent on Calculation of material and labor cost. Determine the Need of Earthing, Pipe and plate Earthing. Solve the problems related to Design for main switch boards and distribution board.

		Enable students to use application of Estimation of material required for distribution substation.
DEE334	**FUNDAMENTAL OF CONTROL SYSTEM**	After studying this course the students will be capable of implementation of these principles in process industries as well as engineering industries. Find the transfer function of open & closed loop system. Determine the various test signals & their application. Solve the problems related to transient and stability behaviour of a system. Enable students to use application of different types of controllers in control system.
DEE333	**POWER ELECTRONICS - II**	Increasing use of electronic gadgets in control of electrical machines makes this course indispensable for having an insight into trouble-shooting techniques. Solve the problem related to application of CSI & VSI in SMPS. Determine the various types of cycloconverter& their application. Solve the problems related to Speed control of motors using SCR. Enable students to use application of different types of Electronic stabilizer.
DEE332	**TRANSMISSION AND DISTRIBUTION**	Find the PU impedance for electrical machines and power system parameters. Find the solution of problem dependent on transmission line fault. Enable students to use the switch gear and relays as their application. Solve the problems related to economically dispatching of electrical power. Enable students to use application of HVDC and can learn the effect of Corona.
DEE331	**ELECTRICAL MACHINES - II**	Find the Torque-Slip Characteristics of induction machines. Find the solution of problem dependent on parallel operation of alternators. Determine the difference between V and inverted V curve. Solve the problems related to transient behaviour of 3-phase machines. Enable students to use application of special machines for solvability of many problems.
DEE280	**POWER SYSTEM LAB**	This syllabus has been designed to provide certain guidelines and broad principles regarding the above activities and after undergoing this course the technician shall be fit to undertake repairs and maintenance of electrical equipment's. Find the solution of problem dependent on supply system from 6.6 KV/400V sub-station. Solve the problems related to different kinds of insulators. Enable students to solve difficulties face by active and reactive power flow through transmission lines.
DEE279	**ESTIMATION & COSTING LAB-I**	This syllabus has been designed to provide certain guidelines and broad principles regarding the above activities and after

		undergoing this course the technician shall be fit to undertake repairs and maintenance of electrical equipment. Find the solution of problem dependent on electrical installation of machines in small workshop. Solve the problems related to service connections of a small residential complex. Enable students to solve difficulties face by service connections of a small residential complex.
DEE278	**WORKSHOP LAB-I**	This syllabus has been designed to provide certain guidelines and broad principles regarding the above activities and after undergoing this course the technician shall be fit to undertake repairs and maintenance of electrical equipments. Find the solution of problem dependent on Preparation of wiring diagram and wiring. Solve the problems related to Study of contactors and time delay relays. Enable students to solve difficulties face by internal wiring of the fitting of a switch board, containing at least four switches.
DEE277	**ELECTRICAL MEASUREMENT AND INSTRUMENTATION LAB-II**	The course content gives full knowledge to learn how measuring instrument can also give some error. Find the solution of problem dependent on indicating type instrument. Solve the problems related to resistance measurement & bridges. Enable students to solve difficulties face by CRO & Transducer.
DEE276	**POWER ELECTRONICS LAB-I**	The course content gives full knowledge to learn Power Electronics Devices. Find the solution of problem dependent on triggering and efficiency of SCR. Determine the different aspects of 1 and 3 Phase converter. Solve the problems related to source impedance and power factor by PWM. Enable students to use Control strategiesof Choppers.

Department: DIPLOMA IN ENGINEERING (First Year)

Programme Outcome	Increase ability to write short paragraphs and to write technical reports. To improve speaking skill of students through active listening & speaking practice. Visualization and analytical approach towards the subject is necessary To increase power of comprehending a written text. Basic Mathematics knowledge to solve the problems. Knowledge of basic concepts of sciences such as physics, chemistry and mathematics Much emphasis has been given for practical subjects in both the semester by allotment of separate subject codes. Also the examination time for all practical subjects is common and is fixed as 3 hrs duration. This allows the examiners (both internal and external) to pay much attention towards the examinee during practical.
Programme Specific Outcome	Every effort has been made while restructuring the curriculum to mould the students to become very good Technicians with more practical visualization. This has been done by deleting unnecessary and extra information and regrouping the subjects to impart theoretical inputs to the students up to sufficient depth. This saving in time has been utilized in slightly improving on the practical inputs during in-house training itself.

Course Code	Course Name	Course Outcomes
DCP135	**Computer & Information Technology Fundamental**	The course content gives full knowledge to learn about Computer and its Basics. Students will be able to know about CPU and ALU. Students will be able to make word file, report file etc. Students easily know XP and Windows 7.
DCY133	**CHEMISTRY-I**	The course content gives full knowledge of basic of chemistry (atomic structure, atomic weight etc.) To know about avogadro no, salt etc. Students will be able to differentiate between organic and inorganic compound. Students easily know about electro chemistry.
DEN131	**BASIC ENGLISH-I**	The course content gives full knowledge to learn how to make sentences. Find the solution of problem of direct-indirect and active-passive voice. Students will be able to know how to use tenses. Students easily differentiate in between Noun, Pronoun, and Preposition etc.
DMA134	**MATHEMATICS-I**	The course content gives full knowledge to learn about algebra and trigonometry. Find the solution of problem of trigonometry. Students will be able to solve problem on coordinate geometry. Students easily know about circle, parabola and ellipse.
DPY132	**PHYSICS-I**	The course content gives full knowledge to learn about units and dimensions. Find the solution of problem of gravitation and satellite. Students will be able to solve problem on transfer of heat. Students easily know about liquid and elasticity.
DCP175	**COMPUTER & INFORMATION TECHNOLOGY FUNDAMENTAL LAB**	The course content gives full knowledge to learn about Computer and its Basics. Students will be able to know about CPU and ALU. Students will be able to make word file, report file etc. Students easily know XP and Windows 7.
DCY173	**CHEMISTRY LAB-I**	The course content gives full knowledge of basic of chemistry (atomic structure, atomic weight etc.) To know about avogadro no, salt etc. Students will be able to differentiate between organic and inorganic compound. Students easily know about electro chemistry.
DEN171	**BASIC ENGLISH LANGUAGE LAB-I**	The course content gives full knowledge to learn how to make sentences. Find the solution of problem of direct-indirect and active-passive voice. Students will be able to know how to use tenses. Students easily differentiate in between Noun, Pronoun, Preposition etc.
DME176	**WORKSHOP**	Student will be able to Weld one metal into another metal without affecting parent metal

	PRACTICE-I	Cast the metal to form a new shaped casting metal Perform carpentry work in industry.
DPY172	**PHYSICS LAB-I**	Student will be able to take diameter,area ,volume dimension using screw gauge and varnier caliper Find the solution of problem of gravitation and satellite. Students will be able to solve problem on transfer of heat. Students easily know about liquid and elasticity.
DCY138	**CHEMISTRY-II**	The course content gives full knowledge of basic of Water. To know about Lubricants. Students will be able to differentiate between Paint and Varnish. Students easily know about Polymers.
DEN136	**BASIC ENGLISH-II**	The course content gives full knowledge to learn how to make sentences. Find the solution of problem of preposition and modals. Students will be able to know how to use tenses. Students easily write essay, letter and paragraph etc.
DMA139	**MATHEMATICS-II**	The course content gives full knowledge to learn about Maxima and Minima. Find the solution of problem of Differential Calculus. Students will be able to solve problem on Integral Calculus. Students easily know about Differential Function.
DME140	**APPLIED MECHANICS**	1.Define scope of Engineering Mechanics 2.Understand Co - planer Concurrent Force system 3.Compute resultant & Equilibrium forces for given coplanar concurrent force system
DPY137	**PHYSICS-II**	The course content gives full knowledge to learn about A.C. & D.C. Circuits. Find the solution of problem of Nuclear Physics. Students will be able to solve problem on transfer of heat. Students easily know about Semi Conductors.
DCY179	**CHEMISTRY LAB-II**	The course content gives full knowledge of basic of chemistry (atomic structure, atomic weight etc.) To know about avogadro no, salt etc. Students will be able to differentiate between organic and inorganic compound. Students easily know about electro chemistry.
DEE182	**BASIC ELECTRICAL & ELECTRONICS ENGINEERING LAB**	The course content gives full knowledge of measurement of electrical and electronic quantities.. Knowledge of different switches. Enable students to making project.
DEN177	**BASIC ENGLISH LANGUAGE LAB-II**	The course content gives full knowledge to learn how to make sentences. Find the solution of problem of direct-indirect and active-passive voice. Students will be able to know how to use tenses. Students easily take part in G.D. etc.

DME180	**WORKSHOP PRACTICE-II**	Pack the product under wooden package perfectly Weld one metal to another metal without giving damage to parent metal Work on the fitting of pipes under any industry.
DME181	**ENGINEERING DRAWING LAB-II**	Design a plan of a house or any building. Know where to use rivets or screws. Know how many types of bolts and nuts are there so that they may not get confused in industry.
DPY178	**PHYSICS LAB-II**	The course content gives full knowledge to learn about units and dimensions. Find the solution of problem of gravitation and satellite. Students will be able to solve problem on transfer of heat. Students easily know about liquid and elasticity.

Department: DIPLOMA IN MECHANICAL ENGINEERING

DIPLOMA IN MECHANICAL ENGINEERING		
Programme Outcome	An ability to apply knowledge of mathematics, science, and engineering. An ability to design and conduct experiments, as well as to analyze and interpret data. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	
Programme Specific Outcome	An ability to function on multi-disciplinary teams. An ability to identify, formulate, and solve engineering problems. An understanding of professional and ethical responsibility. An ability to communicate effectively. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context. A recognition of the need for, and an ability to engage in life-long learning. A knowledge of contemporary issues. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	
Course Code	**Course Name**	**Course Outcomes**
MA231	Advance Mathematics	The course content gives full knowledge to learn Linear Programming. Find the solution of problem dependent on Project Scheduling. Solve the problems related to Transportation. Enable students to solve difficulties face in Numerical method and transform Calculus.
DME231	Strength of Material	Apply concepts of strength of materials to obtain solutions to real time Engineering problems. Able to analyze the different types of loading and the consequent deflection. Able to analyze different types of stress and strain in the beam or load applied.

		Interpret hardness curve measured after heat treatment. Find correlation between material structure and its creep.
DME233	Material Science	Understand how materials are formed and their classification based on Atomic arrangement Describe the mechanical behaviour of metallic systems and itsImportance Evaluate system for fatigue failures Gain knowledge on different class of materials and their applications Evaluate the failure mode of the materials and to know the steps to betaken to prevent the failures
DME237	Process In Manufacturing	Demonstrate an understanding of various materials and their properties employed in different manufacturing processes. Understand the principles of foundry and casting. Choose materials in a manufacturing process based on their properties. Study in detail about the modern welding processes followed in industries. Conduct experiments on various manufacturing processes and to automate them.
DME271	Strength of Material Lab	Interpret hardness curve measured after heat treatment. Find correlation between material structure and its creep. Index XRD plot and determine phases of a material. Perform nondestructive failure analysis.
DME267	Process in Manufacturing-1 Lab	Welding and soldering operations. Fabrication of simple sheet metal parts. Drilling operation Operation on lathe machine.
DME279	Metrology Lab	Apply the procedures to measure length, width, depth, bore diameters, internal and external tapers, tool angles, and surface roughness by using different instruments. Measure effective diameter of Thread profile using different methods Conduct different machine alignment tests Demonstrate knowledge of different machine tools used in machine shop. Perform step, taper turning, knurling and threading.
DME283	Workshop Technology Lab	Basic operation in drilling and lathe. Basic operation in shaper machine Basic operation in milling machine how to cut gear and nuts. Basic about how the selection of tool can be done for different machine and operation.
DME285	Machine Design Lab	Analyze and select machine elements/components.

		Know the applications of the various elements, materials used to make them, and methods used Integrate various machine elements and components into the design of a machine or mechanical system through a design project.
DME232	Fluid Mechanics & Machine	To find frictional losses in a pipe when there is a flow between two places. Calculate the conjugate depths in a flow. Analyze the model and the prototype. Find the dependent and independent parameters for a model of fluid flow. Explain the various methods available for the boundary layer separation.
DME234	Thermodynamics and IC Engine	Solve problems on internal combustion engines and prepare heat balance sheet. Get an insight of various components and principles of engines, compressors etc. Design refrigeration and air-conditioning system for a particular application. Demonstrate the knowledge of waste heat recovery and thermal storage.
DME242	Automobile Engineering	Develop chassis and identify suitable engine for different applications Formulate steering, braking and suspension systems Select a suitable conventional and automatic transmission system Identify the usage of Electrical vehicles / Hybrid vehicles and power plants
DME274	Fluid Mechanics & Machine Lab	Analyze various flow problems and fluid characteristics. Determine the losses of flow through various mediums like pipes. Apply the concept of fluid mechanics to design various systems.
DME282	Automobile Engineering lab	Student will know how to assemble and disassemble engine parts. Student will know about the different types of system like braking system, steering system Student will know about the mechanism of clutches Students will know the mechanism of gear box.
DME278	Theory Of Machine Lab-1	Know how to do the balancing of rotating parts. Know how to operate brakes and dynamometer. Know how the force analysis is done in single cylinder four stroke engines. Know the working of flywheel and governor in vehicle.
DME272	Thermodynamic Lab	Explain the working of Steam power plant. Distinguish between S.I/C.I, Two- stroke and Four-stroke Internal Combustion Engines. Estimate relative humidity using adiabatic saturator and compare different Hygrometers. Calculate Coefficient of Performance of Vapor compression

		refrigeration system for Reversed Carnot, Ideal and Actual cycles. Explain the working and estimate the heat transfer rates in a forced draft cooling tower.
DME280	Cad Practice Lab	Students are able to read engineering drawings with different views, including orthographic views, hidden lines and cross sectional views. They understand the description of surface roughness, lay waviness and the representations of tolerances and surface finish on engineering drawings. Students can create 3D models of engineering objects, engineering drawings with different views, and an assembly of the objects that make up engineered systems, using a CAD system. Students are able to use basic hand tools in a safe manner Students are able to move from CAD to CAM and use numerically controlled machines to produce simple artifacts Students are able to design a consumer device based upon market demands, through QFD analysis, concept selection, and function analysis. Students understand basic machining processes. Students are able to apply the statistics and probability in an elementary way. They can use the normal distribution and tables of the cumulative distribution to predict probabilities. They understand applications in geometric dimensioning and tolerances.
DHS232	Entrepreneurship	The course content gives full knowledge to learn hoe an entrepreneur can succeed. Find the solution of problem dependent on industrial units. Solve the problems related to Location and pricing of industrial units. Enable students to solve difficulties face by small units.
DME238	Theory of Machines-I	Demonstrate an understanding of the concepts of various mechanisms and pairs. Do velocity and acceleration analysis of simple mechanisms. Design a layout of cam for specified motion. Synthesis simple mechanisms for function, path generation and body guidance Demonstrate an understanding of principle of gears.
DME240	Workshop Technology	Demonstrate an understanding of various materials and their properties employed in different manufacturing processes. Understand the principles of foundry and casting. Choose materials in a manufacturing process based on their properties. Study in detail about the modern welding processes followed in industries.
DME342	Mechanical estimating costing & Material Handling	Selecting appropriate location for establishing industrial plants. Developing new algorithms for planning layouts for typical application in the industries. Suggesting appropriate material handling strategies in the

		industries. Optimize the existing layout/material handling system.
DME336	RELIABILITY AND MAINTENANCE	Understand the relationship of key concepts in reliability engineering and application to maintenance strategies in a manufacturing environment; Establish maintenance strategies according to system characteristics and design transition programs to implement these strategies; Manage the manufacturing organization with highest possible
DME334	MECHATRONICS	Program software packages involving data acquisition Complete tasks involving collection, conditioning and storage of data in a real-time environment and apply appropriate control outputs to modify system behavior Implement programmable logic controllers for timing mechanical devices Integrate frequency response information in the development of control algorithms Design digital filters by manipulating their filter
DME374	COMPUTER AIDED MANUFACTURING LAB	Understand the importance of CAD/CAM principles in the Product development. Develop programs related to manufacturing using codes. Analyze the importance of networking in manufacturing environment.
DME372	REFRIGERATION AND AIR CONDITIONING LAB	Determine C.O.P of refrigeration and heat pump Know about the various refrigeration accessories. Know about compressor and different refrigeration system Know about the testing of three ton air conditioner performance.
DME332	REFRIGERATION AND AIR CONDITIONING	Illustrate the fundamental principles and applications of refrigeration and air conditioning System. Obtain cooling capacity and coefficient of performance by conducting test on vapor compression refrigeration systems Present the properties, applications and environmental issues of different refrigerants Calculate cooling load for air conditioning systems used for various applications Operate and analyze the refrigeration and air conditioning systems.
DME377	HEAT & MASS TRANSFER LAB	An ability to demonstrate the fundamental principles of heat transfer in practice. Design and test practical heat transfer systems like heat exchangers, condensers, evaporators etc. Develop empirical correlations for predicting heat and mass transfer rates for a given system. Troubleshoot existing engineering heat transfer systems and develop alternatives and more energy efficient systems.
DHS302	INDUSTRIAL MANAGEMENT	Enable students for Essential Imperatives and Steps in Industrial & Process Management. Find the solution of problem dependent on planning & organization.

		Determine the Need of Schools of Management thoughts. Solve the problems related to Hierarchy Theory & Planned Location. Enable students to use application of material management and scope of material management.
DME375	DYNAMICS OF MACHINE LAB	Synthesis simple mechanisms Draw cam profiles Measure Gyroscopic torque Understand free, forced damped vibrations Measure Radius of Gyrations of compound pendulum, plate
DME377	HEAT AND MASS TRANSFER LAB	An ability to demonstrate the fundamental principles of heat transfer in practice. Design and test practical heat transfer systems like heat exchangers, condensers, evaporators etc. Develop empirical correlations for predicting heat and mass transfer rates for a given system. Troubleshoot existing engineering heat transfer systems and develop alternatives and more energy efficient systems.
DME373	CAD LAB	Acquire the knowledge of various standards and specifications about standard machine components. Make drawings of assemblies with the help of part drawings given. Ability to select, configure and synthesize mechanical components into assemblies. Apply the knowledge of fits and tolerances for various applications. Able to model components of their choice using CAD software.
DME371	PROCESS IN MANUFACTURING-II LAB	Acquire knowledge about green sand molding process, gates and risers. Acquaint with basic welding processes and cutting parameters of turning processes, thread cutting etc. Make decisions on various cutting parameters for different materials in lathe operations.
DME381	POWER GENERATION LAB	Understand about diesel power plant Understand about hydro power plant Understand about steam power plant Understand about nuclear power plant Understand about cooling tower boiler and different components used in power plant
DME335	THERMAL ENERGY & POWER PLANT	Ability to have adequacy with Design, erection and development of energy conversion plants. Optimization of Energy Conversion plant with respect to the available resources. Scope of alternative erection of optimized, suitable plant at the location depending upon Geographical conditions.
DME333	CAD/CAM	Understand the importance of CAD/CAM principles in the Product development. Develop programs related to manufacturing using codes. Analyze the importance of networking in manufacturing environment.
DME340	Heat & mass transfer	Understand the mechanisms of chip formation in machining.

		Understand the various machining processes such as turning, drilling, boring, shaping, slotting, milling and grinding. Understand the principle of gear generation and non-traditional machining processes. Identify and suggest correct manufacturing process for particular application. Know the principle of different metrology instruments.

Department: Centre for Climate Change and Water Research

Bachelor of Science (Hons.) Geology		
Programme Outcome	Students will learn the basics of geology by solving earth science problems. It will help students to work as a team, effective communication, critical thinking and problem solving skills. Students will develop professional approach that prepare them for immediate employment and for life-long learning in advanced areas of geology and related fields.	
Programme Specific Outcome	The ability to understand, analyze and develop earth science in the areas related to glaciology, mining, mineral exploration etc. for efficient learning of geology and its related subjects.	
Course Code	**Course Name**	**Course Outcomes**
GE 101	Perspectives and Methods in Science & Earth Processes	Study of earth sciences and its processes. Methods used in analyzing different earth surface processes
GE 102	Earth System Science	Understanding of Earth system and its dynamics. The processes and outcomes
GE 103	Fundamentals of Thematic Cartography	Map making and designing. preparation of base map

Bachelor of Science (Hons.) Geography		
Programme Outcome	Students will learn the basics of Geography by solving earth sciences and geosciences problems. It will help students to work as a team, effective communication, critical thinking and problem solving skills. Students will develop professional approach that prepare them for immediate employment and for life-long learning in advanced areas of geology and related fields.	
Programme Specific Outcome	The ability to understand, analyze and develop geosciences in the areas related to geomorphology, glaciology, population, demography etc. for efficient learning of Geography and its related subjects.	
Course Code	**Course Name**	**Course Outcomes**
GE 101	Geography of India	Understanding of geographical background of India. Indian culture and traditions
GE 102	Geomorphology	Understanding of earth surface features and its formation
GE 103	Fundamentals of Cartography	Map making and designing, preparation of base map

Department: Centre for Climate Change and Water Research

Bachelor of Science (Hons.) Geology		
Programme Outcome	Students will learn the basics of geology by solving earth science problems. It will help students to work as a team, effective communication, critical thinking and problem solving skills. Students will develop professional approach that prepare them for immediate employment and for life-long learning in advanced areas of geology and related fields.	
Programme Specific Outcome	The ability to understand, analyze and develop earth science in the areas related to glaciology, mining, mineral exploration etc. for efficient learning of geology and its related subjects.	
Course Code	**Course Name**	**Course Outcomes**
GEY 101	Perspectives and Methods in Science & Earth Processes	Study of earth sciences and its processes. Methods used in analyzing different earth surface processes
GEY 102	Earth System Science	Understanding of Earth system and its dynamics. The processes and outcomes
GEY 103	Fundamentals of Thematic Cartography	Map making and designing. preparation of base map
GEY 201	Fundamentals of Geosciences	Understanding of fundamental laws of energy, motion and atomic structures.
GEY 202	Physical Geology and Geomorphology	Student understand the evolution of the earth and its internal structure along with it they also get knowledge of surface features like hill, basin, sand dune etc.
GEY 203	Elementary Physical and Structural Geology	Understanding of different geological transportation agent and their depositional features. It's also deals with the different types of structures which posses by the rocks.
GEY 301	Petrology and Economic Geology	It deals with the formation of different types of rock .In economic geology mineral of economic importance has to be studied with their distribution and genesis.
GEY 302	Elements of Mineralogy and Crystallography	Study about the physical and chemical properties of mineral and their type. Crystallograhy is give experimental idea of determining the arrangement of atoms in crystalline solids/minerals.

GEY 303	Elements of Applied Geology	Understanding of different types of civil engineering structures and role of geology in their construction.
GEY 401	Techniques in Identifying Minerals, rocks & fossils	Study of various methods for identifying the physical and optical property of mineral and rocks.
GEY 402	Stratigraphy & Palaentology	Study about the fossils and evolution of organism in different geological time period. Stratigraphy gives idea about the development of supergroup (development of the crust).
GEY 403	Climatology	Study about the rainfall, cyclone, heat and composition and structure of atmosphere.
GEY 404	Seismology	Deal with the study of earthquake along With their causes, mechanism, distribution and prevention.
GEY 501	Geochemistry and Sedimentology	Study of Chemical composition of earth- crust, mantle and core. Radioactive methods of age determination. It's also cover the origin and process of formation of sedimentary rocks.
GEY 502	Environmental Geology	Deal with the study of water and air pollution and their impact on environment .it's also cover study of resource and energy .
GEY 503	Hydrogeology	Study about the origin distribution and types of surface and ground water resources.
GEY 601	Engineering Geology	Role of geology in construction of engineering structure, geotechnical investigation and site selection.
GEY 602	Exploration Geology	It deals with the reserve and resource calculation, and describes methods of prospecting and exploration.
GEY 603	Remote Sensing & Geographic Information System	Understanding of photo geology, remote sensing and GIS techniques which used in the field of geology.

PROGRAM OUTCOMES,PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES

Department: Centre for Climate Change and Water Research

Bachelor of Science (Hons.) Geography		
Programme Outcome	Students will learn the basics of Geography by solving earth sciences and geosciences problems, art of map making and profound knowledge in reading maps, deep understanding of Anthropogenic aspects of geography.It will help students to work as a team, effective communication, critical thinking and problem solving skills. Students will develop professional approach that prepares them for immediate employment and for life-long learning in advanced areas of geography and related fields.	
Programme Specific Outcome	The ability to understand, analyze and develop geosciences in the areas related to geomorphology, population, demography, map making, anthropogenic relations, population, demography etc. for efficient learning of Geography and its related subjects.	
Course Code	**Course Name**	**Course Outcomes**
GEO 101	Geography of India	Understanding of geographical background of India. Indian culture and traditions
GEO 102	Geomorphology	Understanding of earth surface features and its formation
GEO 103	Fundamentals of Cartography	Map making and designing, preparation of base map
GEO 201	Physical Geography	Understanding origin of the earth and earth systems and how each system interact with each other
GEO 202	Human Geography	Understanding the inter relationship between the physical environment and socio-cultural environment created by man with physical Elements and Cultural elements
GEO 203	Population Geography	Understanding spatial variation in the distribution, composition, migration, and growth of population which is related to the particular place or space. It involves demography in spatial perspectives
GEO 301	Economic Geography	Understanding place, distribution and spatial organization of economic resources across the world.
GEO 302	Political Geography	Understanding the inter relationship between the earth's physical condition and international boundaries, affairs, foreign policies etc.
GEO 303	Social and Cultural Geography	Understanding spatial variation in the distribution, composition, migration, and growth etc. existence of different nations and cultures on Earth
GEO 304	Surveying methods	Learning the technique, profession, art and science of determining the terrestrial or three-dimensional positions of points and the distances and angles

		between them
GEO 401	Urban Geography	Understanding of the region, evolution and growth, and classification of villages, towns, and cities as well as their location and importance in relation to different regions and cities, along with Economic, political and social aspects within cities are also cardinal in urban geography.
GEO 402	Regional Planning and Development	Understanding the efficient placement of land-use / land cover, infrastructure, and settlement growth across a larger area of land than an individual city or town, regional planning, relates land use practices on a broader scale, it also includes formulating laws that will guide the efficient planning and management of regions.
GEO 403	Soil Geography	Understanding of the region, soil composition , formation characteristics and vegetation, climateic condition etc.
GEO 404	Evolution of Geographical Thought	Understanding the historical development og geography, thoughts and theories of various philosophers and geographers.
GEO 501	Hydrology and Oceanography	Understanding the of water cycle and water bodies and its interaction with different elements of geography
GEO 502	Climatology	Understanding of earth's natural phenomena, weather events, and climatic elements.
GEO 503	Environmental Geography	Understanding the Environment and its interrelationship with natural resources.
GEO 601	Geographical Information System	Understanding of geographical phenomena and study of its spatial relationship
GEO 602	Geography of Natural Resources	Understanding of earth resources and its interaction with different elements of
GEO 603	Aerial photography and photogrammetry	Understanding and interpreting the arial photographs of a region for varied geographical purposes.

PROGRAM OUTCOMES,PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES

Department: Centre for Climate Change and Water Research

Master of Science (Geoinformatics)	
Programme Outcome	Students will establish themselves as effective professionals by solving real world problems and with attention to team work, effective communication, critical thinking and problem solving skills. Students will develop professional approach that prepares them for immediate employment and for life-long learning in advanced areas of Geoinformatics and related fields.

Programme Specific Outcome	The ability to understand, analyze and develop real world problems in the areas related to remote sensing, GIS, and GPS etc. for efficient learning of Geoinformatics its related subjects.	
Course Code	**Course Name**	**Course Outcomes**
MGI 501	Principles of Remote Sensing	Understanding the basic concepts and principles of remote sensing techniques
MGI 502	Aerial photography and Photogrammetry	Understanding of airborne platforms, its mathematical functions and applications
MGI 503	Cartography and GPS	Map making and designing and working principles of GPs
MGI 504	Geosciences and Image interpretation	Fundamentals of geosciences and interpretation of remote sensing images
MGI 505	Computer Programming	Basics of programming used in Remote Sensing and GIS for various applications
MGI 506	Fundamentals of Mathematics	Mathematical bases of different image processing methods with is principles
MGI 521	Digital Image Processing	Understanding of image processing techniques and its applications
MGI 522	Geographic Information System	Understanding of geographic data sources, geospatial data storage and processing, its applications
MGI 523	Database Management System	Introduction to database and its management, database query, structure and design of database.
MGI 524	Statistics of Geoinformatics	Statistical applications of geodatabase and its modeling
MGI 525	Geoinformatics in Geohazards	Application of geohazard management, rescue plans and mitigation
MGI 526	Principles of Management	Management and planning activities in GIS and projects
MGI 528	Geoinformatics in Land Information System	Application of Geoinformatics in land management system, cadastral mapping and decision support system
MGI 601	Research Methodology	Understanding of research projects, its implications and management, data analysis, project writing and surveying methods, data collection methods
MGI 603	Geoinformatics in Natural Resource Management	Application of Geoinformatics in managing natural resources, forest inventory, mineral exploration etc.
MGI 605	Geoinformatics in Water resources management	Application of Geoinformatics in water resource management including flood, ground water, watershed management, irrigation system etc.
MGI 609	Geoinformatics in urban and regional planning	Application of Geoinformatics in urban mapping, master plan and regional planning, urban growth analysis, transportation analysis etc.

MGI 610	Geoinformatics in Disaster Management	Application of Geoinformatics in disaster management including forest fire, pollution etc.
MGI 611	Geoinformatics in Ecology and Forestry	Application of Geoinformatics in forest mapping, ecosystem services, forest health, forest conservation.

Master of Technology (Geoinformatics)		
Programme Outcome	Students will establish themselves as effective professionals by solving real world problems and with attention to team work, effective communication, critical thinking and problem solving skills. Students will develop professional approach with technical skills that prepare them for immediate employment and for life-long learning in advanced areas of Geoinformatics and related fields.	
Programme Specific Outcome	The ability to understand, analyze and develop real world problems in the areas related to remote sensing, GIS, image processing, machine learning and GPS etc. for efficient learning of Geoinformatics its related subjects.	
Course Code	**Course Name**	**Course Outcomes**
MTRS 101	Principles of Remote Sensing and Photogrammetry	Understanding the basic concepts, principles and technical knowledge of remote sensing and Photogrammetry.
MTRS 103	Geographic Information System	Understanding of geographic data and its sources. Storage and analysis of geospatial database and its management. Principles and applications of GIS
MTRS 105	Cartography and Global Positioning Systems	Map making and designing and working principles of GPS and its mathematical background
MTRS 107	Geosciences and Advanced Remote Sensing	Fundamentals of geosciences and its applications. Application of remote sensing in geosciences related studies
MTRS 109	Computer Programming and Web GIS	Basics of programming languages used in Remote Sensing and image processing. The customization of GIS software for various applications
MTRS 111	Fundamentals of Mathematics	Mathematical bases of different image processing methods with is principles. Understanding of different algorithms used in remote sensing
MTRS 102	Geoinformatics in Ecology and Forestry	Application of Geoinformatics in forest mapping, ecosystem services, forest health, forest conservation etc.
MTRS 104	Spatial Modeling and Analysis	Types of geographic data, database management system, analysis of geographic data, modeling of data etc.
MTRS 106	Digital Image Processing	Understanding of image processing techniques and its applications in remote sensing, image quality enhancement, pattern recognition etc.

MTRS 108	Statistics for Geoinformatics	Statistical analysis of different remote sensing methods, its application and spatial analysis using statistics.
MTRS 110	Geoinformatics in Disaster Management	Application of remote sensing and GIS techniques in disaster management including flood, landslide, pollution etc.
MTRS 114	Geoinformatics in urban and regional planning	Application of Geoinformatics in urban growth mapping and modeling, master plan and regional planning, urban management, transportation analysis etc.
MTRS 116	Geoinformatics in Hydrology and Water Resources	Application of Geoinformatics in water resource management including flood, ground water, watershed management, irrigation system etc.
MTRS 118	Geoinformatics in Deserts	Application of Geoinformatics in desertification, landform erosion, soil conservation etc.
MTRS 120	Geoinformatics in Earthquakes	Application of Geoinformatics in earthquakes, seismic activities and its risk assessment.
MTRS 122	Geoinformatics in Mineral Exploration	Application of Geoinformatics in mineral exploration, geological strctures
MTRS 124	Geoinformatics in Environmental Monitoring	Application of Geoinformatics in environmental impact assessment, air and water pollution, urban climate etc.
MTRS 201	Research Methodology and Project Formulation	Understanding of research projects, scientific investigations, and project management, data analysis, project writing and surveying methods, data collection methods

Department: EDUCATION

BACHELOR OF EDUCATION	
Programme Outcome	The Bachelor of Education (B.Ed.) programme aims at developing the understanding and competencies required by practicing teachers for effective teaching-learning process at the school level. This programme prepares prospective teachers to understand the psychological and sociological aspects of the child's development and also understand his behavior under different conditions. Also to learn the various methodologies and technologies of teaching learning processes. The Program structure combined with theoretical and rigorous practice-teaching which prepares teacher trainees to become the master the art of teaching and the ability to deal with students based on their individual differences in various classroom situations.
Programme Specific Outcome	•To provide opportunities to teacher trainees that enable learning experiences to make subject matter meaningful at secondary level. •To make the student teachers understand how children learn and develop, how they differ in their approaches to learning and create learning opportunities that benefit diverse learners and learning contexts.
	To develop the skills of student teachers to plan learning experiences in and outside the classroom that are based on learners' existing proficiency, interests, experiences and knowledge, and enable them to understand how students come to view, develop, learn and make sense of subject matter contained in the curriculum.

	• To develop the capacity among student teachers to use knowledge of effective verbal, non-verbal and media communication techniques to foster active enquiry, collaboration and supportive interaction in the classroom.	
	•To enable the student teachers to understand emotional and physical development of the learners. •To provide student teachers self-identity as a 'teacher' through school based learning experiences and reflective practices that continually evaluate the effects of their choices and actions.	
	•To change the behavior, attitude and values of teacher trainees so that they shape into responsible and accountable agents of change in the society, in the perspective of local, national and global concerns and issues vital for human survival, progress and development. •To prepare professionally competent teacher trainees in tune with the latest trends in the field of teaching-learning.	
Course Code	**Course Name**	**Course Outcomes**
ED-101	Basics in Education	To acquaint pupil teacher with the: 1 .Concept, need, scope and aims of education. 2 .Forms of education and role of agencies. 3 .Philosophical basis of education- in Indian and Western context. 4 .Relationship between education, society and culture. 5. Concept of autonomy and its importance for teacher and learner..
ED-103	Curriculum and School	To acquaint pupil teacher with the: Meaning, scope, need and aims of curriculum. Difference between curriculum and syllabus and relationship between curriculum syllabus and text book. Curriculum at different level and principles of curriculum construction. Role of school in executing the curriculum. 5. Role of head teacher's management in curriculum engagement. Curriculum frame work of NCF – 2005.
ED-105	Learner and learning	To acquaint the pupil teacher with the: Growth and development of learners- concept, Factors effecting development and Dimension of individual development. Different psychological attribute and Handling the learners on the basis of Cognitive ability, Disability and adjustment. 3.Concept and importance of motivation for teachers and learners. 4. Theories of motivation and Theories of learning- Constructivism, Gestalt, Insight etc
ED-107	ICT-A Tool in Teaching Learning - I	To acquaint the pupil teacher with the: ICT application in class room and professional development and in teaching learning process. Awareness about functioning of computer, concept of hardware and software and education software, computer memory and its unit. Basic features of windows: MS-Office, MS-Excel and

		preparation of slides. Computer aided instruction concept and modes. 5.Internet and multimedia Concept and its educational uses. 6. Role of computer in education system.
ED-109	Understanding a Discipline Mathematics	To acquaint the pupil teacher with the: Nature, scope, need and importance of mathematics. Contribution of mathematician. Different areas in teaching Mathematics at school level. Aims and objectives of teaching Mathematics and developing skills in maths teachers. 5. Concepts of Diagnostic and Remedial program and set theories and its functions.
ED-111	Understanding a Discipline Science	The pupil teacher will be able to understand: The ethical aspect of science and science for environmental health and piece. Different discipline of science: biological and physical. Development of various skills in science teaching. 4. Contemporary issues in science education.
ED-113	Understanding a Discipline Social Science	The pupil teacher will be able to understand: The concept, scope of social science. Different discipline of social science and their educational implication. Developing positive attitude in student for social science teaching. 4. Quality enhancement in teaching learning process in social science.
ED-115	Understanding a Discipline Language – Hindi	The pupil teacher will be able to understand: Concept and importance of language (Hindi as a basic language). Three Language formula. Forms of language. 4. Importance of teaching Hindi in multi cultural perspective.
ED-117	Understanding a Discipline Language – English	The pupil teacher will be able to understand: Nature need and importance of English as a second language. Characteristics of English Language in different context- Link language, library language. Will be able to learn language skills. Will be able to learn competencies through different modes. 5. Enhancing quality in teaching learning process.
ED-119	Understanding a Discipline Commerce	The pupil teacher will be able to understand: Commerce as an interdisciplinary area of study. Place and values of teaching accounts and business studies

		at school level. Different disciplines of commerce. Developing positive attitude in students. 5. Developing professional skills and support material in teaching learning process.

Department: EDUCATION

Course Code	Course Name	Course Outcomes
ED-102	Contemporary India and Education	The pupil teacher will be able to understand: School in a social context, role of education in developing socialistic patterns. 2.Constitutional provisions of education in India. Issues and concern and their impact on education. Recommendations of different policies on education. 5. Role of educational institution for creating new social order.
ED-104	Assessment of learning	The pupil teacher will be able to understand: 1.The concept of assessment, Measurement and evaluation. Importance of different types of assessment and assessment devices. Concept of Continuous and comprehensive evaluation- Grading system, CCE and year based evaluation. 4. Concept, need and importance of examination system.
ED – 106	Yoga Education	The pupil teacher will be able to understand: Define the philosophy of yoga. Explain the psychology of yoga. Describe the socio-moral base of yoga. Explain physiology of Yoga. Classify yoga, yogic diet and yogic lifestyle. 6. Explain medical aspects of yoga in terms of improving mental health and reducing stress.
ED-118	Pedagogy of a School subject English (Part-I)	Develop a good understanding of the basic concepts in second language teaching.

		Teach basic language skills as listening, speaking, reading and writing and integrate them for communicative purpose. Critically review and use appropriately different approaches and methods of teaching English as secondary language. 4. Prepare lesson plans on different and prescribed aspects of English as secondary language
ED-120	Pedagogy of a School subject General Science (Part-I)	Understand the nature, scope, values and objectives of teaching science at secondary level. Develop competence in teaching different topics of science effectively. Develop scientific temper & provide teaching in scientific method of their student. 4. Use various methods with appropriateness of content, level and classroom situation to make pupil's learning meaningful.
ED-122	Pedagogy of a School subject Mathematics (Part-I)	To enable pupil teachers to understand and appreciate mathematical structure and their isomorphism with physical realities. To improve their understanding of the basic concepts and make them appreciate their unifying strength and wide of applicability. To enable them to analyses the school syllabus of mathematics in relation to its objectives. To enable them to see meaningfulness of the school mathematics programme in relation to life situation
ED-124	Pedagogy of a School subject Social Studies (Part-I)	To enable the student teacher to: Understand the concept, aims and objectives of social studies Importance of social studies in school curriculum. Critically evaluate the syllabus of social studies Prepare different type of plans: yearly plan, unit plan, and lesson plan for different classes. Apply appropriate methods &

		techniques of teaching different topics. Use different types support material. 6. Evaluate the pupil's performance.
ED-126	Pedagogy of a School subject Chemistry (Part-I)	To enable the student teacher to: Understand the nature, place, values and objectives of teaching Chemistry at secondary/senior secondary level. Establish its correlation with other subjects. Use various approaches and methods of teaching chemistry. 4. Acquire the ability to develop instructional support system.
ED-128	Pedagogy of a School subject Physics (Part-I)	Understand the modern concept of physics. Understand aims and objectives of teaching physics. Appreciate the contribution of eminent physicists in connection with the development of physics. 4. Plan curriculum at secondary/senior secondary level.
ED-130	Pedagogy of a School subject History (Part-I)	To enable student teacher to:- Understand the concept, nature and scope of history. Understand the aims and objectives of teaching history at different levels of the secondary stage. Prepare unit plan, lesson plan, and yearly plan. Evaluate the syllabus of history of secondary level. Select and apply different methods of teaching at secondary stage. Imbibe basic teaching skills (micro skills). Prepare objectives based achievement test. 8. Select and use of relevant teaching aids.
ED-132	Pedagogy of a School subject Civics (Part-I)	Understand the concept, scope and aims of teaching civics. Established co-relation of civics with other school subjects Prepare unit plan, lesson plan, and yearly plan.

		Apply appropriate methods in teaching particular topic. Select and use relevant teaching aids. Use of teaching skills. Develop skill to construct test paper to measure various objectives. 8. Develop the ability to critically evaluate existing syllabus.
ED-134	Pedagogy of a School subject Economics (Part-I)	Refresh the knowledge about the meaning, importance, nature, scope and aims of economics. Acquaint with the aims, objectives and value-outcomes through teaching economics. Develop ability to plan for suitable instructions in economics. 4. Develop appropriate attitude towards the subjects and country's economy.
ED-136	Pedagogy of a School subject Hindi (Part-I)	The pupil teacher will be able to understand: The concept of Hindi language, nature and scope, aims and objectives of Hindi teaching. Co-relation Hindi language with other subject and contribution of great Hindi writers/poets. The characteristics of Hindi teacher and learner, role and responsibility of Hindi teacher and relationship with learner. Understand the need and importance of instructional planning and Types of innovative plans for Hindi teaching. 5. The different methods of teaching Hindi and their importance.
ED-138	Pedagogy of a School subject Biology (Part-I)	Understand the nature, place, values and objectives of teaching biology at secondary level. Establish its correlation with other subjects. 3. Develop yearly plan, unit plan and lesson plan for senior secondary classes.
ED-140	Pedagogy of a School subject Book Keeping and Accountancy (Part-I)	To enable student teacher to: Acquire the basic understanding of teaching of Book-Keeping. Develop the ability to plan curriculum and instruction in Book-Keeping & accountancy at school level.

		Develop the ability to critically evaluate the existing school curriculum of Book-Keeping & accountancy. Apply appropriate methods in teaching particular topics for book keeping & accountancy. Two questions will be set from each unit and students will be required to answer one question from each unit.
ED-142	Pedagogy of a School subject Commerce (Part-I)	To enable student teacher to: Help the students to acquire the basic understanding in the field of commerce education. Develop the ability to plan curriculum and instruction in commerce at school level. Develop the ability to critically evaluate the existing school syllabus and text book. 4. Develop the ability of preparing an achievement test.
TP-102	Pre-internship-II	Preparation of lesson plans -2 in each subjects Preparation of unit plan-1 in each subject Delivery of lesson plans in the schools (2 in each subject) Conduction of art and craft, dance and music, drawing and painting classes in the school and preparation of detail report of these activities.
TP-201	School Internship-III	School Intership Would be a part of the broad curricular area of Engagement with the field and shall be desined to lead to development of a broad repertoire of perspective, professional capacities, teacher sensibilities and skills.
ED-202	Major Concerns and Issues in Indian Education	On completion of this course the student will be able to: Students will be able to understand the concept of peace and peace education, importance and aims. Gain insight into the life skills education and need of life skills education, dimensions of life skills education. Understand the meaning and concept of human rights education, aims, and status

		of human rights education. Student will be able to understand the gender discrimination scenario in India, gender sensitive life skills approach of education. 5. Student will be able to understand the concept of private school versus expensive education wastage and stagnation demerits of contemporize examination system, problem of discipline, single teacher school.
ED-204	Creating an Inclusive School	On completion of this course the students will be able to: Understand the global and national commitments towards the education of children with diverse needs. Appreciate the need for promoting inclusive practice and the roles and responsibilities of all concerned personnel. Develop critical understanding of the recommendations of various commissions and committees towards teacher preparation for inclusive education. Understand the nature of difficulties encountered by children and prepare conductive teaching learning environment in inclusive schools. Analyze special education, integrated education, mainstream and inclusive education practices. 6. Identify and utilize existing resources for promoting inclusive practice.
ED-218	Pedagogy of a School subject English (Part-II)	The pupil teacher will be able to understand: Nature need and importance of English as a second language. Characteristics of English Language in different context- Link language, library language. Will be able to learn language skills. Will be able to learn competencies through different modes. 5. Enhancing quality in teaching learning process.
ED-220	Pedagogy of a School subject General Science (Part-II)	Understand the nature, scope, values and objectives of teaching science at

		secondary level. Develop competence in teaching different topics of science effectively. 3. Develop scientific temper & provide teaching in scientific method of their student.
ED-222	Pedagogy of a School subject Mathematics (Part-II)	To enable pupil teachers to understand and appreciate mathematical structure and their isomorphism with physical realities. To improve their understanding of the basic concepts and make them appreciate their unifying strength and wide of applicability. To enable them to analyses the school syllabus of mathematics in relation to its objectives. 4. To enable them to see meaningfulness of the school mathematics programme in relation to life situation
ED-224	Pedagogy of a School subject Social Studies (Part-II)	To enable the student teacher to: Understand the concept, aims and objectives of social studies Importance of social studies in school curriculum. Critically evaluate the syllabus of social studies Prepare different type of plans: yearly plan, unit plan, and lesson plan for different classes. Apply appropriate methods & techniques of teaching different topics. Use different types support material. 6. Evaluate the pupil's performance.
ED-226	Pedagogy of a School subject Chemistry (Part-II)	To enable the student teacher to: Understand the nature, place, values and objectives of teaching Chemistry at secondary/senior secondary level. Establish its correlation with other subjects. Use various approaches and methods of teaching chemistry. 4. Acquire the ability to develop instructional support system.
ED-228	Pedagogy of a School subject Physics (Part-II)	Understand the modern concept of physics. Understand aims and objectives of teaching physics.

		Appreciate the contribution of eminent physicists in connection with the development of physics. 4. Plan curriculum at secondary/senior secondary level.
ED-230	Pedagogy of a School subject History (Part-II)	To enable student teacher to:- Understand the concept, nature and scope of history. Understand the aims and objectives of teaching history at different levels of the secondary stage. Prepare unit plan, lesson plan, and yearly plan. Evaluate the syllabus of history of secondary level. Select and apply different methods of teaching at secondary stage. Imbibe basic teaching skills (micro skills). 7. Prepare objectives based achievement test.
ED-232	Pedagogy of a School subject Civics (Part-II)	Understand the concept, scope and aims of teaching civics. Established co-relation of civics with other school subjects Prepare unit plan, lesson plan, and yearly plan. Apply appropriate methods in teaching particular topic. Select and use relevant teaching aids. Use of teaching skills. 7. Develop skill to construct test paper to measure various objectives.
ED-234	Pedagogy of a School subject Economics (Part-II)	Refresh the knowledge about the meaning, importance, nature, scope and aims of economics. Acquaint with the aims, objectives and value-outcomes through teaching economics. Develop ability to plan for suitable instructions in economics. 4. Develop appropriate attitude towards the subjects and country's economy.
ED-236	Pedagogy of a School subject Hindi (Part-II)	The pupil teacher will be able to understand: The concept of Hindi language, nature

		and scope, aims and objectives of Hindi teaching. Co-relation Hindi language with other subject and contribution of great Hindi writers/poets. 3. The characteristics of Hindi teacher and learner, role and responsibility of Hindi teacher and relationship with learner.
ED-238	Pedagogy of a School subject Biology (Part-II)	Understand the nature, place, values and objectives of teaching biology at secondary level. Establish its correlation with other subjects. 3. Develop yearly plan, unit plan and lesson plan for senior secondary classes.
ED-240	Pedagogy of a School subject Book Keeping and Accountancy (Part-II)	To enable student teacher to: Acquire the basic understanding of teaching of Book-Keeping. Develop the ability to plan curriculum and instruction in Book-Keeping & accountancy at school level. Develop the ability to critically evaluate the existing school curriculum of Book-Keeping & accountancy. 4. Apply appropriate methods in teaching particular topics for book keeping & accountancy**.**
ED-242	Pedagogy of a School subject Commerce (Part-II)	To enable student teacher to: Help the students to acquire the basic understanding in the field of commerce education. Develop the ability to plan curriculum and instruction in commerce at school level. Develop the ability to critically evaluate the existing school syllabus and text book. 4. Develop the ability of preparing an achievement test**.**
ED-206	Elementary Education	On completion of this course the students will be able to: Understand the context of elementary education Understand the concept, objectives, rationale, challenges and extent of success of Universal Elementary

		Education (UEE). 3. Discuss the development of elementary education in India since independence reflect on the relevance of strategies and programmes of UEE**.**
ED-208	Environmental Science	Understand the concept of environment and the problems concerning. Environment through multi disciplinary approach. Develop environmental consciousness in their students. 3. Conduct local surveys; arrange field trips and environmental games and related activities.
ED-210	Distance Education	After completion the course the student teachers will be able to understand: Development of distance education Understand the concept, scope and objectives of distance education 3. Understand the importance of distance education in global context.
ED-212	Educational Technology	To equip the student teachers with the knowledge of application of technologies for improving instructional practices. To provide the skills required for effective instructional management. To develop professional skills required for guiding pupils. 4. To obtain a total perspective of the role of technologies in modern educational practices.
ED-214	Guidance and Counseling	Understand the basic concept, nature, and scope of educational & vocational guidance. Understand the aims and objectives of educational & vocational guidance. Understand the importance of educational & vocational guidance in the present national scenario. 4. Understand the role and responsibilities of guidance workers in school.
ED-252	ICT- A Tool in Teaching Learning-II	ICT application in class room and professional development and in teaching learning process. Awareness about functioning of

		computer, concept of hardware and software and education software, computer memory and its unit. Basic features of windows: MS-Office, MS-Excel and preparation of slides. Computer aided instruction concept and modes. Internet and multimedia Concept and its educational uses. 6. Role of computer in education system.

Department: EDUCATION

MASTER OF EDUCATION		
Programme Outcome	The Master of Education (M.Ed.) provides an opportunity for professionals in the field of Education to undertake advanced coursework and research in their area of interest. The course offers professional educators excellent career prospects in terms of advancement of knowledge and qualification and ultimately making them better teachers. The course prepares graduates to inquire into the nature of educational problems and generate new knowledge, which can be used to enhance policy and practice and help develop skills to tackle the challenging and dynamic world of teaching. The M.Ed. programme is designed to shape promising teacher educators with advanced teaching skills, research insights, and competence in delivery of contents.	
Programme Specific Outcome	•To enable student teachers to set high standards of professional competency, intellectual conviction and integrity. •To develop the capacity, skill and knowledge among student teachers to create and sustain environment in modern day education.	
	•To equip the student teachers with the knowledge and skills of new technologies. •To enable student teachers examine critically the theories and concepts of education drawn from various disciplines related to education such as Philosophy, Psychology, Sociology, Management, Economics, Science and Technology, ICT etc. in such a way that their linkages with methods, pedagogy and practices in the classroom can be enriched.	
	•To develop the capacity to undertake research in the field of education.	
	•To enable student teachers develop specialization in areas of education to emerge as educational leaders in those areas.	
Course Code	**Course Name**	**Course Outcomes**
ED-501	Psychology of teaching learning	To acquaint students with the concept of teaching, theories of teaching. To acquaint students with the importance of development stages and its importance in teaching learning. To acquaint the students with the identification and treatment procedures for mental health of learner. Visualize multiple dimensions and stages of learner's development and their implications on learning. 5. Understand the learner in terms of various characteristics.
ED-503	Methodology of educational	To acquaint students with the concepts of research and

	research-I	educational research. To develop an understanding of the nature and scope of educational research. 3. To develop insights into the methodological issues involved in educational research.
ED-505	Teacher education-I	To enable the students to understand the meaning, scope and objectives of teacher education at different level and its development in India. To acquaint the students with the various aspects of student teaching programmes, prevailing in the country. To enable the students to understand about agencies in India. 4. To develop understanding about the researches in teacher education.
ED-511	Educational Technology-I	Students will be able to understand the concept, scope and role of Educational Technology. Students will be able to understand the different media of communication and their importance in teaching learning process. Student will be able to understand and apply the innovative techniques in teaching learning process. Students will be able to understand skill based teaching and feedback devices. 5. Students will be able to analyses content and ways of providing learning experiences.
ED-513	Guidance counseling-I	To help students in understanding the concepts and the basic principles of guidance & counseling, their need and application to the process of education. To acquaint the student with a theoretical background for educational vocational and personal guidance. 3. To acquaint the students with organization frame work for various guidance services.
ED-515	Planning and management of Education-I	On completion of the course the students will be able to: Identify the need, scope and purpose of educational planning in terms of national and community needs, Develop the skills in planning and using a variety of administrative strategies, Explain the role and contribution of different agencies/ contribution in educational planning, 4. To help them determine and implement objectives of planning on the basis of individual needs of the students.
ED-517	Distance Education and open learning-I	On completion of this course the students will be able to: Understand the concept of distance education. Distinguish between correspondence education, distance education, and open learning Reflect on the socio-economic and socio-political issues which the institutions of education in India are currently faced with discuss the socio-academic relevance of distance education. Develop an insight and examine critically the objectives of

		distance education, 5. Understand the nature of distance learners and distance learning process,
ED-519	Inclusive education-I	On completion of this course the students will be able to Understand the global and national commitments towards the education of children with diverse needs, Appreciate the need for promoting inclusive practice and the roles and responsibilities of all concerned personnel, Develop critical understanding of the recommendations of various commissions and committees towards teacher preparation for inclusive education, Understand the nature of difficulties encountered by children and prepare conducive teaching learning environment in inclusive schools, Analyze special education, integrated education, mainstream and inclusive education practices, 6. Identify and utilize existing resources for promoting inclusive practice.
ED-507	Elementary Education -I	On completion of this course the students will be able to: Understand the need and significance of childhood care and education Understand the policy perspectives on El.Ed. in India and world Understand social and personal development of children at Elementary level. Understand the quality dimensions i.e. curriculum, programmes and work force for Elementary level. Develop knowledge and skills for research and evaluation in El. Ed. and training of personnel.
ED-509	Secondary or senor secondary education-I	On completion of the course the student-teachers will be able to: Understand the nature-scope and systems of secondary and senior secondary education. Examine the status of development of secondary and senior secondary education in India after Independence. 3.Understand the problem and challenges related to secondary and senior secondary education. 4. Understand the interventions to solve the problems and issues related to alternative schooling at secondary schools.
ED-502	Socio-economic and political aspects of education	Student will be able to understand the socialistic pattern of society. Students will be able to understand the education as an industry and inter relationship between economics and education. Student will be able to identify the different characteristics of contemporary political system. 4. Student will be able to understand the role of education in different political systems.
ED-504	Methodology of educational	To develop understanding and skill in using quantitative

	research-II	and qualitative techniques of data analysis. To develop understanding and skill to interpret a given set of data after analysis. To enable the student to write a research report in a proper way. 4. To enable the student to know and aware the status of research in India and abroad.
ED-506	Curriculum development	Develop an understanding of underlying principles of curriculum development and evaluation at elementary stage. Reflect on the need and importance of work experience, art education and health and physical education. 3. Develop research insight for curriculum development in elementary education.
ED-508	Elementary Education -II	On completion of this course the students will be able to: Gain insight into the need and objectives of elementary teacher education. Understand the development of elementary teacher education in post-independent India. Gain insight into the existing pre-service teacher education programmes and their organizational aspects. Develop understanding of the needs, importance and existing practices of in- service education of teachers and functionaries associated with elementary Education. 5. Develop understanding of status of elementary teachers and the problems and issues related to professional growth.
ED-510	Secondary or senior secondary education-II	On completion of this course the students will be able to: Develop an understanding of underlying principles of curriculum development and evaluation at Secondary and Senior Secondary Stage Reflect on the need and importance of work experience, art education, health physical education and working with the community. 3 .Understand the importance of teaching of language science and mathematics at secondary level Develop the capability to use effectively various methods and approaches of teaching learning of various subjects at secondary level 5. Develop research insight for curriculum development in elementary education.
FA-602	Field attachment-III	Filed attachments/internships/immersions shall be facilitated with organizations and institutions working in education. These would aim at engaging the students with field-based situations and work in elementary and other levels of education.
ED-602	Philosophy of Education	The student teacher will be able to- Understand the nature and functions of philosophy of education. 2. Do logical analysis, Interpretation and synthesis of various concepts, Propositions and philosophical

		assumptions about educational phenomena. Understand and use philosophical methods in studying educational data. 4. Do critical appraisal of contributions made to education by prominent educational.
ED-604	Teacher Education-II	To understand the concepts, objectives and principles of teacher education. To acquaint the development of teacher education. 3.To realize the place of teaching in the community.
ED-606	Professional development of teacher	On completion of this course the students will be able to: Develop understanding of various strategies of teachers' professional development, gain insight into the status of teachers' in-service education in the country. 2. Develop understanding of the process of In-service education, use various methods and techniques for the identification of training needs, use various techniques for the evaluation of In-service teacher education programmes, reflect on issues, concerns and problems of teacher in-service education, appreciate the use of ICT for the professional development of teachers.
ED-612	Educational Technology-II	On completion of this course, the students will be able to: Develop awareness about uses of computer technology in Educational Research. Develop understanding about the various aspects of data analysis software. Develop various skills to use computer technology for sharing the information and Ideas through the Blogs and Chatting groups. Understand the process of locating the research studies carried in the Internet and using of online journals and online books. 5. Make them understand the use of professional forums and professional associations.
ED-614	Guidance counseling-II	Develop command of theoretical knowledge of various techniques in guidance and counseling. Develop practical skills in selected techniques in guidance and counseling. 3. Develop abilities to provide individual and group guidance and counseling.
ED-616	Planning and management of Education-II	On completion of the course the students will be able to: To develop an insight into the perspectives of Management theories and Practices in Education. To study Educational Management system and functions in India with specific reference to National, State, District and Village level administration of education. To recognize the importance of Educational Resources and their effective management for quality education. To understand the issues and challenges in Planning and Administration of Education in India. 5) To identify the trends and needed areas for research in

		Educational Management.
ED-618	Distance Education and open learning-II	1.On the completion of the course student teacher will be able to understand the historical perspective of Distance Education in India Understand the concerns and services in Distance Education. Understand the parrers and models of distance Education 4. Understand the thrust area of Distance Education.
ED-620	Inclusive education- Girls' Education – II	On completion of this course the students will be able to: Understand the concept and importance of gender justice and equality, Analyse the status of education: access, enrolment, achievement of goals in India, Develop an insight into policy, perspectives, issues and concerns of girl's education. Reflect on various schemes, programmes for girls' education. 5. Identify research gaps in the area of girls' education.

Department: Hotel Management

BSC (Hospitality & Hotel Administration)	
Program Outcome	To analyze the investment trends and hospitality development patterns of international hospitality firms. To identify emerging overseas markets for tourism and hospitality development. To understand the socio-economic impact of developing tourism industry in developing countries. To understand the management functions of tourism and hospitality industry including human resource management, financial management, marketing and technology applications. To Identify potential career opportunities of our students through internship programs and on education training Utilize interpersonal skills to lead/manage first-level employees in a hospitality setting. Perform cost calculations and apply them to decision-making situations. Evaluate food safety and sanitation to maintain a safe and sanitary work environment. Create an attractive and well-designed menu with consideration given to effective costing and pricing principles. Complete and evaluate the data generated from a hotel night audit. Develop a professional marketing brochure for a lodging operation. Forecast sales and expenses in a variety of hospitality businesses.

	Create a resume and cover letter that effectively highlight skills sought by potential employers. Achieve national certification as a Serve Safe Food Protection Manager. Schedule employees with consideration given to budgets, sales forecasts, and customary labour practices.
Program Specific Outcome	Undertakes task, functions, duties and activities in the operation of the hotels, restaurants, travel, government and non-government agencies in accordance with the competency standards. Analyses situation, identifies problems, formulates solutions and implements corrective and/or mitigating measures and action management into foodservice and lodging operations. Practice professional ethics, provide leadership, demonstrate personal and global responsibility, and work effectively as a team member Demonstrate how the organizational behaviour and organizational practices can aid in improving the performances and wellbeing of people at work. Demonstrate the knowledge of planning and operation of various food & Beverage service outlets for business ownership. Design an accounting and financial information systems for a hospitality organisation for management decision making. Conduct investigations and apply effective marketing management practices as per Indian conditions. Understand consumer behaviour and the use of appropriate pricing strategies to increase profitability. Assess the forces of globalisation and its impact on the hospitality industry. An ability to apply ethical principles by practicing professional ethics, food safety and environment norms to be adhered in the Hospitality industry. An ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. An ability to communicate effectively on various hospitality activities with the organisation and society at large, such as, being able to comprehend and write effective reports and design documents to make effective presentations, and give and receive clear instructions. Demonstrate knowledge and understanding of hospitality management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of changing trends in the hospitality industry.

Course Out come

Course Code	Course Name	Course Outcome
HM 101	Professional kitchen techniques-I	Determine the different positions and function of kitchen production.

		Identify and properly operate equipment & common culinary hand tools. Productively apply appropriate cooking skills Identify various cooking techniques. Comply with and practice safe work habits, identify safety hazards, employ preventative safety measures. Maintain positive relations with others, cooperate through teamwork and group participation. Exhibit appropriate work habits and attitudes; demonstrate a willingness to compromise. Identify behaviors for establishing successful working relationships Demonstrate a positive attitude, conversation skills, & personal hygiene Prepare, clarify and utilize basic stocks, sauces, soups & thickeners. Identify & properly select grains, cereals, pastas & rice then cook dishes utilizing these.
HM 103	Professional service techniques-I	Students will be aware about different catering establishment their menus, their nutrition, their themes, type of services offered. Students will be having knowledge about the operations in depth in accorandence to different areas their service, their operations, specialty etc. Students will be having good knowledge of equipments their usages, precautions, storing, cleaning, upkeep which will be good for smooth operations. Students will understand roles & responsibility of different team members their attributes, their work style, specification. Students will be capable enough to work as per the demand of service as per type of function or event. Student will understand different control procedures their importance for a business.
HM 105	Lodging operations -I	. Students will understand the guest room & guest room cleaning. Students will learn the guest room procedure. Students will understand the bathroom supply. Students will understand the file & formats used in housekeeping department.

		Students will understand the type's keys. Students will learn the key management. 7. By this integrated function of pets can understand
HM 107	Room division management -I	Students will learn accommodation industry. Students will learn the f&b Services and support services Students will understand the types of rooms & hotels It will provide the essential knowledge of front office.
HM 111	Nutrition, Hygiene & Sanitation	1.Understand the importance of nutritional valuve of food. 2.Understand the meaning and importance of balance diet. 3.Understood the various storage techniques of food 4.Understood the various methods of food handeling. 5.Understood the importance of hygiene in the Kitchen and garbage disposal technique.
HM 102	Professional kitchen techniques-II	Determine the different positions and function of kitchen production. Identify and properly operate equipment & common culinary hand tools. Productively apply appropriate cooking skills Identify various cooking techniques. Comply with and practice safe work habits, identify safety hazards, employ preventative safety measures. Maintain positive relations with others, cooperate through teamwork and group participation. Exhibit appropriate work habits and attitudes; demonstrate a willingness to compromise. Identify behaviors for establishing successful working relationships Demonstrate a positive attitude, conversation skills, & personal hygiene Prepare, clarify and utilize basic stocks, sauces, soups & thickeners. Identify & properly select grains, cereals, pastas & rice then cook dishes utilizing these.

		Utilize portion control, work flow, plating and garnishing principals.
HM 104	Professional service techniques-II	Understand better about the classification of beverages Awareness about the non alcoholic beverage served in hotel industry Knowledge of different folding Serviettes Understanding of Mise-en-scene &Mise-en-place including arrangement of side boards Knowledge from Storage & Service of Cigars and Cigarettes Different areas of room service and organization chart of food and beverage service Students will understand about basic terminology used in Food and beverage service in different hotels.
HM 106	Lodging operations-II	. Students will understand the guest room & guest room cleaning. Students will learn the guest room procedure. Students will understand the bathroom supply. Students will understand the file & formats used in housekeeping department. Students will understand the type's keys. Students will learn the key management. 7. By this integrated function of pets can understand
HM 108	Room division management –II	It will increase knowledge of sales & Marketing and different channels of distribution. Students will understand better how to work effectively with co ordination with different departments. Understanding about reservation, process, cancellation, amendment, modes, source, and problems will increase. It will increase different types of registration process. Student will understand how to use safe deposit box & how to handle different keys. Student will understand different emergency procedure need to be followed during different emergencies. It will increase make understand about guest relation, complaint handling in Front office. Students will understand impact of national and international events on tourism & hospitality industry
HM 112	Food Safety & Quality	Understand the importance of food safety and hygiene techniques. Understand the meaning and importance of food Law's. Understood the various additives and their importance in kitchen Understood the various food borne disease. Understood the importance &BENEFICIAL ROLE OF MICRO-ORGANISMS. Understood the Common adulterants in food and Method of their detection (basic principle)

HM 201	Culinary preparation	1.Students will understand the Basic Indian Masala. Students will understand the volume feeding. Students will learn the regional food of India. Students will learn the different types of gravies. 5. Students will understand the banquet menu planning
HM 203	Restaurant and Banquet Service	It will increase knowledge of room service department, Students will understand wine and their classification. Understanding about production process of wine. Student will understand beer production process. Student will understand different type of beer with suitable example. It will increase make understand about sake, cider and Perry.
HM 205	Accommodation Operations – I	. Students will understand the cleaning procedure Students will understand the concept & importance of safety Students will understand the concept of safeguarding assets Students will understand the floor types & care Students will understand the classification & selection of the carpets
HM 207	Front desk techniques-I	. Students will learn the types & modes of reservation. 2 Students will understand the reservation process. Students will understand the up-selling process. Students will understand the types of traveler. Students will learn the front office calculations. Students will learn the revenue calculations. Students will learn the accounting function of front office. Students will understand the concept of yield management.
HM 209	Management Technique-I	understood the historical backdrop and fundamentals of Management thoughts vital for understanding the conceptual frame work of Management as a discipline. Discuss the various concepts of planning, Decision making and controlling to help solving managerial problems 3. Understanding concepts of Ethics, Delegation, Coordination and Team work. Study and understand management concepts and styles in Global context. Develop understanding about emerging concepts in management thought and philosophy
HM 211	Accounting and economics of hotel	1 Students will demonstrate the ability to communicate clearly and concisely with internal and external customers, establish and maintain relationships, and facilitate constructive interactions with individuals and groups

		2 Students will demonstrate an understanding of how to inspire individual and organizational excellence, create a shared vision and successfully manage change to attain the organization's strategic ends and successful performance. 3 Students will be able to comprehend the alignment of personal and organizational conduct with ethical and professional standards within healthcare, including a responsibility to the patient and community, a service orientation, and a commitment to lifelong learning and improvement. 4 Students will demonstrate knowledge of the healthcare environment, including healthcare systems and the environment in which healthcare managers and providers function. 5 Students will be able to apply business principles, including systems thinking, to the healthcare environment.
HM 202	International culinary preparation	. This course will induce all the skills related to professional cooking also knowledge to maintain the quality of food in terms of flavor, texture, color etc This course impart the skills and complete knowledge of personal hygiene, workplace sanitation and food hygiene This course impart the skills to plan all kind of Menu, Recipe Methods And Photography of Foods. This course to the will impart the skills of stock storage in fridge according to the principles of FIFO This course imparts the knowledge and skills to keep record for reference. This course will impart the skills required for resolving defects related to food preparations and servings. This course imparts all the techniques and procedures required for standard buffet set up This course will produce skills and comprehensive knowledge required to manage special and specific events.
HM 204	Food & Beverage Thematic Service	It will make students understand about the sprits served in hotel industry Students will understand bar layout and bar operation. Students will understand preparation of cocktail and mock tail. It will help the student to achieve knowledge about tobacco.
HM 206	Accommodation Operations – II	Students will learn classification & types of fabrics Students will learn uniform/ linen/ tailor room layout. Students will learn the functioning of linen room. Students will learn the issuing procedure. It will give a vast knowledge of internal function of

		housekeeping
HM 214	Total quality management	Students will understand role of food and beverage control department. Students will understand importance of food and beverage control Students will understand methodology use in food and beverage control. Student will know different types cost and their analyses. Students will understand different type of budget and budgetary contro
HM 208	Front desk techniques-II	Students will learn the basics of commuters' Students will learn the reservation & registration. Students will understand the credit control masseur. Students will understand the importance of front office in security. Students will VIP's handling procedure. Students will understand the statistics reports of front office.
HM 210	Management Technique – II	Course outcomes:- understood the historical backdrop and fundamentals of Management thoughts vital for understanding the conceptual frame work of Management as a discipline. Discuss the various concepts of planning, Decision making and controlling to help solving managerial problems 3. Understanding concepts of Ethics, Delegation, Coordination and Team work. Study and understand management concepts and styles in Global context. Develop understanding about emerging concepts in management thought and philosophy
HM 212	Management Concept & Organizational Behaviour	Critically analyse, evaluate and apply organisationalbehaviour theories, practices and issues to formulate appropriate strategies and solutions in diverse business contexts Integrate relevant theories, evidence from research and business data to analyse the impact of organisationalbehaviour issues on strategic business decision making and organisational effectiveness Effectively communicate concepts and arguments in a logical and coherent manner and work collaboratively with others in analysing problems and identifying solutions in the workplace

HM 301	International gastronomy	. This course will induce all the skills related to professional cooking also knowledge to maintain the quality of food in terms of flavor, texture, color etc This course impart the skills and complete knowledge of personal hygiene, workplace sanitation and food hygiene This course impart the skills to plan all kind of Menu, Recipe Methods And Photography of Foods. This course to the will impart the skills of stock storage in fridge according to the principles of FIFO This course imparts the knowledge and skills to keep record for reference. This course will impart the skills required for resolving defects related to food preparations and servings. This course imparts all the techniques and procedures required for standard buffet set up This course will produce skills and comprehensive knowledge required to manage special and specific events.
HM 303	Advance Food & Beverage Service	Students will understand Factors affecting operation of restaurant Students will understand the different catering establishment . It will be helpful to know the banquet operations Students will understand the importance gueridoen service (flambé service). Student will know the identify and service of cheese.
HM 305	Advance housekeeping	Students will understand the cleaning procedure Students will understand the concept & importance of safety Students will understand the concept of safeguarding assets Students will understand the floor types & care Students will understand the classification & selection of the carpets
HM 307	Advance Front Office Operation.	Students will understand role of basics in Front office and importance and work process of different application in front office. Students will understand importance & procedure for credit Control. Students will understand role of security and different security procedure to follow which are very important for hotel operations. Student will know different types of key and their use & their upkeep which is important part of security.

		Students will understand process, functions types of night audit their importances which help to become a good manager. Student will understand handling of different complaints & situation which will help to become a good manager. Students will be stronger in their operation as accounting terms and procedure also a part of Front office for better performance.
HM 309	Event Management	To interpret the fundamental principles of essential hospitality and tourism business functions, To demonstrate professional behavior and competencies in customer service, To develop a range of leadership skills and abilities such as motivating others, leading changes, and resolving conflict, To communicate effectively in oral and written communication, To analyze and solve problems, using appropriate tools and technology, To recognize the challenges and opportunities of working effectively with people in a diverse environment.
HM 311	Financial Management	Demonstrate ethical appreciation in dealings and relationships with clients and third parties Discuss, explain and apply ethical principles, standards of practice and rules of conduct for the practice of financial planning, relevant to the jurisdiction Demonstrate communications skills Demonstrate presentation skills Consider and discuss the impact of compliance issues on the practice of financial planning
HM 315	Total quality control	Students would be able to understand F&B Control steps at every stage. Students would be able to become F&B Controllers. Students would be able to calculate actual food costs. Students would be able to even detect Frauds in F&B Operations.

Bachelor of Hotel Management & Catering Technology	
Program Outcome	To analyze the investment trends and hospitality development patterns of international hospitality firms. To identify emerging overseas markets for tourism and hospitality development. To understand the socio-economic impact of developing tourism industry in developing countries. To understand the management functions of tourism and hospitality industry including human resource management, financial management, marketing and technology applications. To Identify potential career opportunities of our students through internship programs and on education training Utilize interpersonal skills to lead/manage first-level employees in a hospitality setting. Perform cost calculations and apply them to decision-making situations. Evaluate food safety and sanitation to maintain a safe and sanitary work environment. Create an attractive and well-designed menu with consideration given to effective costing and pricing principles. Complete and evaluate the data generated from a hotel night audit. Develop a professional marketing brochure for a lodging operation. Forecast sales and expenses in a variety of hospitality businesses. Create a resume and cover letter that effectively highlight skills sought by potential employers. Achieve national certification as a Serve Safe Food Protection Manager. Schedule employees with consideration given to budgets, sales forecasts, and customary labour practices.
Program Specific Outcome	Undertakes task, functions, duties and activities in the operation of the hotels, restaurants, travel, government and non-government agencies in accordance with the competency standards. Analyses situation, identifies problems, formulates solutions and implements corrective and/or mitigating measures and action management into foodservice and lodging operations. Practice professional ethics, provide leadership, demonstrate personal and global responsibility, and work effectively as a team member Demonstrate how the organizational behaviour and organizational practices can aid in improving the performances and wellbeing of people at work. Demonstrate the knowledge of planning and operation of various food & Beverage service outlets for business ownership. Design an accounting and financial information systems for a hospitality organisation for management decision making.

	Conduct investigations and apply effective marketing management practices as per Indian conditions. Understand consumer behaviour and the use of appropriate pricing strategies to increase profitability. Assess the forces of globalisation and its impact on the hospitality industry. An ability to apply ethical principles by practicing professional ethics, food safety and environment norms to be adhered in the Hospitality industry. An ability to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. An ability to communicate effectively on various hospitality activities with the organisation and society at large, such as, being able to comprehend and write effective reports and design documents to make effective presentations, and give and receive clear instructions. Demonstrate knowledge and understanding of hospitality management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of changing trends in the hospitality industry.

Course Out come

Course Code	Course Name	Course Outcome
HM 101	Professional kitchen techniques-I	Determine the different positions and function of kitchen production. Identify and properly operate equipment & common culinary hand tools. Productively apply appropriate cooking skills Identify various cooking techniques. Comply with and practice safe work habits, identify safety hazards, employ preventative safety measures. Maintain positive relations with others, cooperate through teamwork and group participation. Exhibit appropriate work habits and attitudes; demonstrate a willingness to compromise. Identify behaviors for establishing successful working relationships Demonstrate a positive attitude, conversation skills, & personal hygiene Prepare, clarify and utilize basic stocks, sauces, soups &

		thickeners. Identify & properly select grains, cereals, pastas & rice then cook dishes utilizing these.
HM 103	Professional service techniques-I	Students will be aware about different catering establishment their menus, their nutrition, their themes, type of services offered. Students will be having knowledge about the operations in depth in accorandence to different areas their service, their operations, specialty etc. Students will be having good knowledge of equipments their usages, precautions, storing, cleaning, upkeep which will be good for smooth operations. Students will understand roles & responsibility of different team members their attributes, their work style, specification. Students will be capable enough to work as per the demand of service as per type of function or event. Student will understand different control procedures their importance for a business.
HM 105	Lodging operations -I	. Students will understand the guest room & guest room cleaning. Students will learn the guest room procedure. Students will understand the bathroom supply. Students will understand the file & formats used in housekeeping department. Students will understand the type's keys. Students will learn the key management. 7. By this integrated function of pets can understand
HM 107	Room division management -I	Students will learn accommodation industry. Students will learn the f&b Services and support services Students will understand the types of rooms & hotels It will provide the essential knowledge of front office.
HM 111	Nutrition, Hygiene & Sanitation	1.Understand the importance of nutritional valuve of food. 2.Understand the meaning and importance of balance diet. 3.Understood the various storage techniques of food 4.Understood the various methods of food handeling. 5.Understood the importance of hygiene in the Kitchen and garbage disposal technique.
HM 102	Professional kitchen techniques-II	Determine the different positions and function of kitchen production. Identify and properly operate equipment & common

		culinary hand tools. Productively apply appropriate cooking skills Identify various cooking techniques. Comply with and practice safe work habits, identify safety hazards, employ preventative safety measures. Maintain positive relations with others, cooperate through teamwork and group participation. Exhibit appropriate work habits and attitudes; demonstrate a willingness to compromise. Identify behaviors for establishing successful working relationships Demonstrate a positive attitude, conversation skills, & personal hygiene Prepare, clarify and utilize basic stocks, sauces, soups & thickeners. Identify & properly select grains, cereals, pastas & rice then cook dishes utilizing these. Utilize portion control, work flow, plating and garnishing principals.
HM 104	Professional service techniques-II	Understand better about the classification of beverages Awareness about the non alcoholic beverage served in hotel industry Knowledge of different folding Serviettes Understanding of Mise-en-scene &Mise-en-place including arrangement of side boards Knowledge from Storage & Service of Cigars and Cigarettes Different areas of room service and organization chart of food and beverage service Students will understand about basic terminology used in Food and beverage service in different hotels.
HM 106	Lodging operations-II	. Students will understand the guest room & guest room cleaning. Students will learn the guest room procedure. Students will understand the bathroom supply. Students will understand the file & formats used in

		housekeeping department. Students will understand the type's keys. Students will learn the key management. 7. By this integrated function of pets can understand
HM 108	Room division management –II	It will increase knowledge of sales & Marketing and different channels of distribution. Students will understand better how to work effectively with co ordination with different departments. Understanding about reservation, process, cancellation, amendment, modes, source, and problems will increase. It will increase different types of registration process. Student will understand how to use safe deposit box & how to handle different keys. Student will understand different emergency procedure need to be followed during different emergencies. It will increase make understand about guest relation, complaint handling in Front office. Students will understand impact of national and international events on tourism & hospitality industry
HM 112	Food Safety & Quality	Understand the importance of food safety and hygiene techniques. Understand the meaning and importance of food Law's. Understood the various additives and their importance in kitchen Understood the various food borne disease. Understood the importance &BENEFICIAL ROLE OF MICRO-ORGANISMS. Understood the Common adulterants in food and Method of their detection (basic principle)
HM 201	Culinary preparation	1.Students will understand the Basic Indian Masala. Students will understand the volume feeding. Students will learn the regional food of India. Students will learn the different types of gravies. 5. Students will understand the banquet menu planning
HM 203	Restaurant and Banquet Service	It will increase knowledge of room service department, Students will understand wine and their classification. Understanding about production process of wine. Student will understand beer production process. Student will understand different type of beer with suitable example. It will increase make understand about sake, cider and Perry.
HM 205	Accommodation Operations – I	. Students will understand the cleaning procedure Students will understand the concept & importance of safety Students will understand the concept of safeguarding assets Students will understand the floor types & care

		Students will understand the classification & selection of the carpets
HM 207	Front desk techniques-I	. Students will learn the types & modes of reservation. 2 Students will understand the reservation process. Students will understand the up-selling process. Students will understand the types of traveler. Students will learn the front office calculations. Students will learn the revenue calculations. Students will learn the accounting function of front office. Students will understand the concept of yield management.
HM 209	Management Technique-I	understood the historical backdrop and fundamentals of Management thoughts vital for understanding the conceptual frame work of Management as a discipline. Discuss the various concepts of planning, Decision making and controlling to help solving managerial problems 3. Understanding concepts of Ethics, Delegation, Coordination and Team work. Study and understand management concepts and styles in Global context. Develop understanding about emerging concepts in management thought and philosophy
HM 211	Accounting and economics of hotel	1 Students will demonstrate the ability to communicate clearly and concisely with internal and external customers, establish and maintain relationships, and facilitate constructive interactions with individuals and groups 2 Students will demonstrate an understanding of how to inspire individual and organizational excellence, create a shared vision and successfully manage change to attain the organization's strategic ends and successful performance. 3 Students will be able to comprehend the alignment of personal and organizational conduct with ethical and professional standards within healthcare, including a responsibility to the patient and community, a service orientation, and a commitment to lifelong learning and improvement. 4 Students will demonstrate knowledge of the healthcare environment, including healthcare systems and the environment in which healthcare managers and providers function. 5 Students will be able to apply business principles, including systems thinking, to the healthcare environment.

HM 202	International culinary preparation	. This course will induce all the skills related to professional cooking also knowledge to maintain the quality of food in terms of flavor, texture, color etc This course impart the skills and complete knowledge of personal hygiene, workplace sanitation and food hygiene This course impart the skills to plan all kind of Menu, Recipe Methods And Photography of Foods. This course to the will impart the skills of stock storage in fridge according to the principles of FIFO This course imparts the knowledge and skills to keep record for reference. This course will impart the skills required for resolving defects related to food preparations and servings. This course imparts all the techniques and procedures required for standard buffet set up This course will produce skills and comprehensive knowledge required to manage special and specific events.
HM 204	Food & Beverage Thematic Service	It will make students understand about the sprits served in hotel industry Students will understand bar layout and bar operation. Students will understand preparation of cocktail and mock tail. It will help the student to achieve knowledge about tobacco.
HM 206	Accommodation Operations – II	Students will learn classification & types of fabrics Students will learn uniform/ linen/ tailor room layout. Students will learn the functioning of linen room. Students will learn the issuing procedure. It will give a vast knowledge of internal function of housekeeping
HM 214	Total quality management	Students will understand role of food and beverage control department. Students will understand importance of food and beverage control Students will understand methodology use in food and beverage control. Student will know different types cost and their analyses. Students will understand different type of budget and budgetary contro
HM 208	Front desk techniques-II	Students will learn the basics of commuters' Students will learn the reservation & registration. Students will understand the credit control masseur. Students will understand the importance of front office

		in security. Students will VIP's handling procedure. Students will understand the statistics reports of front office.
HM 210	Management Technique – II	Course outcomes:- understood the historical backdrop and fundamentals of Management thoughts vital for understanding the conceptual frame work of Management as a discipline. Discuss the various concepts of planning, Decision making and controlling to help solving managerial problems 3. Understanding concepts of Ethics, Delegation, Coordination and Team work. Study and understand management concepts and styles in Global context. Develop understanding about emerging concepts in management thought and philosophy
HM 212	Management Concept & Organizational Behaviour	Critically analyse, evaluate and apply organisationalbehaviour theories, practices and issues to formulate appropriate strategies and solutions in diverse business contexts Integrate relevant theories, evidence from research and business data to analyse the impact of organisationalbehaviour issues on strategic business decision making and organisational effectiveness Effectively communicate concepts and arguments in a logical and coherent manner and work collaboratively with others in analysing problems and identifying solutions in the workplace
HM 301	International gastronomy	. This course will induce all the skills related to professional cooking also knowledge to maintain the quality of food in terms of flavor, texture, color etc This course impart the skills and complete knowledge of personal hygiene, workplace sanitation and food hygiene This course impart the skills to plan all kind of Menu, Recipe Methods And Photography of Foods. This course to the will impart the skills of stock storage in fridge according to the principles of FIFO This course imparts the knowledge and skills to keep record for reference. This course will impart the skills required for resolving defects related to food preparations and servings. This course imparts all the techniques and procedures required for standard buffet set up

		This course will produce skills and comprehensive knowledge required to manage special and specific events.
HM 303	Advance Food & Beverage Service	Students will understand Factors affecting operation of restaurant Students will understand the different catering establishment . It will be helpful to know the banquet operations Students will understand the importance gueridoen service (flambé service). Student will know the identify and service of cheese.
HM 305	Advance housekeeping	Students will understand the cleaning procedure Students will understand the concept & importance of safety Students will understand the concept of safeguarding assets Students will understand the floor types & care Students will understand the classification & selection of the carpets
HM 307	Advance Front Office Operation.	Students will understand role of basics in Front office and importance and work process of different application in front office. Students will understand importance & procedure for credit Control. Students will understand role of security and different security procedure to follow which are very important for hotel operations. Student will know different types of key and their use & their upkeep which is important part of security. Students will understand process, functions types of night audit their importances which help to become a good manager. Student will understand handling of different complaints & situation which will help to become a good manager. Students will be stronger in their operation as accounting terms and procedure also a part of Front office for better performance.
HM 309	Event Management	To interpret the fundamental principles of essential hospitality and tourism business functions, To demonstrate professional behavior and competencies in customer service, To develop a range of leadership skills and abilities such as motivating others, leading changes, and resolving conflict,

		To communicate effectively in oral and written communication, To analyze and solve problems, using appropriate tools and technology, To recognize the challenges and opportunities of working effectively with people in a diverse environment.
HM 311	Financial Management	Demonstrate ethical appreciation in dealings and relationships with clients and third parties 2 Discuss, explain and apply ethical principles, standards of practice and rules of conduct for the practice of financial planning, relevant to the jurisdiction 3 Demonstrate communications skills 4 Demonstrate presentation skills 5 Consider and discuss the impact of compliance issues on the practice of financial planning
HM 315	Total quality control	Students would be able to understand F&B Control steps at every stage. Students would be able to become F&B Controllers. Students would be able to calculate actual food costs. Students would be able to even detect Frauds in F&B Operations.
HM 401	Food Production – Specialization	Student can develop a skill to manage the manpower. 2. This will increase the managerial skill This will increase the personnel management this will increase the training & development skill.
HM 403	Food Production – Management	Student can develop a skill to manage the manpower. This will increase the managerial skill This will increase the personnel management this will increase the training & development skill.
HM 405	Food & Beverage Service – Specialization	Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing food and beverage operations and all the other activities linked to the services. • Thorough knowledge of the different types of cuisines, mock tails and cocktails served in the restaurant. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the restaurant. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible

		way
HM 407	Food & Beverage Service – Management	Food & Beverage server with 2 years of work experience working with a prestigious restaurant after completion of Bachelor's degree. • Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing food and beverage operations and all the other activities linked to the services. • Thorough knowledge of the different types of cuisines, mock tails and cocktails served in the restaurant. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the restaurant. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible way
HM 409	Accommodation Operations – Specialization	House Keeping assistant with 2 years of work experience working with a prestigious restaurant after completion of Bachelor's degree. • Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing Accommodation Operation and all the other activities linked to the services. • Thorough knowledge of the different types of Rooms, cleaning and plans served in the hotels. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the Hotels. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible way
HM 411	Accommodation Operations – Management	House Keeping assistant with 2 years of work experience working with a prestigious restaurant after completion of Bachelor's degree. • Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing Accommodation Operation and all the other activities linked to the services. • Thorough knowledge of the different types of Rooms, cleaning and plans served in the hotels. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the Hotels. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible way
HM 413	Front Office Operation – Specialization	Classify hotels in terms of their ownership, affiliation, and levels of service. Describe how hotels are organized and explain how

		functional areas within hotels areclassified. Summarize front office operations during the four stages of the guest cycle. Discuss the sales dimension of the reservations process and identify the toolsmanagers use to track and control reservations. List the six steps of the registration process and discuss creative registration options. Identify typical service requests that guests make at the front desk. Explain important issues in developing and managing a security program. Describe the process of creating and maintaining front office accounts. Identify functions and procedures related to the check- out and account settlement process. Summarize the steps in the front office audit process. Apply the ratios and formulas managers use to forecast room availability. Explain the concept of revenue management and discuss how managers can maximize revenue by using forecast information in capacity management, discount allocation, and duration control. Identify the steps in effective hiring and orientation
HM 415	Front Office Operation – Management	Apply human relations skills. Apply knowledge of law and laws affecting the hospitality industry. Demonstrate and execute employability skills. Assess the leadership, supervisory, and human relations skills within the hospitality industry. Debate laws affecting the hospitality industry. Identify the steps in effective hiring and orientation. Implementation of night auditing. Management of Property Management System.
HM 417	Sales and Marketing	. Students will learn the marketing philosophy of the hospitality industry. 2. Students will understand the marketing need & trends. Students will understand the difference between product & goods. Students will understand the level of the product. Students will understand concept of branding & equity. Students will understand the concept & methodology of marketing. Students will understand the globalization concept of marketing.
HM 419	Facility Planning	To understand the students the difference between design architectural.

		2. To make them understand the physical layout of the hotel To understand the space requirement To make them aware about the dealing with cellar & store. To make them understand the CPM & PERT.
HM 421	Introduction to Tourism and Travel	Students will understand role of tourism industry Students will understand importance of travel agency and modes of transport Students will understand function of tourism department Student will know foreign exchange
HM 402	Food Production – Research	Students will learn types & quality of the food. Students will learn the food recommendations for different outlets. It will make the students aware about the purchasing systems. It will develop the skill to manage the accidents at the work place. Students will understand the Legal responsibility as a worker. Students will understand the sensory evaluation in food industry. It will make the students more active for resources saving & management.
HM 404	Food Production – Development	Student can develop a skill to manage the manpower. This will increase the managerial skill This will increase the personnel management this will increase the training & development skill.
HM 406	Food & Beverage Service – Research	Food & Beverage server with 2 years of work experience working with a prestigious restaurant after completion of Bachelor's degree. • Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing food and beverage operations and all the other activities linked to the services. • Thorough knowledge of the different types of cuisines, mock tails and cocktails served in the restaurant. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the restaurant. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible way
HM 408	Food & Beverage Service.- Development	Food & Beverage server with 2 years of work experience working with a prestigious restaurant after

		completion of Bachelor's degree. • Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing food and beverage operations and all the other activities linked to the services. • Thorough knowledge of the different types of cuisines, mock tails and cocktails served in the restaurant. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the restaurant. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible way
HM 410	Accommodation Operations– Research	House Keeping assistant with 2 years of work experience working with a prestigious restaurant after completion of Bachelor's degree. • Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing Accommodation Operation and all the other activities linked to the services. • Thorough knowledge of the different types of Rooms, cleaning and plans served in the hotels. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the Hotels. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible way
HM 412	Accommodation Operations- Development	House Keeping assistant with 2 years of work experience working with a prestigious restaurant after completion of Bachelor's degree. • Promoted from the post of maintenance worker to the Server in the time frame of just one year. • Proficient in managing Accommodation Operation and all the other activities linked to the services. • Thorough knowledge of the different types of Rooms, cleaning and plans served in the hotels. • Excellent skills to make the customers feel special and welcomed to make them repeat guests of the Hotels. • Expertise in handling the unsatisfied customers and ensuring the problems get sorted in the best possible way
HM 414	Front Office Operation – Research	In-depth look into the handling of human resource management theories and leadership principles in the context of complex work situations of the tourism industry. Ability to organize and manage events

		Understanding the complexities of marketing the tourism product Knowledge and awareness of the importance of legal, quality and safety issues in the management of the hospitality/tourism product Ability to manage the resort and leisure facilities Understanding the management of accounting and financial aspects in the tourism/hospitality product Understanding the job of the General Manager in a hospitality organization The ability to successfully set-up and manage a food and beverage operations Ability to efficiently follow hotel standards for left luggage and mail handling.
HM 416	Front Office Operation.-Development	Determine the organization and function of the hospitality industry. Demonstrate use of a PMS, including guest relations, check -in, check-out, and night audit. Apply human relations skills. Apply knowledge of law and laws affecting the hospitality industry. Practice effective marketing, sales, and business promotion techniques. Demonstrate and execute employability skills. Assess the leadership, supervisory, and human relations skills within the hospitality industry. Practice effective sales techniques and procedures including Marketing, public relations, and entrepreneurship within the industry specific techniques. Debate laws affecting the hospitality industry. Understand the modes and role of travel industry
HM 418	Industrial & Food Law	. Understood the historical backdrop and fundamentals of Food Law thoughts vital for understanding the conceptual frame work of Industrial Food Law as a discipline. 2. Discuss the various concepts of planning, Decision making and controlling to help solving staff and Food Law problems. Understanding concepts of Ethics, Delegation, Coordination and Team work. Study and understand industrial food law concepts and styles in Global context. Develop understanding about emerging concepts in law

		thought and philosophy
HM 420	Entrepreneurship Development	Apply sound business and economic principles to successfully launch and effectively manage a new venture. Exhibit financial and management skills necessary to succeed in increasingly challenging academic environments of further higher education. Develop analytical and critical thinking skills necessary to make sound financial decisions in business and personal arenas. Recognize the sources of their own attitudes and worldview and deal constructively with and contribute positively to issues that arise in workplaces and communities.
HM 422	Human Resource Mgt.	Understood the historical backdrop and fundamentals of Human Resource Management thoughts vital for understanding the conceptual frame work of Management as a discipline. Discuss the various concepts of planning, Decision making and controlling to help solving staff and Managerial problems. Understanding concepts of Ethics, Delegation, Coordination and Team work. Study and understand Human Resource Management concepts and styles in Global context. Develop understanding about emerging concepts in HRM thought and philosophy

DIPLOMA IN FOOD PRODUCTION	
Program Out Come	**Continuous Learning** : Demonstrate awareness and need for continuous learning by regularly upgrading professional knowledge and skills. : **Ethics** : Commitment to professional ethics while discharging responsibilities. **Individual and Team Work** : Function effectively as an individual or as a member in diverse teams. **Technology and Equipment usage** : Efficiently operate industry used technology, equipment and tools. **Communication** : Communicate effectively in routine operations and dealings.
Program Specific Out come	Perform the standard operations of food production relating to various

	cuisines, effectively and efficiently to achieve guest satisfaction. The course covers all the areas of kitchen & Bakery. This course aims to develop Basic Knowledge & skills of students who desire to make a specialized career in Food Production which is a highly respected and very well paying sector of Hotel Industry. It is a short term focused course in F&B Production.

Course Out come

Course Code	Course Name	Course Outcome
HM-001	Cookery – I	Determine the different positions and function of kitchen production. Identify and properly operate equipment & common culinary hand tools. Productively apply appropriate cooking skills Identify various cooking techniques. Comply with and practice safe work habits, identify safety hazards, employ preventative safety measures. Maintain positive relations with others, cooperate through teamwork and group participation. Exhibit appropriate work habits and attitudes; demonstrate a willingness to compromise. Identify behaviors for establishing successful working relationships Demonstrate a positive attitude, conversation skills, & personal hygiene Prepare, clarify and utilize basic stocks, sauces, soups & thickeners. Identify & properly select grains, cereals, pastas & rice then cook dishes utilizing these. Utilize portion control, work flow, plating and garnishing principals.
HM-003	Larder – I	more easily align objectives with course content and evaluation methods; clearly communicate your expectations of students; establish a logical sequence of learning milestones;

		allow both you and your students to self-evaluate based on stated expectations; provide an opportunity for students to make connections across courses and institutional goals.
HM-111	Nutrition, Hygiene and Sanitation	**Understand the importance of nutritional valuve of food.** **Understand the meaning and importance of balance diet.** **Understood the various storage techniques of food** **Understood the various methods of food handeling.** **Understood the importance of hygiene in the Kitchen and garbage disposal technique.**
HM-009	Commodities and Costing - I	Students as budding chefs would be able to understand different commodities. Students would be able to know various Teas, Coffees & Hot drinks served in Hotels Students as Line Cooks would be able to understand basic principles of storage and preservations Students would be able to control costs once they get recruited in Kitchen They would understand the various touch points where Food Cost gets affected and can be controlled.
HM-002	Cookery – II	Determine the different positions and function of kitchen production. Identify and properly operate equipment & common culinary hand tools. Productively apply appropriate cooking skills Identify various cooking techniques. Comply with and practice safe work habits, identify safety hazards, employ preventative safety measures. Maintain positive relations with others, cooperate through teamwork and group participation. Exhibit appropriate work habits and attitudes;

		demonstrate a willingness to compromise. Identify behaviors for establishing successful working relationships Demonstrate a positive attitude, conversation skills, & personal hygiene Prepare, clarify and utilize basic stocks, sauces, soups & thickeners.
HM-004	Larder – II	more easily align objectives with course content and evaluation methods; clearly communicate your expectations of students; establish a logical sequence of learning milestones; allow both you and your students to self-evaluate based on stated expectations; provide an opportunity for students to make connections across courses and institutional goals
HM-112	Food Safety & Quality	Understand the importance of food safety and hygiene techniques. Understand the meaning and importance of food Law's. Understood the various additives and their importance in kitchen Understood the various food borne disease. Understood the importance & BENEFICIAL ROLE OF MICRO-ORGANISMS. Understood the Common adulterants in food and Method of their detection (basic principle)
HM-010	Commodities and Costing – II	Students as budding chefs would be able to understand different commodities. Students would be able to know various Teas, Coffees & Hot drinks served in Hotels Students as Line Cooks would be able to understand basic principles of storage and preservations Students would be able to control costs once they get recruited in Kitchen They would understand the various touch points where Food Cost gets affected and can be controlled.

Department: School of Agriculture

B. Sc. (Hons.) Agriculture		
Programme Outcome	B.Sc. (Hons.) Agriculture programme aim towards: Imparting detailed knowledge of Agriculture and its allied branches Facilitating detailed study of various agriculture forestry, Livestock and other allied branches required to raise the income of farmers Providing detailed knowledge of agriculture in India and income generating enterprises of Indian farmers Knowledge dissemination regarding various technique of farming and farming system in India Study of market and marketing of agricultural produce.	
Programme Specific Outcome	B.Sc. (Hons.) Agriculture courses focuses in providing: Specific knowledge of various branches specialized to their studies. Detailed knowledge on the subject to improve the farmer's condition by their contributions. Detailed knowledge of cultivation practices, Soil, fertilizers, livestock's insect pest, and economic conditions associated with farming enterprises. To reorient graduates of agriculture and allied subjects for ensuring and assuring employability and develop entrepreneurs for emerging knowledge intensive agriculture, the component envisages the introduction of the program in all the Agricultural Universities as an essential prerequisite for the award of degree to ensure hands on experience and practical training through READY ("Rural Entrepreneurship Awareness Development Yojana") Program.	
Course Code	**Course Name**	**Course Outcomes**
HORT 4111	Fundamentals of Horticulture	To acquire fundamental knowledge of Horticulture, its branches, Plant propagation-methods, principles of orchard establishment, importance of plant bio-regulators in horticulture
BTOCH 4111	Fundamentals of Plant Biochemistry and Biotechnology	To get basic concepts of Biochemistry and Biotechnology, Properties of Water, pH and Buffer, Carbohydrate, Concepts and applications of plant biotechnology
SCHEM 4111	Fundamentals of Soil Science	To acquire knowledge of nature and origin of soil; soil forming rocks and minerals, their classification andcomposition, soil forming processes, classification of soils – soil taxonomy orders.
SAF 4111	Introduction to Forestry	To acquaint aboutthe Forests - definitions, role, benefits - direct and indirect. History of Forestry - definitions,divisions and interrelationships, Important acts and policies related to Indian forests. Global warming - forestry options for mitigation and adaptation - carbon sequestration.
ENG 4111	Comprehension & Communication Skills in English	To understand the basic concepts of comprehension and the fundamentals of grammar. This course will also help to enhance the vocabulary as well as improve the skills in written communication
AGRON 4111	Fundamentals of Agronomy	To acquire knowledge about the scope of agronomy, tillage and tilth, crop production techniques- manure and fertilizers, various irrigation methods, importance and classification of weeds. Principles of crop rotation.
MATHS 4111	Introductory Biology/Elementary Mathematics	Introductory Biology includes the fundamental principle living world, diversity and characteristics of life, origin of life, Plant systematic Role of animals in agriculture**.**

		Elementary Mathematics consolidates student's skills and deepens their understanding of many of the key mathematical themes underpinning Straight Lines- Distance formula, section formula, Differential Calculus, Integral calculus, Matrices and Determinants.
AGRON 4112	Agriculture Heritage	On the completion of the course, students will be able to understand Ancient Agricultural Practices and it's relevant to modern agriculture practices. Traditional Technical Knowledge. Developments in Agriculture and Vision for the Future
EXTED 4111	Rural Sociology & Educational Psychology	To attain knowledge about its scope and significance in agriculture extension, Social Groups, Social Stratification, Culture concept, meaning and its importance in agriculture extension, Behavior and theories of motivation.
HVE 4111	Human Values & Ethics (non gradial)	To attain knowledge about the introduction of values and ethics, vision of life, decision making, case study of ethical lives and spirituality quotient
NSNC 4111	NSS/NCC/Physical Education & Yoga Practices/ Swatch Bharat	Course aims at evoking social consciousness among students through various activities viz., working together, constructive and creative social work, to be skillful in executing democratic leadership, increasing awareness and desire to help sections of society.
PBG 4121	Fundamentals of Genetics	To achieve a basic understanding of Pre and Post Mendelian concepts of heredity, Architecture of chromosome, Chromosomal theory of inheritance, Probability and Chi-square, pleiotropism and pseudoalleles, Nature, structure & replication of genetic material.
PPATH 4121	Agricultural Microbiology	This course has been developed for the students with the objective to cover the basics of Microbiology starting from the historical perspective to the current status in the subject. Role of microbes in soil fertility and crop production and Microbes in human welfare
AENGG 4121	Soil and Water Conservation Engineering	To acquaint with soil erosion, development of unused land, water erosion, storage of rain water, Management of soil erosion, Engineering measures, Wind erosion, and factors affecting, mechanics, soil loss estimation and control measures
PPHYS 4121	Fundamentals of Crop Physiology	The Coarse deals with the introduction and importance of crop physiology in agriculture, Functions and deficiency symptoms of mineral nutrition of Plants, Photosynthesis and Fat metabolism, Functions and deficiency symptoms of nutrients of plant growth regulators and growth analysis
AGECON 4121	Fundamentals of Agricultural Economics	Introductory courses on the basic principles of agriculture economics, Law and elasticity of Demand, Law of returns, Concept of cost and supply, Meaning and importance of national income, Tax and economic systems
PPATH 4122	Fundamentals of Plant Pathology	The course deals with the introduction, scope and objectives of plant pathology, General characters and structures of fungi, bacteria and mollicutes, virus, nematodes, and Principles and methods of plant disease management
EXTED 4121	Fundamentals of Agricultural Extension Education	The course is intended to orient the students with the concept of extension education and its importance in agriculture with the concept of extension education and its importance in agriculture development and also to expose students with various rural development programmes aimed at poverty alleviation and to increase employment opportunities and their analysis
EXTED 4122	Communication	The course has been developed to understand the structural and functional

	Skills and Personality Development	grammar; meaning and process of communication, Reading and comprehension of general and technical articles, Group discussion. Organizing seminars and conferences.
AGRON 4211	Crop Production Technology – I *(Kharif Crops)*	To acquaint with the origin, geographical distribution, economic importance, soil and climatic requirements, varieties, Cereals, pulses, oilseeds; fibre crops; forage crops.
PBG 4211	Fundamentals of Plant Breeding	To attain knowledge about historical development, Genetics in relation to plant breeding, Genetic basis and breeding methods in self- pollinated crops, heterosis and inbreeding depression, Wide hybridization and pre-breeding and Biotechnological tools.
AGECON 4211	Agricultural Finance and Cooperation	The course enlightens with the scope and significance of agriculture finance, classification and need of agriculture credit, Basic guidelines for preparation of project reports and agriculture cooperation.
COMP 4211	Agriculture Informatics	This course consists of Introduction to Computers, Operating Systems, definition and types, Applications of MS Office for document creation & Editing. Introduction of Geospatial Technology for generating valuable information for Agriculture. Hands on Decision Support System. Preparationof contingent crop planning. Forecasting and early warning
AGENGG 4211	Farm Machinery and Power	To acquaint with the status of farm power in India, introduction to various components of engines, different tractor types and Familiarization with sowing and planting equipment.
HORT 4211	Production Technology for Vegetables and Spices	To attain knowledge vegetables & spices in human nutrition and national economy, transplanting techniques, and physiological disorders, of important vegetable and spices.
ENVS 4211	Environmental Studies and Disaster Management	The course aims at defining the aim and scope of environmental studies, concept and structure of ecosystem, various act related to environmental and disaster management and Climatic changes.
STAT 4211	Statistical Methods	This course introduces the application of Statistics in agriculture, Graphical Representation of Data, Introduction to Test of Significance, and Analysis of One Way Classification.
LPM 4211	Livestock and Poultry Management	Role of livestock in the national economy. Reproduction in farm animals and poultry. Housing principles, Digestion in livestock and poultry and Introduction of livestock and poultry diseases.
AGRON 4221	Crop Production Technology –II *(Rabi Crops)*	To attain knowledge about origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield of Rabi crops; cereals, pulses, oilseeds, sugar crops, medicinal and aromatic crops, and Forage crops.
HORT 4221	Production Technology for Ornamental Crops, MAP and Landscaping	This course highlights the importance and scope of ornamental crops, medicinal and aromatic plants and landscaping.Principles of landscaping.Production technology ofimportant cut flowers like rose, gerbera, carnation, lilium and orchids under protected conditionsand gladiolus, tuberose, chrysanthemum under open conditions. Processing and value addition in ornamental crops and MAPs produce
AENGG 4221	Renewable Energy and Green Technology	Familiarization with renewable energy gadgets. To study biogas plants. To study the production process of bio-fuels. Familiarization with different solar energy gadgets. To study solar photovoltaic system: solar light, solar pumping, solar fencing
SCHEM 4221	Problematic	Study of soil and water resources of India; Collection and preparation of

	Soils and their Management	soil, irrigation water, waste water samples; Study of soil profile; Study of physical constraints in soils- Soil crusting: measurement of crust strength; Soil compaction. Determination of gypsum requirement of alkali soils and assessmentof quality of gypsum. Visits to problematic soil areas-to see the fields affected by salinity, sodicity, acidity and control measures taken up
HORT 4222	Production Technology for Fruit and Plantation Crops	To understand the importance and scope of fruit and plantation crop industry in India. Propagation methods for fruit and plantation crops. Description and identification of fruit. Preparation of plant bio regulators and their uses. Visit to commercial orchards
PBG 4221	Principles of Seed Technology	To explain the quality seed and its importance in agriculture, objectives and its role in increasing agricultural production, maintenance of genetic purity causes for varietal deterioration, male sterility concepts and its use in hybrid seed production. Visit to seed production plots; seed processing plants, public and private seed enterprises will enhance capability.
AGRON 4222	Farming System & Sustainable Agriculture	Farming System-scope, importance, and concept, Types and systems of farming system and factors affecting types of farming. Resource cycling and flow of energy in different farming system. Visit of IFS model in different agro-climatic zones of nearby states University/ institutes and farmers field for better understanding.
AGECON 4221	Agricultural Marketing Trade & Prices	To better understand agricultural marketing: Concepts and definitions of market. Plotting and study of demand and supply curves and calculation of elasticities**;** Study of relationship between market arrivals and prices of some selected commodities. Visit to market institutions – NAFED, SWC, CWC, cooperative marketing society, etc. to study their organization and functioning; Application of principles of comparative advantage of international trade
AGRON 4223	Introductory Agro-meteorology & Climate Change	To acquaint with the scope and practical utility of Agricultural meteorology. Site selection for Agromet observatory. Measurement of wind speed and directionand atmospheric humidity, Recording of evaporation. Synoptic charts and weather reports and symbols
PPATH 4221	Biopesticides and Biofertilizers	Know how about the concept of biopesticides. Importance, scope and potential of biopesticide. Biofertilizers - Introduction, status and scope. Structure and characteristic features of bacterial biofertilizers-Visit to biopesticide laboratory in nearby area. Field visit to explore naturally infected cadavers. Identification of entomopathogenic entities in field condition. Quality control of biopesticides.
PPATH 4311	Principles of Integrated Pest and Disease Management	Through understanding of different categories of insect pests and diseases, principles and tools of IPM, Safety issues in pesticide uses. Political, social and legal implication of IPM. Casehistories of important IPM programmes. Methods of diagnosis and detection of various insect pests, and plant diseases, Methods of insect pests and plant disease measurement
SCHEM 4311	Manures, Fertilizers and Soil Fertility Management	Introduction and importance of organic manures, properties and methods of preparation ofbulky and concentrated manures. Green/leaf manuring. Fertilizer recommendation approaches. Integrated nutrient management.Introduction of analytical instruments and their principles, calibration and applications, Colorimetry and flame photometry
ENTO 4312	Pests of Crops and Stored Grain and their	General account on nature and type of damage by different arthropods pests. Identification of different types of damage. Identification and study of life cycle and seasonal history of various insect pests attacking crops

	Management	and their produce. Storage structure and methods of grain storage and fundamental principles ofgrain store management.
PPATH 4312	Diseases of Field and Horticultural Crops and their Management -I	To get practiced on symptoms, etiology, disease cycle and management of major diseases of field crops. Field visit for the diagnosis of field problems. Collection and preservation of plant diseased specimens for Herbarium
PBG 4311	Crop Improvement-I *(Kharif Crops)*	To study the centers of origin, distribution of species, wild relatives in different cereals; pulses; oilseeds; fibres; fodders and cash crops; vegetable and horticultural crops. Study of field techniques for seed production and hybrid seeds production in *Kharif*crops; Estimation of heterosis, inbreedingdepression and heritability; Layout of field experiments
EXTED 4311	Entrepreneurship Development and Business Communication	To develop the concept of Entrepreneur, Entrepreneurship Development, Characteristics of entrepreneurs; SWOT Analysis & achievement motivation, Government policy and programs and institutions for entrepreneurship development. Assessing entrepreneurial traits, problem solving skills, managerial skills and achievement motivation, exercise in creativity, time audit through planning, monitoring and supervision
AGRON 4311	Geoinformatics and Nano-technology for Precision Farming	To make aware about concepts, tool and techniques; their use in Precision Agriculture. Nanotechnology, definition, concepts and techniques. Use of nanotechnology in seed, water, fertilizer, plant protection for scaling-up farm productivity.
AGRON 4312	Practical Crop Production – I (*Kharif* crops)	To develop awareness about crop planning, raising field crops in multiple cropping systems: Field preparation, seed, treatment, nursery raising, sowing, nutrient, water and weed management. The emphasis will be given to seed production, mechanization, resource conservation and integrated nutrient, insect-pest and disease management technologies
IPR 4311	Intellectual Property Rights	Introduction and meaning of intellectual property. Types of Intellectual Property and legislations covering IPR in India:-Patents, Copyrights, Plant breeders rights, Registration of plant varieties under PPV&FR Act 2001, breeders, researcher and farmers rights. Traditional knowledge-meaning and rights of TK holders.
AGECON 4311	Agri Business Management	Transformation of agriculture into agribusiness, various stakeholders and components of agribusiness systems. Pricing policy, various pricingmethods. Project Management definition, project cycle, identification, formulation, appraisal, implementation, monitoring and evaluation. Project Appraisal and evaluation techniques
AGRON 4321	Rainfed Agriculture & Watershed Management	To understand the importance of rainfed agriculture in India and Karnataka. Weather and climate- Earth's atmosphere, composition and structure. Dryland practices and watershed management suggested for different agro-climatic zones of Karnataka.
AGENGG 4321	Protected Cultivation and Secondary Agriculture	To acquaint with Green house technology, types of Green Houses; Plant response to Green house Environment. Study of different type of green houses based on shape. Determine the rate of air exchange in an active summer winter cooling system. Determination of drying rate of agricultural products inside green house.
PPATH 4321	Diseases of Field and Horticultural	To get information about symptoms, etiology, disease cycle and management of field crops. Identification and histopathological studies of selected diseases of field and horticultural crops covered in theory. Field

	Crops and their Management-II	visit for the diagnosis of field problems
HORT 4321	Post-harvest Management and Value Addition of Fruits and Vegetables	To get knowledge on post-harvest processing of fruits and vegetables, extent and possible causes of post harvest losses. Applications of different types of packaging, containers for shelf life extension. Effect of temperature on shelf life and quality of produce
ENTO 4321	Management of Beneficial Insects	To understand the importance of beneficial Insects, Beekeeping and pollinators, bee biology, commercial methods of rearing, equipment used, seasonal management. Species of lac insect, host plant identification. Identification of other important pollinators, weed killers and scavengers. Visit to research and training institutions devoted to beekeeping, sericulture, lac culture and natural enemies
AGRON 4322	Crop Improvement-II *(Rabi crops)*	Students will come to know the centers of origin, distribution of species, wild relatives in different cereals; pulses; oilseeds; fodder crops and cash crops; vegetable and horticultural crops. Layout of field experiments; Study of quality characters, study of donor parents for different characters; Visit to seed productionplots; Visit to AICRP plots of different field crops
AGRON 4323	Practical Crop Production –II (*Rabi* crops)	Crop planning, raising field crops in multiple cropping systems: Field preparation, seed, treatment, nursery raising, sowing, nutrient, water and weed management and management of insect-pests diseases of crops
AGRON 4324	Principles of Organic Farming	To understand organic farming, principles and its scope in India; Initiatives taken by Government (central/ state), NGOs and other organizations for promotion of organic agriculture. Visit of organic farms to study the various components and their utilization.
AGECON 4321	Farm Management, Production & Resource Economics	Meaning and concept of farm management, objectives and relationship with other sciences. Positive and negative externalities in agriculture, Inefficiency and welfare loss, solutions, Important issues in economics and management of common property resources of land, water, pasture and forest resources etc.
FSN 4321	Principles of Food Science and Nutrition	Concepts of Food Science (definitions, measurements, density, phase change, pH, osmosis, surface tension, colloidal systems etc.). Energy metabolism (carbohydrate, fat, proteins); Balanced/ modified diets, Menu planning, New trends in food science and nutrition
HORT 4322	Hi-Tech Horticulture	Students will learn about nursery management and mechanization; micro propagation of horticultural crops; Modern field preparation and planting methods. canopy management, visit to hi-tech orchard/nursery
GOCT 4411	General orientation & On campus training by different faculties	To apprise the students about the detailed activities to be undertaken during READY Program.
VAUA 4411	Village attachment/ Unit attachment in Univ./ College. KVK/ Res. Stn.	To expose the students to rural environment with regard to various cultural practices undertaken by the farmers for crop cultivation. Socio-economic status of each farmer of the village allotted is also to be recorded.
AIA 4411	Agro-Industrial Attachment	The students would be attached with the agro-industries for a period of 10 weeks to get an experience of the industrial environment and working**.**

PRPPE 4411	Project Report Preparation, Presentation and Evaluation	To get practice on report preparation based on experience gained during village attachment and Industrial attachment. acquaint
AGRON4421	Seed Production Technology	To explicate seed structure, color size, shape and texture, field inspection of seed crops, practices in rouging, harvesting and seed extraction, germination and purity analysis, methods of seed production.
AGRON4422	Integrated Farming System	To understand the labour and resource management, labour saving techniques, indigenous technical knowledge in IFS, farm records and farm book keeping, economic analysis of IFS.
ENTO4421	IPM and IDM (Pest Disease Scouting)	To explain the introduction, history, importance, concepts, principles and tools of IPM, economic importance of insect pests, diseases and pest risk analysis, methods of detection and diagnosis of insect pest and diseases, calculation and dynamics of economic injury level and importance of economic threshold level, methods of control.
PPATH4421	Bio-control agencies and bio-pesticide (mass multiplication and uses)	To illuminate different fungi, bacteria, insects used for controlling various diseases and pests along with their methods of mass multiplication and specific uses.
ENTO4421	Pesticides and Plant Protection equipment	To clarify thorough knowledge of different fungicides, insecticides, weedicides, nematicides along with the equipments used for their application with includes sprayers, dusters, foggers etc.
HORT4421	Protected cultivation of horticultural crops and Seed production of vegetables and flowers	To learn the raising of seedlings and saplings under protected conditions, use of protrays in quality planting material production, bed preparation and planting of crop for production, inter cultural operations, soil EC and pH measurement, regulation of irrigation and fertilizers through drip, fogging ad misting, principles of vegetable seed production, role of temperature, humidity and light in vegetable seed production, land requirements, climate, season, planting time, nursery management, seed rate, rouging, seed extraction and storage.

Department: B.A. Hons Economics 3rd and 5th SEM

Bachelor of Economics	
Programme Outcome	Economics generally covers the study of principles of economic theory, micro- and macroeconomics, comparative economic systems, money and banking systems, international economics, quantitative analytical methods, applications to specific industries and public policy issues. Courses in BA(Hons.) in Economics will provide students with the basic knowledge they need of business practices including management, finance, marketing, human resource, Global business, personal grooming, Business administration with knowledge of formulation of business

	strategies and more. Students can expect to learn how to translate all of these business skills into the application	
Programme Specific Outcome	B.A. (Hons.) (Economics) is degree program that focuses on the systematic study of the production, distribution, conservation and allocation of limited resources and in conditions of scarcity in the society, together with the organizational frameworks related to these processes. The duration of the course is three years and it is career originating in nature.	
Course Code	**Course Name**	**Course Outcomes**
ECO-201	Mathematical Economics	This is the first of a compulsory two-course sequence. The objective of this sequence is to transmit the body of basic mathematics that enables the study of economic theory at the undergraduate level, specifically the courses on microeconomic theory, macroeconomic theory, statistics and econometrics set out in this syllabus. In this course, particular economic models are not the ends, but the means for illustrating the method of applying mathematical techniques to economic theory in general. The level of sophistication at which the material is to be taught is indicated by the contents of the prescribed textbook.
ECO-203	Public Finance	**Mainly Government sectors require complete knowledge of this subject. This subject explains the working of the economy.**
ECO-205	International Economics	This course develops a systematic exposition of models that try to explain the composition, direction, and consequences of international trade, and the determinants and effects of trade policy. It then builds on the models of open economy macroeconomics developed in courses 08 and 12, focusing on national policies as well as international monetary systems. It concludes with an analytical account of the causes and consequences of the rapid expansion of international financial flows in recent years. Although the course is based on abstract
ECO-207	Statistical Methods for Economics	This is the first of a two-part sequence on statistical methods. It begins with some basic concepts and terminology that are fundamental to statistical analysis and inference. It then develops the notion of probability, followed by probability distributions of discrete and continuous random variables. The semester concludes with a discussion of joint distributions.

ECO-301	History of Indian Economic Thoughts	Make the student aware about the basic ideology and thoughts of Economic thinkers.
ECO-309	Relative Economics and sustainable development	The course intends to make the student understand the inter-relationship between environment and development. Valuation and accounting techniques will enable the students to quantify the impacts of economic activities on environment.
ECO-311	Labor Economics	Basic mechanisms of the labour market, in particular how unemployment and wage and productivity differences can arise as equilibrium phenomena
HS321	Soft Skills	On successful completion of this course, the students Should have understood business etiquette, presentation skills communication skills.

PROGRAM OUTCOMES,PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES

Department: SILS

B. A. English Literature		
Programme Outcome	Developing intellectual, personal and professional abilities throughеffective communicative skills; ensuring high standard of behaviouralattitude through literary subjects and shaping the students sociallyresponsible citizens.	
Programme Specific Outcome	On successful completion of the Programme, the students will beaccurate both in oral and written communication as they will be strongin Grammar and its usage.	
	They can express a thorough command of English and its linguisticstructures.	
	They can apply critical frameworks to analyze the linguistic, culturaland historical background of texts written in English.	
	They will be familiar with the conventions of diverse textual genresincluding fiction, non-fiction, poetry, autobiography, biography,Journal, film, plays, editorials etc.	
Course Code	**Course Name**	**Course Outcomes**
BA 101	**Indian Classical Literature**	To acquire a sound comprehension of literary, societal, cultural,biographical and historical background of the greatestwritings inBritish Literature.
BA 102		To get a better comprehension of literary, societal, cultural, biographicaland historicalbackground of the greatest writingsin AmericanLiterature.
BA 103	English Language – I	To gain knowledge on fundamental principles of English grammarincluding parts of speech, sentence

		types, sentence analysis,simple/compound/complex sentences, subject-verb agreement, pronounusage, punctuation, capitalization etc.
BA 201	**American Literature**	Describe the major historical and cultural developments of colonial America; explain key concepts Describe the major conventions, tropes, and themes of Puritan and early American literature; identify and discuss those features with regard to individual works
BA 202	**Popular Literature**	Content knowledge: Literature majors will be exposed to and demonstrate a broad knowledge of major and minor authors, major texts and contexts and defining intellectual issues of British and/ or American literature, enriched by familiarity with the same in other European and/ or non-European literature and/ or cinematic traditions.
ENG- 101	**Indian Classical Literature**	to identify various forms and types of poetry. to learn to read, analyse and appreciate poetry critically.•to know about the diverse poetic devices and strategies employed by the poets.•
ENG- 104	**British Poetry & Drama**	The student will be able to: Recognize *poetry* from a variety of cultures, languages and historic periods. Understand and appreciate *poetry* as a literary art form. Analyze the various elements of *poetry*, such as diction, tone, form, genre, imagery, figures of speech, symbolism, theme, etc ...
ENG -203	**British Literature 18th Century**	To provide a working knowledge of the characteristics of various literary genres. To develop analytical skills and critical thinking through reading, discussion, and written assignments. To broaden a student's intercultural reading experience. To deepen a student's awareness of the universal human concerns that are the basis for literary works. To stimulate a greater appreciation of language as an artistic medium and of the aesthetic principles that shape literary works. To understand literature as an expression of human values within an historical and social context.
ENG- 301	**Technical Writing**	Students will develop competency in the following areas: Participate actively in *writing* activities (individually and in collaboration) that model effective scientific and *technical* communication in the workplace. Understand how to apply *technical* information and knowledge in practical documents

		for a variety of a.)
ENG- 302	**British Romantic Literature**	his module provides a broad survey of **literature** of the **Romantic period**, 1789-1832. It examines ... to the impassioned and socially engaged **literature** of **Romantic**-**period Britain**. ... **Learning Outcomes**. Skills outcomes and Graduate Attributes
ENG- 303	**British Literature 19th Century**	This course covers British literature and culture of the nineteenth century. It begins with the literature of the period, usually titled the Romantic period. Some of Britain's most popular poets are Romantics: Wordsworth, Byron, Coleridge and Keats. The period is also a rich one for the novel, seeing both such Gothic masterpieces as Frankenstein, the invention of the historical novel by Maria Edgeworth and Walter Scott, and the social comedies of Jane Austen. Major concerns in the literature and culture of this period are: the relationship between man and nature; art and society; sensibility and civility; poetry as politics; the social status of women; the outsider (whether monster, lunatic, criminal, child or rebel); theories of the imagination; and poetic experimentation.
ENG- 401	**Women's Writing**	This course examines a selection of women's writing in any genre(s), chosen to highlight an organizing theoretical, historical, national or thematic focus. Readings will include theory/criticism, and will introduce students to a range of feminist perspectives on literature.
ENG- 402	**British Literature : Early 20th**Century	The first half of the 20th century was a turbulent and transformative period for American and British culture. Women and men began to define themselves in very different ways, and one of the tools they used to redefine themselves was literature**.**
ENG- 403	**Modern European Drama**	the nineteenth century, most *European* playwrights drew their tragic ... *goals*, these writers did not prefer to concern themselves with the practical .... *modern drama*, we will focus here on the evolution of the French theatrical scene. ..... pointedly comments that otherwise she would have had no way of *learning* them.
ENG- 404	**Post-Colonial Literature**	Identify key questions, authors, and literary forms in postcolonial literature Think critically about these texts in relation to postcolonial theory Situate these works in their larger cultural contexts Develop interpretative skills of close reading Offer nuanced interpretations, articulate coherent arguments, and develop research skills through your written essays
ENG- 405	Creative Writing	demonstrate the ability to produce **writing** that is clear and logical. demonstrate the ability to produce **writing** that is original and imaginative. practice performance skills to present a live reading of their work.
ENG- 501	**British Literature Post World War II**	This course augments and completes the historical breadth of our British literature offerings within the English department, ensuring coverage from Old English language and grammar through the present day. Inasmuch as the English department has recently hired

		a tenure-track Assistant Professor, James Arnett, to explicitly cover this material, this course is being proposed with an eye to his offering this course periodically. Other courses that have been offered in the past – and Gregory O'Dea's "Booker Prize Winners" special topics course comes to mind most readily – would have fit under this particular umbrella, and added depth to English majors' curricular understanding under the proposed title and guidelines
ENG- 502	**19th Century European Realism**	The Historical Imagination in *Nineteenth-Century Europe*, Baltimore, 1973, 31-38. .... "Although written by a historian, this *study* does not aspire to the status ..... ticular narrative *outcome*, the murder of the royal children. In response …
ENG- 503	**Literary Theory**	Upon successful completion of this course, students will have the knowledge and skills to: Show an appreciation of the relevance and value of theoretical models in literary study. Demonstrate an understanding of important theoretical methodologies by summarising key concepts or arguments. Apply these concepts or arguments successfully in a close reading of a literary text.
ENG- 504	**Literary Criticism**	This course aims to develop student's ability to understand and to criticize a literary piece. To equip them knowledge of key forms and terminology of literary criticism, to ability to read the writings of literary scholars and critics with understanding and judicious appreciation; to acquire basic theoretical concepts underlying contemporary approaches to literature and the major differences between them; to develop the ability to conduct literary research according to established procedures and use such research effectively and responsibly; to develop with them the ability to write a critical essay that states a clear thesis and supports it persuasively, and to integrate literary research with personal ideas

PROGRAM OUTCOMES, PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES

Department: SILS

B. A. Honors HIR (IVSem)	
Programme Outcome	Students should understand academic honesty, a concept presented to them in all history classes. Students should understand the basic skills that historians use in research. Students should understand the basic skills that historians use in writing. Students should understand the basic tools of historical analysis.Students should understand the value of diversity. It provides wider-look on the traditional education which is certainly important to retain and take forward for the next generation, in the mids of technologically developing world. History, Civics, Sociology and Political Science are very necessary to be retained to understand and to teach the values of life, national integration and the constitutions of the society with which we are abided.

Programme Specific Outcome	History provides a wider knowledge to those aspirants who wanted to become a teacher or lecturer. At present the aspirants of competitive examinations are opting history Subject more than any other. The subject is very useful to become a journalist, Tourist-guide and to become an effect administrator.	
Course Code	Course Name	Course Outcomes
HIR 202	Politics of Knowing your World	To gain knowledge about the surrounding of political knowledge of the world through that to make deep relations with our International boundaries and with other countries.
HIR 204	Islam, International Relations and South Asia	To get a field of study that combines political science with the intricacies of subjects such as globalization, terrorism, ecological sustainability and global finance is known as international relations. Entities such as nations, states and governments are the main focus.
HIR 206	War in International Relations	To acquire a variety of contexts, its role as an independent variable has been curiously ignored. Historians, for example, generally focus on the origins of war or on the diplomacy of wartime and the immediate postwar period.
HIR 208	India in World Affairs	To gain the comprehensive knowledge about the strategy and diplomacy of India in context to the major powers and neighbors. It enlighten the role and importance of India in United Nations and ASEAN.

PROGRAM OUTCOMES, PROGRAM SPECIFIC OUTCOMES, COURSE OUTCOMES

Department: SILS

B. A. Political Science (Sem- III)	
Programme Outcome	The Political Science undergraduate program is born out of a recognition of the increasing significance of cross-disciplinary studies in the social sciences. The program is organized around the combined perspectives and analytical tools of Sociology, Political Science, International Relations, and History. The Political Science degree furnishes the students with a unique multidisciplinary approach in social sciences and prepares them for further academic study and/or for careers in the public and the private sector. It trains about the politics and government at local, state, national and global levels.
Programme Specific Outcome	Understand and follow changes in patterns of political behavior, ideas and structures.
	Develop the ability to make logical inferences about social and political issues on the basis of comparative and historical knowledge.

	Understand the theories and nature of politics in society and their dynamics with the changing world.	
	They will be acquainted with government, process, administration, United nations, international relations.	
Course Code	Course Name	Course Outcomes
PS -201	Introduction to comparative govt. and politics	This is a foundational course in comparative politics. The purpose is to familiarize students with the basic concepts and approaches to the study of comparative politics. More specifically the course will focus on examining politics in a historical framework while engaging with various themes of comparative analysis in developed and developing countries.
PS -203	Theories of Administration	The course provides an introduction to the discipline of public administration. This paper encompasses public administration in its historical context with an emphasis on the various classical and contemporary administrative theories. The course also explores some of the recent trends, including feminism and ecological conservation and how the call for greater democratization is restructuring public administration.
PS -205	Theories of International Relations and World History	It inculcates knowledge of various concepts of International Relations for example Collective Security, Balance of Power etc. It also helps to understand various process of International Relation. It studies about UNO which is the only one International Organization functioning for the maintenance of International Peace and Security.
PS -207	Contemporary Political Economy	Given the growing recognition worldwide of the importance of the political economy approach to the study of global order, this course has the following objectives: 1. To familiarize the students with the different theoretical approaches; 2. To give a brief overview of the history of the evolution of the modern capitalist world; 3. To highlight the important contemporary problems, issues and debates on how these should be addressed.

Department: B.Sc. Hons PSYCHOLOGY 5th SEM

Bachelor of Psychology	
Programme Outcome	he principle function of the department is to prepare students at the undergraduate and graduate levels to pursue careers within the disciplines and affiliated areas. A related purpose is to provide courses for programs in education, nursing, and other disciplines. At the baccalaureate level, the students develop basic skills in scientific research, knowledge of psychological nomenclature and concepts, and

	are introduced to the diverse applications of psychology. The graduate program prepares students to apply skills in schools, mental health agencies, government, industry, and other settings. Training at the graduate level is designed to prepare qualified, responsible professionals who may provide assessment, consulting, counseling, and other services to the citizenry of the region. The B.A. and the B.Sc. Psychology programs introduce students to the liberal arts and to psychology as a scientific discipline with content and methods to improve the human condition.	
Programme Specific Outcome	1. Enhancement of stress management skills. 2. Enhancement of coping skill with different problems in life. 3. Enabling to measure attitude, aptitude, interest, adjustment, skills etc. within the people. 4. Introduction to counseling process and techniques. 5. Illustration of mental disorder and treatment	
Course Code	**Course Name**	**Course Outcomes**
PY301	Industrial & Organizational Psychology	By the end of this course, students will be able to demonstrate the following: a. Describe major topics and subspecialties including critical theory and research finding that have defined the field of I/O psychology b. Describe the complicated systems of individual and group psychological processes involved in the world of work c. Connect the basic principles of I/O psychology to personnel and human resources management within the organization d. Describe the ways in which individual career choices and work-lefe success can be improved through the benefits of I/O psychology e. Use APA style writing and to enhance psychological writing
PY303	Environmental Psychology	On completion of the course the student should have the following learning outcomes defined in terms of knowledge, skills and general competence: The student... • Knows key concepts in the field of environmental psychology. • Knows major theories dealing with human-environment relations. • Knows research methods applied to study human-environment relations.
PY305	Research and Methodology of Psychology	Students will understand and apply basic research methods in psychology, including research design, data analysis, and interpretation.

PR309	Practical	At the end of the course, students will be able to 1. Conduct experiments and administer psychological scales to a subject 2. Make interpretations and draw conclusions based on the norms given in the manual 3. Write a report which reflects the details of the experiment/ test, the aim, applications, procedure of administration and subject results 4. Using simple statistical techniques for carrying out group based small quantitative research projects.

DEPARTMENT: SCHOOL OF APPLIED SCIENCES

M.Sc. Biotechnology		
Programme outcome	Possess the modern molecular biological and technical knowledge needed to support biotechnology research activities. Study the use of living organisms and bioprocess in genetic engineering, medicine, agriculture and results in all kinds of bio products from gmo food to carry out gene therapy to auto immune disease. Students gain sound professional ethics, leadership and consensus building skills relevant to biotechnology aspects of business enterprise. Students become an excellent researcher or scientist or teacher in biotechnology field to discover unique products for societal needs with proper ethical statute.	
Programme specific outcome	Demonstrate their ability to apply biotechnological research strategies to solve the global environmental problems like climate change, ozone depletion, acid rain, industrial waste etc.	
	Expert in using online database understanding, creation and testing of scientific hypothesis and critical evaluation of experimental data.	
	Integrate the basic principles of analytical techniques for the implementation of such technique to facilitate the development of bio pharma products viz. Drugs, antibiotics, hormones, vaccines.	
	Exhibit their knowledge on industrial regulations and environmental safety principles in biotechnology industires.	
Course code	**Course name**	**Course outcomes**
SC505	**Cell and molecular biology**	Student should be equipped to understand three fundamental aspects in biological phenomenon: a) what to seek; b) how to seek; c) why to seek?
SC501	**Biochemistry**	Gain fundamental knowledge in biochemistry and understand the molecular basis of various pathological conditions from the perspective

		of biochemical reactions.
SC503	**Immunologyandimmunotechnology**	Evaluate usefulness of immunology in different pharmaceutical companies. Identify proper research lab working in area of their own interests. Apply their knowledge and design immunological experiments to demonstrate innate, humoral or cytotoxic t lymphocyte responses and figure out kind of immune responses in the setting of infection (viral or bacterial).
SC507	**microbiology**	Identify major categories of microorganisms and analyze their classification, diversity, and ubiquity; Identify and demonstrate structural, physiological, genetic similarities and differences of major categories of microorganisms; Identify and demonstrate how to control microbial growth; Demonstrate and evaluate interactions between microbes, hosts and environment.
SC511	**Genetics**	Understand relationship between phenotype and genotype in human genetic traits; the basics of genetic mapping. Understand how gene expression is regulated.
SC509	**Basics of mathematics and statistics**	The student will be able to conceptualize about Scope of biostatistics Correlation and regression Bioinformatics and databases Sequence analysis
SC502	**Geneticengineering and application**	Given the impact of genetic engineering in modern society, the studentsshouldbe endowed with strong theoretical knowledge of this technology. In conjunction with the practical in molecular biology & genetic engineering, the students should be able to take up biological research as well as placement in the relevant biotech industry.
SC506	**Bioinformatics**	The student will be able to conceptualize about Develop an understanding of basic theory of

		these computational tools; Gain working knowledge of these computational tools and methods; Appreciate their relevance for investigating specific contemporary biological questions; Critically analyse and interpret results of their study.
SC508	**Genomics and proteomics**	The student will be able to conceptualize knowledge and understanding of fundamentals of genomics and proteomics, transcriptomics and metabolomics and their applications in various applied areas of biology.
SC510	**Molecular diagnostics**	Students should be able to understand various facets of molecular procedures and basics of genomics, proteomics and metabolomics that could be employed in early diagnosis and prognosis of human diseases.
SC512	**Research methodology and scientific communication skills**	Understand history and methodologies of scientific research, applying these to recent published papers; understand and practice scientific reading, writing and presentations; appreciate scientific ethics through case studies.
SC601	**Bioprocess engineering and enzyme technology**	Appreciate relevance of microorganisms from industrial context; carry out stoichiometric calculations and specify models of their growth; give an account of design and operations of various fermenters; present unit operations together with the fundamental principles for basic methods in production technique for bio-based products; calculate yield and production rates in a biological production process, and also interpret data; calculate the need for oxygen and oxygen transfer; critically analyze any bioprocess from market point of view; • give an account of important microbial/enzymatic industrial processes in food and fuel industry.
SC603	**Emerging technologies**	Theoretical basis and basic understanding of latest technologies in area of biotechnology. They should also be able to learn about various applications of these technologies. The students may also learn one application

		in depth through an assignment and/or seminar.
SC605	**Critical analysis of classical papers**	Students should be able to train in the exercise of hypothesis building and methods of addressing the hypothesis with readily available technology.
SC607	**Bioentrepreunership**	The student will be able to conceptualize students should be able to gain entrepreneurial skills, understand the various operations involved in venture creation, identify scope for entrepreneurship in biosciences and utilize the schemes promoted through knowledge centres and various agencies. The knowledge pertaining to management should also help students to be able to build up a strong network within the industry.
SC 609	**Intellectual property rights, biosafety and bioethics**	The student will be able to conceptualize about : intellectual property rights, biosafety and bioethics
SC611	**Project proposal preparation and presentation**	Formulate a scientific question; present scientific approach to solve the problem;interpret, discuss and communicate scientific results in written form;gain experience in writing a scientific proposal;learn how to present and explain their research findings to the audience effectively.
SC605	**Dissertation**	To prepare the students to adapt to the research environment and understand how projects are executed in a research laboratory. It will also enable students to learn practical aspects of research and train students in the art of analysis and thesis writing.
SC607	**Drug discovery and development**	Understand basics of r&d in drug discovery and should be able to apply knowledge gained in respective fields of pharmaceutical industry.
SC611	**Advancedclinicalbiochemistry**	The student will be able to conceptualize about blood and its function, neurohormones and neurotransmitter, organ function test, cancer.

M.Sc. Microbiology		
Programme outcome	Students will be able to acquire, articulate, retain and apply specialized language and knowledge relevant to microbiology. Students will acquire and demonstrate competency in laboratory safety and in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods, including accurately reporting observations and analysis. Students will demonstrate engagement in the microbiology discipline through involvement in research or internship activities, the microbiology student association club (msa) and outreach or mentoring activities specific to microbiology.	
Programme specific outcome	A general course emphasizing distribution, morphology and physiology of microorganisms in addition to skills in aseptic procedures, isolation and identification.	
	This course also includes sophomore level material covering immunology, virology, epidemiology and dna technology. Recommended for all allied health students.	
	Tobeacquaintedwithmethodsofdisinfectionandsterilizationtocontrolandpreventhospital and communityacquired infections	
	To acquire knowledge of antimicrobial agents for treatment of infection, scope of Immunotherapy and different vaccines available for prevention of communicable diseases.	
Course code	**Course name**	**Course outcomes**
SC505	**Cell and molecular biology**	Student should be equipped to understand three fundamental aspects in biological phenomenon: a) what to seek; b) how to seek; c) why to seek?
SC501	**Biochemistry**	Gain fundamental knowledge in biochemistry and understand the molecular basis of various pathological conditions from the perspective of biochemical reactions.
SC503	**Immunologyandimmunotechnology**	Evaluate usefulness of immunology in different pharmaceutical companies. Identify proper research lab working in area of their own interests. Apply their knowledge and design immunological experiments to demonstrate innate, humoral or cytotoxic t lymphocyte responses and figure out kind of immune responses in the setting of infection (viral or bacterial).
SC507	**microbiology**	Identify major categories of microorganisms and analyze their classification, diversity, and ubiquity; Identify and demonstrate structural, physiological, genetic similarities and differences of major categories of

		microorganisms; Identify and demonstrate how to control microbial growth; Demonstrate and evaluate interactions between microbes, hosts and environment.
SC511	**Genetics**	Understand relationship between phenotype and genotype in human genetic traits; the basics of genetic mapping. Understand how gene expression is regulated.
SC509	**Basics of mathematics and statistics**	The student will be able to conceptualize about Scope of biostatistics Correlation and regression Bioinformatics and databases Sequence analysis
SC502	**Geneticengineering and application**	Given the impact of genetic engineering in modern society, the studentsshouldbe endowed with strong theoretical knowledge of this technology. In conjunction with the practical in molecular biology & genetic engineering, the students should be able to take up biological research as well as placement in the relevant biotech industry.
SC506	**Bioinformatics**	The student will be able to conceptualize about Develop an understanding of basic theory of these computational tools; Gain working knowledge of these computational tools and methods; Appreciate their relevance for investigating specific contemporary biological questions; Critically analyse and interpret results of their study.
SM 504	**Plant pathogen interaction (du)**	The student will be able to conceptualize knowledge and understanding of fundamentals of genomics and proteomics, transcriptomics and metabolomics and their applications in various applied areas of biology.
SM 508	**Virology**	Students should be able to understand various facets of molecular procedures and basics of genomics, proteomics and metabolomics that could be employed in early diagnosis and

		prognosis of human diseases.
SM 510	**Microbial physiology and metabolism**	Students should be able to understand various facets of molecular procedures and basics of genomics, proteomics and metabolomics that could be employed in early diagnosis and prognosis of human diseases.
SC512	**Research methodology and scientific communication skills**	Understand history and methodologies of scientific research, applying these to recent published papers; understand and practice scientific reading, writing and presentations; appreciate scientific ethics through case studies.
SC601	**Bioprocess engineering and enzyme technology**	Appreciate relevance of microorganisms from industrial context; carry out stoichiometric calculations and specify models of their growth; give an account of design and operations of various fermenters; present unit operations together with the fundamental principles for basic methods in production technique for bio-based products; calculate yield and production rates in a biological production process, and also interpret data; calculate the need for oxygen and oxygen transfer; critically analyze any bioprocess from market point of view; • give an account of important microbial/enzymatic industrial processes in food and fuel industry.
SM 603	**Environemnatl microbiology**	Thestudentwillbeabletoconceptualize aboutappreciate relevance of microorganisms from environmental context
SC605	**Critical analysis of classical papers**	Students should be able to train in the exercise of hypothesis building and methods of addressing the hypothesis with readily available technology.
SM 607	**Microbial pathogenicity**	Understand history and methodologies of scientific research, applying these to recent published papers; Understand and practice scientific reading, writing and presentations; appreciate scientific ethics through Case studies.
SC611	**Project proposal preparation and presentation**	Formulate a scientific question; present scientific approach to solve the problem;interpret, discuss and communicate

		scientific results in written form;gain experience in writing a scientific proposal;learn how to present and explain their research findings to the audience effectively.
SM 609	**Industrial and food microbiology**	The student will be able to conceptualize about fermented vegetables, fermented meat, bakers yeast, methods of food preservation, fermented milk product, applications of microbial enzymes in dairy industry
SC605	**Dissertation**	To prepare the students to adapt to the research environment and understand how projects are executed in a research laboratory. It will also enable students to learn practical aspects of research and train students in the art of analysis and thesis writing.
SC607	**Drug discovery and development**	Understand basics of r&d in drug discovery and should be able to apply knowledge gained in respective fields of pharmaceutical industry.
SC613	**Fermentationtechnology**	Thestudentwillbeabletoconceptualize about types and design of bioreactors, isolation, maintenance and media selection of microbes, production of microbial metabolites.
SM 702	**Food and dairy microbiology**	The student will be able to conceptualize aboutfermented vegetables, fermented meat, bakers yeast, methods of food preservation, fermented milk product, applications of microbial enzymes in dairy industry.

B.Sc. Biology	
Programme Outcome	The various papers that are put to study during the program include study of plants, animals and physical, organic and inorganic chemistry in details. Therefore after completion of the biology program, the students are well versed with the entire area of all the three disciplines and their application in the current scenario.
Programme Specific Outcome	As Biological Sciences is an integrative discipline, students are required to demonstrate appropriate proficiency in Chemistry, Mathematics and Physics in order to apply this knowledge to the study of Biology (Botany/Zoology). Students will acquire a breadth of knowledge in Biology (genetics, physiology, anatomy, ecology, evolution, cell- or biochemistry, and microbiology).
	Students will develop and apply oral and written skills, problem-solving skills in developing experimental design and analysis, and participate in individualized hands-on field and laboratory exercises.

	Students will be prepared with a sufficient depth of knowledge in their specific major program to assure their admission to graduate or professional school or be prepared for entry-level employment.	
	Students will acquire a broad knowledge in mathematics, biological sciences, and natural sciences, coupled with analytical, oral and compositional skills, to promote good citizenship and the capacity for life-long learning.	
Course Code	**Course Name**	**Course Outcomes**
EN 103	**EN 103**	To create an understanding regarding plant taxonomy, To gain knowledge about plant diversity and morphology of microbs, To have understanding about algae and fungi.
PC 101	**Proficiency in co-curricular activities**	To perform co-curricular activities which help them sharpen their communication skills, expression skills, public speaking, participation and sense of belongingness through different activities like debates, recitation
CP 101	**Elementary Computer**	To understand the role of the Central Processing Unit, motherboard, and hard drive. To understand the role each piece of hardware plays in making a computer work. To explain how internal hardware impacts external hardware, such as the mouse and keyboard.
FD102	**Foundation Course-I**	The purpose of the Foundation Course include: a) Orienting the students to all aspects of the medical college environment. b) Equipping them with certain basic, but important, skills required for patient care and enhancing their communication, language, computer and learning skills
ES 101	**Environmental Studies**	To appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving. Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
BY 111	**Botany-I Biodiversity (Microbes, Algae, Fungi and Archegoniatae)**	To create an understanding regarding plant taxonomy, To gain knowledge about plant diversity and morphology of microbs, To have understanding about algae and fungi.
CY 111	**Fundamental of Chemistry-I**	To create an understanding regarding the atomic structure, To gain knowledge about electron displacement effects, To have understanding about chemical reaction mechanisms.
ZY 111	**Zoology-I Systematics and Animal Diversity**	To create an understanding regarding the multicellular animal, To gain knowledge about reproduction in non-chordates, To have understanding about hemichordate.
EM 101	**Employability Skills**	Review and evaluate your personal attributes and employability skills which are necessary for successful employment and career development.

PC 102	**Proficiency in co-curricular activities**	To perform co-curricular activities which help them sharpen their communication skills, expression skills, public speaking, participation and sense of belongingness through different activities like debates, recitation
HUM102	**Human Value s & Ethics**	To understand the moral values that ought to guide the management profession, Resolve the moral issues in the profession. To justify the moral judgment concerning the profession. Intended to develop a set of beliefs, attitudes, and habits that engineers should display concerning morality. To create an awareness on Management Ethics and Human Values. To inspire Moral and Social Values and Loyalty. To appreciate the rights of others
FD104	**Foundation Course-I**	The purpose of the Foundation Course include: a) Orienting the students to all aspects of the medical college environment. b) Equipping them with certain basic, but important, skills required for patient care and enhancing their communication, language, computer and learning skills
EN 104	**English language II**	To develop their intellectual, personal and professional abilities. To acquire basic language skills (listening, speaking, reading and writing) in order to communication with speakers of English language
BY-112	**Botany-II Plant Anatomy and Embryology**	To create an understanding regarding plant anatomy, To gain knowledge about plant diversity and anatomy of plants, To have understanding about medicinal plants and economic botany.
CY-112	**Fundamentals of Chemistry II**	To create an understanding regarding the thermodyanamics, To gain knowledge about chemical equilibrium, To have understanding about ionic equilibrium, Able to analyse reaction mechanisms
ZY-112	**Zoology-II Animal Physiology and Biochemistry**	To create an understanding regarding the animal physiology, To gain knowledge about biomolecules, To have understanding about carbohydrate metabolism.
PCA	**Proficiency in Co-curricular**	To perform co-curricular activities which help them sharpen their communication skills, expression skills, public speaking, participation and sense of belongingness through different activities like debates, recitation
EM 203	**Employability Skills**	Review and evaluate your personal attributes and employability skills which are necessary for successful employment and career development. Investigate employment opportunities, complete a job application including a CV for for a specific job opportunity.
BY 213	**Botany III-Bryophyta and**	To create an understanding regarding the Bryophytes, To gain knowledge about Pteridophyta.

	Pteridophyta	
CY-211	**Chemistry –III (Inorganic-I)**	To create an understanding regarding the transition element, To gain knowledge about oxidation reduction, To have understanding about nature of organomettalic compound, Able to structure of solid.
CY-213	**Chemistry –IV (Organic-I)**	To create an understanding regarding principle of spectroscopy, To gain knowledge about heterocyclic compound, To have understanding about biomolecules, Able to understand polymer..
ZY 213	**Zoology III-Genetics and Evolutionary Biology**	To create an understanding regarding Mendelian genetics, To gain knowledge about genetic disorder, To have understanding about molecular genetics, Able to understand environmental biotechnology.
ZY 215	**ZoologyIV-Endocrinology and Ethology**	To create an understanding regarding the Endocrinology, To gain knowledge about hormone regulation, To have understanding about the ethology, Able to understand MRI and CT scan.
PCA	**Proficiency in Co-curricular**	To perform co-curricular activities which help them sharpen their communication skills, expression skills, public speaking, participation and sense of belongingness through different activities like debates, recitation
EM 204	**Employability Skills**	Review and evaluate your personal attributes and employability skills which are necessary for successful employment and career development.
BY 214	**Botany IV-Gymnosperm and Angiosperms**	To create an understanding regarding diversity of Gymnosperms and their classification, structure and reproduction, To gain knowledge about economic importance of Gymnosperms and Angiosperms, To have understanding about fossil plants, their formation
BY 216	**Botany V (Cell Biology and Genetics)**	To create an understanding regarding the structure and function of cell organelles, To gain knowledge about recombination and tools used in molecular Biology, To have understanding about application of genetics in botany.
CY-212	**Chemistry- V (Physical-I)**	This course deals with the application of structure and theory to the study of physical aspects including reaction dynamics, isotope effects and molecular orbital theory applied. Electrochemistry for fuel systems of daily life
ZY 216	**Zoology-V Comparative**	To create an understanding regarding the comparative anatomy, To gain knowledge about developmental biology,

	Anatomy and Developmental Biology of Vertebrate	To have understanding about the embryonic adaptation.
PC 301	**Proficiency in Co-curricular Activities- V**	To perform co-curricular activities which help them sharpen their communication skills, expression skills, public speaking, participation and sense of belongingness through different activities like debates, recitation
EM 301	**Employability Skills – IV**	Review and evaluate your personal attributes and employability skills which are necessary for successful employment and career development.
BY-311	**Botany VI (Analytical Techniques in Plant Sciences)**	To create an understanding regarding imaging techniques, To gain knowledge about cell fractionation, To have understanding about spectroscopy and chromatographic techniques.
CY-311	**Chemistry –VI (Inorganic Chemistry-II)**	To train qualified, adaptable, motivated, and responsible Mathematicians who will contribute to the scientific and technological development. To impact knowledge by teaching.To advance knowledge by research
ZY 311	**Zoology VI (Environmental Biology)**	To create an understanding regarding concepts of ecology, To gain knowledge about habitat ecology, To have understanding about waste water technology, Able to understand environmental biotechnology.
ZY 313	**Zoology VII (Microbiology)**	To create an understanding regarding microbiology, To gain knowledge about microbial nutrition and growth, To have understanding microbial cell organization.
BY 312	**Botany VII- (Plant Physiology)**	To create an understanding regarding the plant water relation, To gain knowledge about mineral nutrition, To have understanding about photosynthesis.
BY 314	**Botany VIII- (Biotechnology and Utilization of Plants)**	To create an understanding regarding biotechnology, To gain knowledge about genetic engineering, To have understanding about medicinal plants and economic botany.
CY-312	**Chemistry- VII (Physical &Misc Chemistry-II)**	To understand the applications of structure and theory to the study of Solution colligative properties, Nuclear chemistry and heterogeneous system
CY-314	**Chemistry- VIII (Organic Chemistry-II)**	It focuses on the methods used to identify the structure of organic molecules, advanced principles of organic stereochemistry, organic reaction mechanisms, and methods used for the synthesis of organic compounds. Additional special topics include illustrating the role of organic

		chemistry in biology, medicine, and industry.
ZY 312	**Zoology VIII (Applied Zoology)**	To create an understanding regarding aquaculture, To gain knowledge about sericulture, To have understanding about lac culture and apiculture.

B. Sc Biotechnology		
Programme Outcome	The B.Sc. (Biotechnology) program of Suresh Gyan Vihar University, Jaipur designed keeping in view the latest trends in the field of Biotechnology.	
Programme Specific Outcome	After completion of the biology program, the students will well versed with the entire area of all the three disciplines and their application in the current scenario.	
	Biotechnological Sciences majors will also obtain broad knowledge in Biochemistry, Microbiology, and Cell Biology.	
	Our students expected to demonstrate a breadth of knowledge across the sub-disciplines that comprise Biotechnological Sciences	
	Other aims for studying biology are intellectual, ethical and pragmatic: to increase knowledge about all aspects of organisms, to encourage greater benevolence in the relationship between humans.	
Course Code	**Course Name**	**Course Outcomes**
EN 103	**English Language 1**	Students able to complete their learning English language
PC 101	**Proficiency in co-curricular activities**	They able to perform academics as well as extracurricular activity
CP 101	**Elementary Computer**	Student observe and learn basic criteria of computer
FD102	**Foundation Course-I**	They learn the basic of general knowledge
ES 101	**Environmental Studies**	Core course of environmental studies.
BS101	**Biochemistry & Metabolism**	On successful completion of the subject the student should have understood: Basic Structure and metabolism of Biomolecules.
BS103	**Cell Biology**	To inculcate knowledge in cell structure and their function.
BS105	**Basics of animal & plant sciences**	On successful completion of the subject, the student should have understood: Crop development, Callus culture, Biotechnological applications of plants, Animal tissue culture, Animal products, production &

		improvement of them
EM 101	**Employability Skills**	Skills are learn for strength and to make student employable.
PC 102	**Proficiency in co-curricular activities**	They able to perform academics as well as extra curricular activity
HUM102	**Human Values & Ethics**	Students are academic grooming and need to study and understand the human value.
FD104	**Foundation Course-I**	They learn the basic of general knowledge
EN 104	**English language II**	Students able to complete their learning English language
BS202	**General Microbiology**	On successful completion of this subject the students will gain basic knowledge about Microbiology starting from history, Basic laboratory techniques and basic knowledge about the microorganisms.
BS204	**Animal and Plant Physiology**	To make the student to understood the human physiology Objectives: After the completion of the course the student should have understood the various systems in human body and their activities
BS206	**Genetics and Molecular Biology**	To make the student to understood the concept of genes and their behaviour Objectives: On successful completion of the subject the student should have understood: Basic genetics and their role
EM 203	**Employability Skills**	Skills are learn for strength and to make student employable.
PCA 103	**Proficiency in co-curricular activities**	They able to perform academics as well as extra curricular activity
BS301	**Biophysics and Bioenergy**	the principles and applications of Biotechnology explaining the biomolecules and applications of biophysical methods. Goals : To enable the students to learn the immuno techniques and radio labeling techniques
BS303	**Environmental Biotechnology**	To make the student to understood Ecology and Conservation of the Environment Objectives: On successful completion of the subject the student should have understood Ecosystem, energy flow and Uses and values of Biodiversity.

BS305	**Bioenergetics and Biomembranes**	To create an understanding regarding the Bioenergetics and Biomembranes.
BS307	**Enzymology**	To create understanding enzymes technology.
EM 204	**Employability Skills**	Skills are gives the students strength
PCA 104	**Proficiency in co-curricular activities**	They able to perform academics as well as extra curricular activity
BS402	**Medical Biotechnology**	The programme provides a solid foundation for a career working with marketing, project management, business development or venture capital within the biotech, pharmaceutical, medical technology or related industries.
BS404	**Plant Tissue Culture & Biotechnology**	On successful completion of the subject, the student should have understood: Crop development, Callus culture, Biotechnological applications of plants,
BS406	**Biostatistics**	Biostatistics is the application of statistics to a wide range of topics in biology To discuss what a "researchable problem" is and to describe how a research problem
BS408	**Mycology & Virology**	To inculcate knowledge about virus, their role in causing disease.
EM 204	**Employability Skills**	Skills are gives the students strength
PCA 104	**Proficiency in co-curricular activities**	They able to perform academics as well as extra curricular activity
BS501	**Immunology and Immunotechnology**	To inculcate knowledge in human immune response towards micro organisms.
BS503	**Industrial Biotechnology, IPR, & Biosafety**	This paper is introduced to acquire requisite skills for the design and development of bioreactors, production optimization, and preparation of sterile base materials for downstream processing. Objectives: On successful completion of the course the students should have understood the basics of fermentation technology and learnt the concept of screening, optimization and maintenance of cultures

BS505	**Animal Tissue Culture and Biotechnology** **Bio-fertilisers and hydroponics.**	This course presents the application of Plants in Biotechnology Goals: To make the student to understood usage of Plant and Animal products and exploitation of them in Biotechnology. Biofertilizers are topics which engage students for development of agribiotechnology.
BS506	**Integrated Pest Management and Biopestiside**	Students are gain the knowledge and understanding for pesticides and there management.
BS507	**Genetic Engineering**	This course presents the genetics at molecular level Goals: On successful completion of the subject the student should have understood the molecular aspects of genetics
BS602	**Bioprocess and Biochemical Engineering**	This paper is introduced to acquire requisite skills for the design and development of bioreactors, production optimization, and preparation of sterile base materials for downstream processing. Objectives: On successful completion of the course the students should have understood the basics of fermentation technology and learnt the concept of screening, optimization and maintenance of cultures.
BS604	**Bioinformatics and Nanobiotechnology**	Core bioinformatics courses may include molecular biology, probability, statistics, computing and informatics, while advanced courses may cover population genetics, molecular genomic and epigenomic data analysis, biological mathematical modeling, biostatistics, sustainability mathematics and computational neuroscience.
BS606	**Genomics and Proteomics**	Gene ontology, Automated genome annotation, Annotation of hypothetical proteins and Genome economy. Comparative genomics: Whole genome alignment, Finding a minimal genome, Lateral gene transfer, Within-genome approach and Gene order and Gene.
BS610	**Basics of Forensic Science**	The purpose of the Forensic Science Technology program is to serve the unique needs of students who desire a quality education in the field of forensic science. Upon completion of this two-year degree program, students are well-prepared to transfer to a four-year college or university to continue their education towards a desired

		baccalaureate or higher degree in forensic science, pre-law, criminal justice, mortuary science, a medical field, or general sciences.
BS612	**Molecular Modelling and Drug Designing**	The student will be able to describe and comprehend the fundamental concepts of molecular modeling and computational-driven drug discovery. The student will learn some of the advanced techniques such as Hit-to-lead optimization and Multi-conformation Docking. The student will be well versed in theoretical and practical aspects of molecular modeling.
BS614	**Molecular diagnostics**	This course will cover the principles of Molecular Diagnosis which is the process of identifying a disease by studying molecules, such as proteins, DNA, and RNA, in a tissue or fluid.
BS616	**Biotechnology and human welfare**	Impact of *Biotechnology* in *Human welfare*: modern *biotechnology*, these genes to develop effective new therapies in the form of an *objective*

MSc PHYSICS		
Programme Outcome	M.Sc. Physicsprovides valuable resources for industry and society through excellence in technical objectiveof thiscourse is to updatestudent'sknowledge about recent innovations and developments in Phy	
Programme Specific Outcome	Encouragingstudentsto develop intellectualindependence,criticalthinkingskills and versatility.	
	Principlesofvariousconventionalandspecializedlaboratoryinvestigationsandinstrumentation, analysis and the ability to suggest experiments to support theoretical concepts.	
	To disseminate general awareness for the optimum utilization of physics in various sectors.	
Course Code	**Course Name**	**Course Outcomes**
First Semester		
PY 501	**Classical Mechanics**	Students who have studied this course should will - 1. Have a deep understanding of Newton's laws. 2. Be able to solve the Newton equations for simple and complex con methods. 3. Understand the foundations of chaotic motion.
PY 503	**Quantum Mechanics**	Students who have studied this course should will - 1. Have a deep understanding of the mathematical foundations of qu 2. Be able to solve the Schrödinger equation for simple configurations
PY 505	**Condensed Matter Physics**	Students who have studied this course should will - 1. Knows fundamental laws of physics of atoms and molecules. 2. Has knowledge about connections between physics of atoms and m

		can be useful in formulating and solving engineering issues. 3. Has knowledge in the field of electrodynamics, quantum mechar molecules
PY 507	**Nuclear and Particle Physics**	Students will have understanding of: 1. Basic properties of nucleus and nuclear models to study the nuclea 2. Various aspects of nuclear reactions will give idea how nuclear pow 3. Be able to make quantitative estimates of phenomena involving nu Understand the importance properties of nuclei and nuclear collisions.
PY 502	**Statistical Mechanics**	Students familiar with the following factors - 1. Have a deep understanding of physical statistics and its relation to 2. Be able to solve statistical mechanics problems for simple non-inte 3. Have a basic understanding of the phase transitions. Be able to use linear response theory and kinetic equation approach
PY 504	**Atomic and Molecular Physics**	Students familiar with the following factors. **1.** Knows fundamental laws of physics of atoms and molecules. **2.** Has knowledge about connections between physics of atoms and m can be useful in formulating and solving engineering issues. **3.** Has knowledge in the field of electrodynamics, quantum mechar molecules.
PY 506	**Electrodynamics Physics**	Students who have studied this course should 1. Have a deep understanding of the theoretical foundations of electro 2. Be able to solve the Maxwell equations for simple configurations . 3. Have a working knowledge of special relativity.
PY 508	**Electronics**	Students will have understanding of: 1. Operational amplifiers and its applications. 2. Knowledge of comparator and wave form generator.
PY 601	**Solid State Devices**	1. The students will be able to formulate basic models for electr describing the physics of crystalline materials.Be familiar with the physics. 2. Be able to make quantitative estimates for phenomena in solid sta 3. Develop an understanding of relation between band structu properties of a material..
PY 603	**Nuclear and Particle Physics-II**	Students will have understanding of: 1. Have a phenomenological understanding of strong interactions sta 2. Be familiar with many-body physics 3. Be able to make quantitative estimates for nuclear phenomena in microscopic theory.
PY605	**Experimental Techniques of Physics**	Students will have understanding of: 1. Be able to perform basic experiments in physics. 2. Be able to explain research instruments in the style of a scientific p Be able to write the results of an experiment in the style of a scientific pape
PY 607	**Mathematical Physics**	Students familiar with the main mathematical methods used in physics. 1. Identify various types of matrices and explain how one type of mat 2. Explain the differences between matrices and determinants.

		3. Identify different special mathematical functions. 4. Explain linear dependence and linear combination of vectors as qua Differentiate between Fourier transform and Laplace transform.
PY602	**Dissertation/Projectwork**	TheProjectworkwillinvolveindepthpracticalworkonaproblemsuggestedby Thestudentwillsubmitthedissertation oftheworkdone.Thedissertation sul evaluatedbyone Externalexpert,HeadoftheDepartmentandsupervis examinationshallbe heldinthedepartment etc.willNOTberequiredtobemailedtotheexternalexaminer.The distributio

B.Sc. (PCM)		
Programme Outcome	The programme acts as a foundation degree and helps to develop critical, analytical and problem solving skills at first level. The foundation degree makes the graduates employable in scientific organisations and also to assume administrative positions in various types of organisations. With further acquisition of higher level degrees help the graduates to pursue a career in academics or scientific organisations as a researcher.	
Programme Specific Outcome	After undergoing this programme, a student will be able to: 1. Identify and describe basic laws and principles governing natural and man-made physical systems, 2. Explain the underlying scientific principles that govern the chemical systems 3. Explain the mathematical methods and their applications 4. Derive simple mathematical relations for physical systems based on laws of physics, solve and interpret the results 5. Solve well formulated mathematical equations 6. Write and interpret chemical reactions 7. Use appropriate tools and techniques for solving simple physical sciences' problems 8. Conduct experiments as per the procedures, tabulate data and interpret results 9. Work as a member of a scientific project team and communicate across teams 10. Conduct himself as a responsible citizen 11. Choose appropriate online programmes for further learning, participate in seminars and conferences.	
Course Code	**Course Name**	**Course Outcomes**
CY111	**Fundamental of Chemistry-I**	The student will be able to conceptualize about basic principal of chemistry, different types of reaction and their applications

CY 112	**Fundamental of Chemistry-II**	The student will be able to conceptualize about basic principal of thermodynamics, ionic equilibrium and their real life uses.
CY 211	**Inorganic Chemistry-I**	To gain the knowledge of Chemistry of Transition Metals, organometallic compounds, oxidation and reduction and their applications in industry and academic research.
CY 212	**Physical Chemistry-I**	By studying this course students can work in power industry as well as paint industry.
CY 213	**Organic Chemistry –I**	Students can use spectroscopic techniques for determination of synthesized compounds. Application of natural products for human welfare.
CY 311	**Inorganic Chemistry-II**	Students can find their career in the field of printing industries, dyes and colour industries by getting the knowledge coordination compounds. They will also be able to work in mines industries and metallurgy field.
CY 312	**Chemistry-VII (Physical &MiscChemistry-II)**	Going green can save money while helping to relates with development of physical chemistry
CY 314	**Organic Chemistry-II)**	Organic chemistry has expanded our world of knowledge and it is an essential part of the fields of biochemistry, biology, industry, nanotechnology, rocket science, and many more.
MA 111	**Mathematics-I(Calculus)**	Students will find applications of the topics covered, in Physical Sciences and Engineering
MA 113	**Mathematics-II (Three Dimensional Coordinate Geometry and Vector Calculus)**	Students will find applications of the topics covered, in Physical Sciences and Engineering.
MA 112	**Mathematics-II(Abstract Algebra)**	Abstract Algebra is used in variety of areas such as Coding Theory and Cryptography
MA 114	**Mathematics-III**	It provides the fundamental concepts and mathematical methods needed for the analytical solution of many Ordinary and Partial Differential Equations which arise in the modeling of basic phenomena in Science , Engineering and Technology.
MA 211	**Mathematics –V Numerical Analysis and TP**	The students will gain an understanding of how in practice mathematically formulated problems are solved using computers and how computational errors are analysed and tackled.
MA 212	**Mathematics-VII Real Analysis**	The topics covered in this course will enable students to understand the topics of modern mathematics
MA 213	**Mathematics-VI Discrete Mathematics**	Discrete mathematics enables students to think mathematically to model computation related problems and to apply various discrete structure.
MA 214	**Mathematics-VIII Operation Research**	Students will be able to use Optimization techniques in solving problems in complex situations which are greatly

		aided by the advanced computer technology.
MA 311	**Mathematics –IX (Linear Algebra)**	Linear Algebra has evolved as a branch of Mathematics with wide range of applications to the natural sciences, to engineering, to computer science, to management and social sciences
MA 312	**Mathematics –XI (Number Theory)**	Number Theory is used in solving Diophantine equations which has got wide range of applications in engineering , social and physical sciences.
MA 313	**Mathematics –X (Complex Analysis)**	Study of complex analysis is remarkable in its directness and elegance and leads to many useful applications.
MA 314	**Mathematics –XII (Statics and Dynamics)**	Study of Principles of Statics and Dynamics is remarkable which helps in solving many problems of engineering and physical sciences which appears in daily life.
PY 111	**Physics-I (Mechanics and Relativity)**	• Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics • Be able to read, present and/or discuss information found in current research or scientific journals • Be familiar with important historical experiments and what they revealed about our understanding of the universe
PY 112	**Physics-II(Thermal Physics)**	• Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics • Be able to read, present and/or discuss information found in current research or scientific journals • Be familiar with important historical experiments and what they revealed about our understanding of the universe
PY 211	**Physics III(Vector and Magnetic Force)**	• Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics • Be able to read, present and/or discuss information found in current research or scientific journals • Be familiar with important historical experiments and what they revealed about our understanding of the universe
PY 212	**Physics-IV(Solid State Devices)**	Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics Be able to read, present and/or discuss information found in current research or scientific journals Be familiar with important historical experiments and what

		they revealed about our understanding of the universe
PY 214	**Physics-V(Electronics)**	Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics Be able to read, present and/or discuss information found in current research or scientific journals Be familiar with important historical experiments and what they revealed about our understanding of the universe
PY 311	**Physics-VI (Optics and Lasers)**	Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics Be able to read, present and/or discuss information found in current research or scientific journals Be familiar with important historical experiments and what they revealed about our understanding of the universe A working knowledge of fundamental concepts in the basic areas of physics An understanding of the physical principles required to analyze a physical question or topic An understanding of the importance of basic physical laws and their limitations
PY 313	**Physics-VII** **Nuclear Physics**	Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics Be able to read, present and/or discuss information found in current research or scientific journals Be familiar with important historical experiments and what they revealed about our understanding of the universe A working knowledge of fundamental concepts in the basic areas of physics An understanding of the physical principles required to analyze a physical question or topic An understanding of the importance of basic physical laws and their limitations
PY 312	**Physics-VIII(Quantum Mechanics)**	Be able to apply knowledge from one or more areas of Physics to make appropriate intellectual connections or solve problems in another area of Physics Be able to read, present and/or discuss information found in current research or scientific journals Be familiar with important historical experiments and what they revealed about our understanding of the universe A working knowledge of fundamental concepts in the basic areas of physics An understanding of the physical principles required to analyze a physical question or topic An understanding of the importance of basic physical laws and their limitations

M.Sc. (Chemistry)		
Programme Outcome	The Programme enable the students; 1. To understand basic facts and concepts in Chemistry while retaining the exciting aspects of Chemistry so as to develop interest in the study of chemistry as a discipline. 2. To develop the ability to apply the principles of Chemistry. 3. To appreciate the achievements in Chemistry and to know the role of Chemistry in nature and in society. 4. To develop problem solving skills. 5. To be familiarised with the emerging areas of Chemistry and their applications in various spheres of Chemical sciences and to apprise the students of its relevance in future studies. 6. To develop skills in the proper handling of apparatus and chemicals. 7. To be exposed to the different processes used in industries and their applications.	
Programme Specific Outcome	After completion of this programme the candidate will be able to get; 1. Global level research oppurtunities to pursue Ph.Dprogramme targeted approach of CSIR – NET examination. 2. Enaromous job oppurtunities at all level of chemical , pharmaceutical , food products ,life oriented material industries. 3. Specific placements in R & D amd synthetic division of polymer industries & Allied Division. 4. Discipline specific competitive exams conducted by service commission	
Course Code	**Course Name**	**Course Outcomes**
MCY-501	**Quantum Mechanics, Symmetry & Group Theory**	To learn basics of quantum mechanics, Molecular Symmetry,Group Theory and Applications of Group Theory.
MCY-503	**Thermodynamics & Surface Chemistry**	Developed conceptual schematics required for thermodynamics and surface chemistry an ability to translate pertinent criteria into system requirements
MCY-505	**Analytical Techniques**	To developed spectroscopic, electroanalytical and chromatographic principles
MCY-507	**Advanced Organic Chemistry-I**	To provide the basic knowledge to students to improve their working skills as chemist.
MCY-551	**Advanced Laboratory-I**	Developed advanced laboratory experimentsand an ability to translate pertinent criteria into system requirements
MCY 509	**Coordination Chemistry**	Developed conceptual schematics required coordination chemistry for and an ability to translate pertinent criteria into system requirements
MCY 502	**Organometallic Chemistry**	Developed conceptual schematics required coordination chemistry for and an ability to translate pertinent criteria into system requirements

MCY 504	**Kinetics and Photochemistry**	Developed conceptual schematics required Kinetics and Photochemistry for and an abilitly translate pertinent criteria into system requirements
MCY 506	**Adv. Organic Chemistry-II**	Developed conceptual schematics required Adv. Organic Chemistry for and an ability to translate pertinent criteria into system requirements
MCY 552	**Advanced Laboratory-II**	Developed experiment for Adv. laboratory and an ability to translate pertinent criteria into system requirements
MCY 508	**Electroanalytical Chemistry**	Developed conceptual schematics required for Electroanalytical Chemistry and an ability to translate pertinent criteria into system requirements
MCY 510	**Enantiomeric Separation**	Developed conceptual schematics required for Enantiomeric Separation and an ability to translate pertinent criteria into system requirements
MCY 601	**Heterocyclic Chemistry**	Developed conceptual schematics required for Heterocyclic Chemistry and an ability to translate pertinent criteria into system requirements
MCY 603	**Molecular Spectroscopy**	Developed conceptual schematics required for Molecular Spectroscopy and an ability to translate pertinent criteria into system requirements
MCY 605	**Advanced Analytical Chemistry I**	Developed conceptual schematics required for Advanced Analytical Chemistryand an ability to translate pertinent criteria into system requirements
MCY 607	**Advanced Analytical Chemistry II**	Developed conceptual schematics required for liquid liquid extraction, and chromatographic techniquesand an ability to translate pertinent criteria into system requirements
MCY 609	**Inorganic Biochemistry and Reaction Mechanism**	Developed conceptual schematics required for Inorganic Biochemistry and Reaction Mechanism and an ability to translate pertinent criteria into system requirement
MCY 611	**Solid-State Chemistry and its Applications**	Developed conceptual schematics required for Solid-State Chemistry and its Applications and an ability to translate pertinent criteria into system requirement
MCY 613	**Advanced Organic Chemistry- I**	Developed conceptual schematics required for Advanced Organic Chemistry and an ability to translate pertinent criteria into system requirement
MCY 615	**Advanced Organic Chemistry II**	Developed conceptual schematics required for Advanced Organic Chemistry and an ability to translate pertinent criteria into system requirement
MCY 617	**Advanced Physical Chemistry – I**	Developed conceptual schematics required for advanced physical Chemistry and an ability to translate pertinent criteria into system requirement
MCY 619	**Advanced Physical**	Developed conceptual schematics required for Advanced

	Chemistry – II	physical Chemistry-ii and an ability to translate pertinent criteria into system requirement
MCY 621	**Asymmetric Synthesis**	Developed conceptual schematics required forAsymmetric Synthesis and an ability to translate pertinent criteria into system requirement

Department: Pharmacy

B. A. English Literature		
Programme Outcome	The professional pharmacy curriculum is designed to produce pharmacists who have the abilities and skills which are necessary to achieve outcomes related to: • Providing pharmaceutical care to patients • Developing and managing medication distribution and control systems • Managing the pharmacy • Promoting public health • Providing drug information and education	
Programme Specific Outcome	In order to provide students with the opportunity to develop a strong foundation on which to build these skills, the curriculum emphasizes major areas of instructions in, Pharmaceutics, Medicinal Chemistry, Pharmacology, and Pharmacognosy. Pharmacists today are responsible for ensuring the rational, safe and cost-effective use of drugs. Pharmacist duties include: participating in the drug use decision-making process, establishing therapeutic goals for each patient, selecting the appropriate drug dosage form, selecting the drug product source of supply, determining the dose and dosage schedule, preparing the drug product for patient use, providing the drug product and drug information to the patient, monitoring the patient to maximize compliance, monitoring the patient to detect adverse drug reactions and drug interactions, and monitoring the patient's progress to improve therapeutic outcomes.	
Course Code	**Course Name**	**Course Outcomes**
BP101T	HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)	Upon completion of this course the student should be able to 1. Explain the gross morphology, structure and functions of various organs of the human body. 2. Describe the various homeostatic mechanisms and their imbalances. 3. Identify the various tissues and organs of different systems of human body. 4. Perform the various experiments related to special senses and nervous system.

		5. Appreciate coordinated working pattern of different organs of each system
BP107P	HUMAN ANATOMY AND PHYSIOLOGY (Practical)	Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject**.**
BP102T	**PHARMACEUTICAL ANALYSIS (Theory)**	Upon completion of the course student shall be able to 1. understand the principles of volumetric and electro chemical analysis 2. carryout various volumetric and electrochemical titrations 3. develop analytical skills
BP103T	**PHARMACEUTICS- I**	Upon completion of this course the student should be able to: 1. Know the history of profession of pharmacy 2. Understand the basics of different dosage forms, pharmaceutical incompatibilities and 3. pharmaceutical calculations 4. Understand the professional way of handling the prescription 5. Preparation of various conventional dosage forms
BP104T	**PHARMACEUTICAL INORGANIC CHEMISTRY**	Upon completion of course student shall be able to • know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals • understand the medicinal and pharmaceutical importance of inorganic compounds
BP105T	**COMMUNICATION SKILLS**	Upon completion of the course the student shall be able to 1. Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation 2. Communicate effectively (Verbal and Non Verbal) 3. Effectivelymanage the team as a team player 4. Develop interview skills 5. Develop Leadership qualities and essentials
BP 106RBT	**REMEDIAL BIOLOGY**	Upon completion of the course, the student shall be

		able to • know the classification and salient features of five kingdoms of life • understand the basic components of anatomy & physiology of plant • know understand the basic components of anatomy & physiology animal with special reference to human
BP 106RMT	**REMEDIAL MATHEMATICS**	Upon completion of the course the student shall be able to:- **1.** Know the theory and their application in Pharmacy **2.** Solve the different types of problems by applying theory **3.** Appreciate the important application of mathematics in Pharmacy
BP 201T	**HUMAN ANATOMY AND PHYSIOLOGY-II**	Upon completion of this course the student should be able to: 1. Explain the gross morphology, structure and functions of various organs of the human body. 2. Describe the various homeostatic mechanisms and their imbalances. 3. Identify the various tissues and organs of different systems of human body. 4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume. 5. Appreciate coordinated working pattern of different organs of each system 6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.
BP202T	**PHARMACEUTICAL ORGANIC CHEMISTRY –I (Theory)**	Upon completion of the course the student shall be able to 1. write the structure, name and the type of isomerism of the organic compound 2. write the reaction, name the reaction and orientation of reactions 3. account for reactivity/stability of compounds, 4. identify/confirm the identification of organic compound
BP203 T	**BIOCHEMISTRY**	Upon completion of course student shell able to

		1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes. 2. Understand the metabolism of nutrient molecules in physiological and pathological conditions. 3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.
BP 204T	**PATHOPHYSIOLOGY**	Upon completion of the subject student shall be able to – 1. Describe the etiology and pathogenesis of the selected disease states; 2. Name the signs and symptoms of the diseases; and 3. Mention the complications of the diseases.
BP205 T	**COMPUTER APPLICATIONS IN PHARMACY**	Upon completion of the course the student shall be able to 1. know the various types of application of computers in pharmacy 2. know the various types of databases 3. know the various applications of databases in pharmacy
BP 206 T	**ENVIRONMENTAL SCIENCES**	Upon completion of the course the student shall be able to**:** 1. Create the awareness about environmental problems among learners. 2. Impart basic knowledge about the environment and its allied problems. 3. Develop an attitude of concern for the environment. 4. Motivate learner to participate in environment protection and environment improvement. 5. Acquire skills to help the concerned individuals in identifying and solving environmental problems. 6. Strive to attain harmony with Nature.
BP301T	**PHARMACEUTICAL ORGANIC CHEMISTRY –II**	Upon completion of the course the student shall be able to 1. write the structure, name and the type of isomerism of the organic compound 2. write the reaction, name the reaction and orientation of reactions 3. account for reactivity/stability of compounds,

		4. prepare organic compounds
BP302T	**PHYSICAL PHARMACEUTICS-I**	Upon the completion of the course student shall be able to 1. Understand various physicochemical properties of drug molecules in the designing the dosage forms 2. Know the principles of chemical kinetics & to use them for stability testing nad determination of expiry date of formulations 3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP 303 T	**PHARMACEUTICAL MICROBIOLOGY**	Upon completion of the subject student shall be able to; 1. Understand methods of identification, cultivation and preservation of various microorganisms 2. To understand the importance and implementation of sterlization in pharmaceutical processing and industry 3. Learn sterility testing of pharmaceutical products. 4. Carried out microbiological standardization of Pharmaceuticals. 5. Understand the cell culture technology and its applications in pharmaceutical industries.
BP 304 T	**PHARMACEUTICAL ENGINEERING (Theory)**	Upon completion of the course student shall be able: 1. To know various unit operations used in Pharmaceutical industries. 2. To understand the material handling techniques. 3. To perform various processes involved in pharmaceutical manufacturing process. 4. To carry out various test to prevent environmental pollution. 5. To appreciate and comprehend significance of plant lay out design for optimum use of resources. 6. To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.
BP401T	**PHARMACEUTICAL ORGANIC CHEMISTRY –III (Theory**	At the end of the course, the student shall be able to 1. understand the methods of preparation and

		properties of organic compounds 2. explain the stereo chemical aspects of organic compounds and stereo chemical reactions 3. know the medicinal uses and other applications of organic compounds
BP402T	**MEDICINAL CHEMISTRY – I**	Upon completion of the course the student shall be able to 1. understand the chemistry of drugs with respect to their pharmacological activity 2. understand the drug metabolic pathways, adverse effect and therapeutic value of drugs 3. know the Structural Activity Relationship (SAR) of different class of drugs 4. write the chemical synthesis of some drugs
BP 403 T	**PHYSICAL PHARMACEUTICS-II (Theory)**	Upon the completion of the course student shall be able to 1. Understand various physicochemical properties of drug molecules in the designing the dosage forms 2. Know the principles of chemical kinetics & to use them for stability testing nad determination of expiry date of formulations 3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP 404 T	**PHARMACOLOGY-I**	Upon completion of this course the student should be able to 1. Understand the pharmacological actions of different categories of drugs 2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels. 3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases. 4. Observe the effect of drugs on animals by simulated experiments 5. Appreciate correlation of pharmacology with other bio medical sciences
BP 405 T	**PHARMACOGNOSY AND PHYTOCHEMISTRY I**	Upon completion of the course, the student shall be able 1. to know the techniques in the cultivation and production of crude drugs

		2. to know the crude drugs, their uses and chemical nature 3. know the evaluation techniques for the herbal drugs 4. to carry out the microscopic and morphological evaluation of crude drugs
BP501T	**MEDICINAL CHEMISTRY – II**	Upon completion of the course the student shall be able to 1. Understand the chemistry of drugs with respect to their pharmacological activity 2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs 3. Know the Structural Activity Relationship of different class of drugs 4. Study the chemical synthesis of selected drugs
BP 502 T	**Industrial PharmacyI**	Upon completion of the course the student shall be able to 1. Know the various pharmaceutical dosage forms and their manufacturing techniques. 2. Know various considerations in development of pharmaceutical dosage forms 3. Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality
BP503.T	**PHARMACOLOGY-II**	Upon completion of this course the student should be able to 1. Understand the mechanism of drug action and its relevance in the treatment of different diseases 2. Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments 3. Demonstrate the various receptor actions using isolated tissue preparation 4. Appreciate correlation of pharmacology with related medical sciences
BP504 T	**PHARMACOGNOSY AND PHYTOCHEMISTRY II**	Upon completion of the course, the student shall be able 1. to know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents 2. to understand the preparation and development of herbal formulation. 3. to understand the herbal drug interactions

		4. to carryout isolation and identification of phytoconstituents
BP 505 T	**PHARMACEUTICAL JURISPRUDENCE**	Upon completion of the course, the student shall be able to understand: 1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals. 2. Various Indian pharmaceutical Acts and Laws 3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals 4. The code of ethics during the pharmaceutical practice
BP601T	**MEDICINAL CHEMISTRY – III**	Upon completion of the course student shall be able to 1. Understand the importance of drug design and different techniques of drug design. 2. Understand the chemistry of drugs with respect to their biological activity. 3. Know the metabolism, adverse effects and therapeutic value of drugs. **4.** Know the importance of SAR of drugs.
BP602 T	**PHARMACOLOGY-III**	Upon completion of this course the student should be able to: 1. understand the mechanism of drug action and its relevance in the treatment of different infectious diseases 2. comprehend the principles of toxicology and treatment of various poisoningsand 3. appreciate correlation of pharmacology with related medical sciences.
BP 603 T	**HERBAL DRUG TECHNOLOGY**	Upon completion of this course the student should be able to: 1. understand raw material as source of herbal drugs from cultivation to herbal drug product 2. know the WHO and ICH guidelines for evaluation of herbal drugs 3. know the herbal cosmetics, natural sweeteners, nutraceuticals 4. appreciate patenting of herbal drugs, GMP .
BP 604 T	**BIOPHARMACEUTICS AND PHARMACOKINETICS**	Upon completion of the course student shall be able to:

		1. Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance. 2. Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination. 3. To understand the concepts of bioavailability and bioequivalence of drug products and their significance. 4. Understand various pharmacokinetic parameters, their significance & applications.
BP 605 T	**PHARMACEUTICAL BIOTECHNOLOGY**	Upon completion of the subject student shall be able to; 1. Understanding the importance of Immobilized enzymes in Pharmaceutical Industries 2. Genetic engineering applications in relation to production of pharmaceuticals 3. Importance of Monoclonal antibodies in Industries 4. Appreciate the use of microorganisms in fermentation technology
BP606T	**BP606TPHARMACEUTICAL QUALITY ASSURANCE**	Upon completion of the course student shall be able to: • understand the cGMP aspects in a pharmaceutical industry • appreciate the importance of documentation • understand the scope of quality certifications applicable to pharmaceutical industries • understand the responsibilities of QA & QC departments
BP701T	**INSTRUMENTAL METHODS OF ANALYSIS**	Upon completion of the course the student shall be able to 1. Understand the interaction of matter with electromagnetic radiations and its applications in drug analysis 2. Understand the chromatographic separation and analysis of drugs. 3. Perform quantitative & qualitative analysis of drugs using various analytical instruments.
BP 702 T	**INDUSTRIAL**	Upon completion of the course, the student shall be

	PHARMACYII	able to: 1. Know the process of pilot plant and scale up of pharmaceutical dosage forms 2. Understand the process of technology transfer from lab scale to commercial batch 3. Know different Laws and Acts that regulate pharmaceutical industry 4. Understand the approval process and regulatory requirements for drug products
BP 703T	**PHARMACY PRACTICE**	Upon completion of the course, the student shall be able to 1. know various drug distribution methods in a hospital 2. appreciate the pharmacy stores management and inventory control 3. monitor drug therapy of patient through medication chart review and clinical review 4. obtain medication history interview and counsel the patients 5. identify drug related problems 6. detect and assess adverse drug reactions 7. interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states 8. know pharmaceutical care services 9. do patient counseling in community pharmacy; 10. appreciate the concept of Rational drug therapy.
BP 704T	**NOVEL DRUG DELIVERY SYSTEMS**	Upon completion of the course student shall be able 1. To understand various approaches for development of novel drug delivery systems. 2. To understand the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation
BP801T	**BIOSTATISITCS AND RESEARCH METHODOLOGY**	Upon completion of the course the student shall be able to • Know the operation of M.S. Excel, SPSS, R and MINITAB®, DoE (Design of Experiment) • Know the various statistical techniques to solve statistical problems • Appreciate statistical techniques in solving the problems**.**

BP 802T	**SOCIAL AND PREVENTIVE PHARMACY**	After the successful completion of this course, the student shall be able to: • Acquire high consciousness/realization of current issuesrelated to health and pharmaceutical problems within the country and worldwide. • Have a critical way of thinking based on current healthcare development. • Evaluate alternative ways of solving problems related tohealth and pharmaceutical issues
BP803ET	**PHARMA MARKETING MANAGEMENT**	The course aims to provide an understanding of marketing concepts and techniques and their applications in the pharmaceutical industry
BP804 ET	**PHARMACEUTICAL REGULATORY SCIENCE**	Upon completion of the subject student shall be able to; 1. Know about the process of drug discovery and development 2. Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals 3. Know the regulatory approval process and their registration in Indian and international markets
BP 805T	**PHARMACOVIGILANCE**	*At completion of this paper it is expected that students will be able to (know, do, and appreciate):* 1. Why drug safety monitoring is important? 2. History and development of pharmacovigilance 3. National and international scenario of pharmacovigilance 4. Dictionaries, coding and terminologies used in pharmacovigilance 5. Detection of new adverse drug reactions and their assessment 6. International standards for classification of diseases and drugs 7. Adverse drug reaction reporting systems and communication in pharmacovigilance 8. Methods to generate safety data during pre clinical, clinical and post approval phases of drugs' life cycle 9. Drug safety evaluation in paediatrics, geriatrics, pregnancy and lactation 10. Pharmacovigilance Program of India (PvPI) requirement for ADR reporting in India 11. ICH guidelines for ICSR, PSUR, expedited

		reporting, pharmacovigilance planning 12. CIOMS requirements for ADR reporting 13. Writing case narratives of adverse events and their quality.
BP 806 ET	**QUALITY CONTROL AND STANDARDIZATION OF HERBALS**	Upon completion of the subject student shall be able to; 1. know WHO guidelines for quality control of herbal drugs 2. know Quality assurance in herbal drug industry 3. know the regulatory approval process and their registration in Indian and international markets 4. appreciate EU and ICH guidelines for quality control of herbal drugs
BP 807 ET	**COMPUTER AIDED DRUG DESIGN**	Upon completion of the course, the student shall be able to understand • Design and discovery of lead molecules • The role of drug design in drug discovery process • The concept of QSAR and docking • Various strategies to develop new drug like molecules. • The design of new drug molecules using molecular modeling software
BP808ET	**CELL AND MOLECULAR BIOLOGY (Elective subject)**	Upon completion of the subject student shall be able to; • Summarize cell and molecular biology history. • Summarize cellular functioning and composition. • Describe the chemical foundations of cell biology. • Summarize the DNA properties of cell biology. • Describe protein structure and function. • Describe cellular membrane structure and function. • Describe basic molecular genetic mechanisms. • Summarize the Cell Cycle
BP809ET	**COSMETIC SCIENCE(Theory)**	
BP810 ET	**PHARMACOLOGICAL SCREENINGMETHODS**	Upon completion of the course the student shall be able to, • Appreciate the applications of various commonly used laboratory animals. • Appreciate and demonstrate the various screening methods used in preclinical research • Appreciate and demonstrate the importance of

		biostatistics and researchmethodology • Design and execute a research hypothesis independently
BP 811 ET	**ADVANCED INSTRUMENTATION TECHNIQUES**	Upon completion of the course the student shall be able to • understand the advanced instruments used and its applications in drug analysis • understand the chromatographic separation and analysis of drugs. • understand the calibration of various analytical instruments • know analysis of drugs using various analytical instruments.
BP 812 ET	**DIETARY SUPPLEMENTS AND NUTRACEUTICALS**	This module aims to provide an understanding of the concepts behind the theoretical applications of dietary supplements. By the end of the course, students should be able to : 1. Understand the need of supplements by the different group of people to maintain healthy life. 2. Understand the outcome of deficiencies in dietary supplements. 3. Appreciate the components in dietary supplements and the application. 4. Appreciate the regulatory and commercial aspects of dietary supplements including health claims.
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Department: ISBM

Bachelor of Business Administration		
Programme Outcome	Students will develop as effective management professionals andshall develop the ability to integrate management knowledge gained during the curriculum to take practical decisions.Ability to Use information and knowledge effectively to ensure smooth functioning of the organization.	
Programme Specific Outcome	PSO 1 Ability to employ managerial skills to enhance coordination and ensure effective organizational functioning. PSO 2 Ability to use knowledge gained for solving business problems.	
Course Code	**Course Name**	**Course Outcomes**
BM 105	Introduction to Financial Accounting	Develop and understand the nature and purpose of financial statements in relationship to decision making. Develop the ability to use the fundamental accounting equation to analyze the effect of business transactions on

		an organization's accounting records and financial statements
BM 107	Organizational Behavior	Familiarize the student with basic concepts and behavioral process in an organization to enable them to develop and adopt effective strategies.
BM 109	Principles of Management	Discuss and communicate the management evolution and how it will affect future managers. Observe and evaluate the influence of historical forces on the current practice of management.
BM111	Principles ofEconomics	To familiarize the student with various theoretical concepts of Economics that are related to life. To expose students to basic micro economic concepts
BM 183	Fundamentals of Business Mathematics	Get elementary yet essential background of mathematical method so that as managers they may use themselves in business analysis and decision making.
BM 102	Fundamentals of Marketing Management	To create an understanding of the basics and concepts of Marketing. To gain knowledge about the different product, pricing and promotional decision making processes for different products / services and brands and techniques related to them developed in marketing and advertising research lab.
BM 106	Fundamentals of Financial Management	Define what finance is and how it relates to economic theory and accounting information. Conduct a forecast using relevant data.
BM 215	Indian Business Houses	To gain knowledge about contemporary scenario of business. To have understanding about how successful markets emerge and grow.
BM 213	Fundamentals Of Macro Economics and Business Environment	To expose the principles of macroeconomics. To expose the students to various environment factors related to the business.
BM 203	Human Resource Management	To gain knowledge on how to ccontribute to the development, implementation, and evaluation of employee recruitment, selection, and retention plans and processes.
BM 209	Business Law	To create an understanding regarding Business Law. To gain knowledge about different legal instruments. Able to conceptualize different types of legal report writing
BM 207	Cost & Management Accounting	Able to conceptualize basic financial Statements. To analyze the cash position with the help of AS-3.
BM 211	Business Statistics for decision making	To gain knowledge about Business Statistics. To have understanding about Classification of statistics
BM 201	International Business	Explain how international factors affect domestic concerns. To gain knowledge about the subjectexplain

	Management	regional economic integration and economic and political integration.
BM 202	Production and Operation Management	To create an understanding of the operations and production processes and procedures. To gain knowledge about the different concepts used in productionplanning and operations management.
BM 204	Research Methods inManagement	Students should be able to identify the overall process of designing a research study from its inception to its report. Students should be familiar with ethical issues in educational research, including those issues that arise in using quantitative and qualitative research
BM 206	Business Strategy	Be knowledgeable about the differences among global economies, institutions, and cultures and understand the implications these have on global management.
BM 208	Quantitative Techniques	To create an understanding of the scientific and mathematical techniques, processes and procedures involved in quantitative problems.
BM 304	RETAIL & SUPPLY CHAIN MANAGEMENT	To have understanding about marketing techniques, merchanidize management and other concepts related to Retailing. Able to analyze different issues and challenges emerging in retail and supply chain management .
BM 301	Project Management	To create an understanding regarding the projects undertaken by the project managers and decision making and team building tasks related to them. To gain in depth knowledge about Project initiation, planning, implementation and control.
BM 302	Entrepreneurship and Small Scale Business Management	To gain knowledge about Entrepreneurship and Small Scale Business Management. To have understanding about techniques implied ESSB.
BM 326	International Marketing	To have understanding about marketing techniques used in I.B. Able to analyze different barriers of I.B. and techniques to overcome them.
BM 327	Services Marketing	To have understanding about the techniques involved in marketing of services. Can involve in analysis of unique situations.
BM 328	Advertising Management	To create an understanding of the basics of Advertising as an important promotional tool. To gain knowledge about Advertising Planning, Creative strategies, creativity in advertising, creative writing through different practical experiments and advertising simulation exercises performed in Marketing Research and Advertising Laboratory.

BM 329	CONSUMER BEHAVIOUR	Able to get better understanding of consumer behavior. The student will be able to internalize knowledge for practical life.
BM 330	MARKET RESEARCH	To have understanding about the technalities involved in market research. Can involve in analysis of market situation for any given product
BM 359	TRAINING &DEVELOPMENT	To gain knowledge about training techniques. To have understanding about performance appraisal techniques. Able to analyze different barriers of training
BM 332	Manpower Planning	Able to conceptualize different points of the topic involved in Manpower Planning Process. The student will be able to gather knowledge for the practical aspects of manpower planning.
BM 360	Employee Relations Management	To gain knowledge about employee relations. To have understanding about techniques of employee engagement.
BM 340	Strategic Human Resource Management	Evaluate the impact of human resource management strategies, concepts and values upon the organisation's success. Understand a range of human resource management activities (e.g. recruitment, selection and assessment, succession planning, performance management, reward management, talent development, disciplinary, etc.)
BM 397	Leadership Skills & Change Management	Understanding Change ,Factors Influencing Change, types and change, Overcoming Resistance to Change, Change agents
BM 212	Risk and Insurance management	To gain knowledge about risk management. Able to analyse different insurance products. Can make strategy according to consumers' needs.
BM 324	Securities Analysis	To create an understanding regarding Securities & the Securities Market. To gain knowledge about securities management. Can make strategy according to consumers' need
BM 321	Banking Concept & Finance	To Understand Basic Concept of different Types of Banking Systems, An overview and structure of Indian Banking System, Recent development in Banking Sector
BM 325	Financial Services	To understand conceptual framework, Legal framework, Financial Evaluation, Consumer Credit., Factoring with regard to financial services.
BM 323	International Finance	To understand the goals& objective of international financial management , globalization ofinternational finance, globalization & multinational firms , international monitorysystem.
BM 353	Personal FinancialPlanning	To be able to decide whether to lease or buy-finding an affordable house-thehouse- buying process-housing finance. Managing credit-opening anoverdraft account

		using credit carefully consumerloans

Department: ISBM

MBA		
Programme Outcome	Students will develop the ability to articulate, illustrate, analyze, synthesize and apply the knowledge of principles and frameworks of management and allied domains to the solutions of real-world complex business issues. Ability to conduct investigation of multidimensional business problems using research based knowledge and research methods to arrive at data driven decisions	
Programme Specific Outcome	PSO 1 MBA Student will be able to face real world challenges through managerial skills. PSO 2 MBA Student will have the ability to emerge as entrepreneurs through Industry exposure with different Business skills.	
Course Code	**Course Name**	**Course Outcomes**
BM 501	ORGANIZATIONAL BEHAVIOR	The Learning Objectives of the course are :To create an understanding regarding the Management, To gain knowledge about Motivation and Behavior, To have understanding about Structural Dimensions and Design, Able to analyze different Interactive dimensions of OB
BM 502	HUMAN RESOURCE MANAGEMENT	To develop a meaningful understanding of HRM theory, functions and practices. To apply HRM concepts and skills across various types of organizations.
BM 503	QUANTITATIVE TECHNIQUES	The Learning Objectives of the course are :To create an understanding regarding the topic, To gain knowledge about Business Mathematical techniques, To have understanding about cases involving the use of algebra, calculus, differentiation, vectors , matrix and induction problems, Able to analyze different mathematical and scientific techniques involved in business simulation.
BM 504	RESEARCH METHODS IN MANAGEMENT	To provide an understanding on the basic concepts of research methods, To expose the students to the role that statistics plays in business decisions

BM 505	MARKETING MANAGEMENT	The Learning Objectives of the course are ,To provide students an insight to basic concepts of marketing management, To help students understand various marketing tools/models for solving marketing
BM 506	CORPORATE FINANCIAL MANAGEMENT	To explain the basic functions and responsibilities of a financial department in a business/ firm; To elaborate the key decision areas in financial management-investment, financing, dividend and working capital management, To explain the various techniques of evaluation of investment proposals, To discuss the various factors to be considered in designing the target capital structure.
BM 507	MANAGERIAL ECONOMICS	To introduce the fundamentals, tools and theories of managerial economics, To orient on micro economic techniques as a decision making process, To understand macro economic analysis essential for business managers
BM 508	ECONOMIC ENVIRONMENT OF BUSINESS	This course exposes students to an overview of an exchange based economy and draws out the relationship between crucial macroeconomic variables like the level of income, employment, prices, investment, money supply, trade and forex, etc. The design of government policy measures in regulating and planning for the economy will be discussed. Specific problems like inflation, growth and the control of business cycles will be addressed, with respect to the Indian economy.
BM 509	MANAGEMENT INFORMATION SYSTEM	This course emphasizes effective ways of building a model of the real world and optimizing it through normalization algorithms. The study of MIS is now of fundamental importance in the field of computer science and management information system.
BM 510	COST & MANAGEMENT ACCOUNTING	The Learning Objectives of the course are : To create an understanding regarding the topic ,To gain knowledge about Fund Flow analysis To have understanding about Cost Volume profit analysis Able to analyze different types of

		variances
BM 511	FINANCIAL ACCOUNTING	To explain the basic functions and responsibilities of a financial department in a business/ firm; • To elaborate the key decision areas in financial management-investment, financing, dividend and working capital management • To explain the various techniques of evaluation of investment proposals • To discuss the various factors to be considered in designing the target capital structure.
BM 516	CONSUMER BEHAVIOR	To understand the concept of consumer behavior, decision making by consumers, behavior variables and influences on consumer behavior. • To comprehend the social and cultural dimensions of consumer behavior, factors impacting attitudes and behavior. • To arm the budding marketers with an insight of the psychological and behavioral concepts of consumers thus enabling them to achieve their Learning Objectives and excel.
BM 518	MANAGEMENT OF FINANCIAL INSTITUTIONS	The course will help in giving clear understanding and knowledge of financial assets in financial system in present complex business scenario . The students will also get adequate exposure to financial Institution and Services which are undergoing sea change with the latest development of IT aided business models where life cycle of the financial assets is passing through critical stages.
BM 522	HUMAN RESOURCE INFORMATION SYSTEM	The objective of this course is to endow the student with a broad perspective on themes and issues of Human Resource Management along with their relevance and application in the Indian prospect.
BM 526	ORGANIZATIONAL RESTRUCTURING & DEVELOPMENT	This course defines sequential process, role and dynamics to organizational change. It further highlights ways of dealing with it. It focuses on

		need, phases and conditions for successful organizational development. Different organizational development interventions are also incorporated.
BM 530	INTERNATIONAL FOREX & RISK MANAGEMENT	There are two kinds of career opportunities: one in the insurance companies per se and the other in terms of risk management in corporate sector using insurance as one of the tools. There are also other emerging career opportunities in insurance marketing and distribution, insurance advisory services and Third Party Administration (TPA) of insurance contracts. This course will focus primarily on those concepts, techniques and issues in the context of a person aspiring for a career in insurance and risk management
BM 601	OPERATION AND PRODUCTION MANAGEMENT	This Course is designed to develop a deeper understanding of the quantitative techniques, which could be successfully used for improving the quality of managerial decisions. The students will study this course with a generalist approach and avoid the minor details of the topics prescribed hereunder:
BM 602	ENTREPRENEURSHIP AND SMALL SCALE BUSINESS MANAGEMENT	To develop and strengthen entrepreneurial quality and motivation in students, To impart basic entrepreneurial skills and understandings to run a business efficiently and effectively, To provide insights to students on entrepreneurship opportunities
BM 603	BUSINESS LAW	The Learning Objectives of the course are : To create an understanding regarding the topic To gain knowledge about Business Law, To have understanding about business contracts, Able to analyze different types of contract
BM 604	PROJECT MANAGEMENT	The course is intended to develop the knowledge of the students in the management of projects, special emphasis will be provided on project formulation as also on various tools and techniques for project appraisal and control so that they are able to draft the project

		proposal in any area of management and evaluate the worth of projects.
BM 605	CORPORATE STRATEGY & ETHICS	The present course aims at familiarizing the participants with the concepts, tools and techniques of corporate strategic management so as to enable them to develop analytical and conceptual skills and the ability to look at the totality of situations.
BM 608	SALES & DISTRIBUTION MANAGEMENT	• To provide an understanding of the concepts, techniques and approaches required for effective decision making in the areas of Sales Management. • To emphasize on the practicing manager's problems and dilemmas. • To develop skills critical for generating, evaluating and selecting sales strategi
BM 609	MARKETING OF SERVICES	To acquaint the students to the uniqueness of the services characteristics and its marketing implications. • To discuss measure and analyze several facets in the area of services marketing essential for the success of a service sector firm. • To acquaint the students with the various models and their applications.
BM 610	INTERNATIONAL MARKETING	To acquaint the students to the uniqueness of the international characteristics and its marketing implications. To discuss measure and analyze several facets in the area of international marketing essential for the success of a international firm.
BM 611	ADVERTISING AND SALES PROMOTION MANAGEMENT	To acquaint the students to the uniqueness of the advertising characteristics and its marketing implications. To discuss measure and analyze several facets in the area of advertising management essential for the success of a firm.
BM 612	INDUSTRIAL MARKETING	The purpose of this course is to develop an understanding among the students about the various concepts of Industrial Marketing, which are helpful in developing sound marketing policies for industrial goods.

BM 514	STRATEGIC MARKETING DECISIONS	• To help the students appreciate the relationship between corporate strategy and Brand Management. • To explore the various issues related to Brand Management and to enhance the understanding and appreciation of this important intangible strategic asset including brand association, brand identity, brand architecture, leveraging brand assets, brand portfolio management. • To develop familiarity and competence with the strategies and tactics involved in building, leveraging and defending strong brands in different sectors.
BM 613	BANKING & INSURANCE MANAGEMENT	To develop familiarity and competence with the strategies and tactics involved in building, leveraging and defending strong brands in different sectors.
BM 614	PRODUCT & BRAND MANAGEMENT	To help the students appreciate the relationship between Corporate Strategy and Product and Brand Management) To equip the students with the various dimensions of product management such as product-line decisions, product platform and product life cycle) To provide a framework to understand the new product development process, the organisational structures for new product development and product management functions within an organisation)
BM 615	MARKETING RESEARCH AND ANALYTICS	• To provide an understanding of the basics of marketing research and to build a research vocabulary, key terms and ideas. • To provide a balance of the theoretical and PRACTICALS aspects of marketing research and encourage the students to take up analytical and critical thinking through research. • To highlight importance of research in management
BM 616	INTERNATIONAL FINANCE & TRADE	To understand Foreign exchange market ,international financial market ,domestic capital markets, MNC and its financial environment

BM 617	SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT	The objective of this course is to expose the students to the concepts, tools and techniques applicable in the field of security analysis and portfolio management.
BM 618	Advanced Accounting Standards	To Introduce -Gaap, Introduction To Indian Accounting Standards (AS)-Introduction To International Accounting Standards
BM 619	FINANCIAL RISK & INSURANCE MANAGEMENT	• To provide an understanding of risk and methods of handling risk • To provide an understanding of the risk identification and measurement • To comprehend insurance contracts such as health insurance, fire insurance, marine and health insurance and life insurance • To provide an understanding of the management of insurance companies
BM 620	PERSONAL FINANCIAL PLANNING	The rewards of sound financial planning-planning for a life time-according to the planning environment and determinants of personal income financial
BM 621	DERIVATIVES SECURITIES & FINANCIAL RESTRUCTURING	• To describe the characteristics of the relevant financial derivative instruments • To explain how the instruments covered can be used to implement basic market risk management strategies, appropriate for corporate applications • Explain the use of options and futures contracts for tactical portfolio strategies purpose
BM 622	MANAGEMENT OF MUTUAL FUNDS & PENSION FUNDS	To explain how the instruments covered can be used to implement basic market risk management strategies, appropriate for corporate applications • Explain the use of options and futures contracts for tactical portfolio strategies purpose
BM 623	**BANKING SERVICES OPERATION**	• To discuss the banking system and structure in India • To understand the nature of banker- customer relationship. • To comprehend the technological up gradation and application in banking • To provide an understanding of asset liability management in banks

BM 624	**Employment Laws**	This course is designed to familiarize the students with industrial relation, trade unionism &labour legislations. Its objective is to give students ability for in -depth analysis of the fundamental principles and practices of industrial relations as well as the implementation of labour laws.
BM 641	**TRAINING & DEVELOPMENT**	• To make students learn how to design a training environment to maximize learning at workplace. • To enable students to be aware of the field of learning and development and its role in optimizing performance. • To make students understand how assessment, relationships, courses, and job experiences can be used for development.
BM 626	**PERFORMANCE MANAGEMENT & REWARD STRATEGIES**	To enable students to be aware of the field of learning and development and its role in optimizing performance.
BM 627	**HUMAN RESOURCE PLANNING**	The course structure gives an insight into the human resource planning which is done by organizations at micro and government at the macro level. It imparts PRACTICALS sense of understanding of human resource planning issues and suggests a roadmap for human resource professionals to upgrade their human resource competencies to bring and integrate it with the business of the organization.
BM 628	**Competency Mapping & Assessment**	The course structure gives an insight into the human resource planning which is done by organizations at micro and government at the macro level. It imparts PRACTICALS sense of understanding of human resource planning issues and suggests a roadmap for human resource professionals to upgrade their human resource competencies to bring and integrate it with the business of the organization.
BM 629	**HR Research Methods**	The course structure gives an insight into the human resource planning which is done by organizations at micro and government at the macro level. It imparts PRACTICALS sense of understanding of human resource planning issues and suggests a roadmap for human resource professionals to upgrade their human resource competencies to bring and integrate it with the business of the organization.
BM 630	**Strategic Human Resource Management**	The objective of the course is to enhance the ability to think strategically the matters of human resources in an organization and some of the issues which are relevant across also.
BM 631	**LEADERSHIP SKILLS & CHANGE MANAGEMENT**	This course defines sequential process, role and dynamics to organizational change. It further highlights ways of dealing with it. It focuses on need, phases and conditions for successful organizational development. Different organizational development interventions are also incorporated.

BM 632	**INTERNATIONAL BUSINESS PROCEDURES & DOCUMENTATION**	This paper deals with a broad conceptual focus on the problems - related documentation in export and import and scenario of logistics in world place.
BM 633	**INTERNATIONAL FINANCIAL MANAGEMENT**	The main objective of this course is to familiarize the students with the international financial environment and the special decision variables underlying the discharge of finance function in a multinational corporation
BM 634	**INTERNATIONAL LOGISTICS & SUPPLY CHAIN MANAGEMENT**	This paper deals with a broad conceptual focus on the problems - related documentation in export and import and scenario of logistics in world place. • The objective of this course is to enable the student to understand the basic concepts, processes and key elements of a supply chain and how they interact in supply chains.
BM 635	**COMPREHENSIVE & INTERNATIONAL ECONOMICS**	The Learning Objectives of the course are :
BM 636	**CONTEMPORARY ISSUES IN INTERNATIONAL HR**	• Critically analyse the impact of contemporary issues and global imperatives on Human Resource concepts, policies and practices in multinational organizations • Compare, contrast and explain a variety of strategic approaches to the management of Human Resources in multinational organizations.
BM 637	**FOREIGN TRADE POLICIES**	The Learning Objectives of the course are :
BM 638	**INTERNATIONAL MARKETING MANAGEMENT**	This paper deals with a broad conceptual focus on the marketing management problems, techniques and strategies necessary to incorporate the marketing concept into the framework of the world market place. The present course explores those aspects of marketing which are unique to international business
BM 652	**RETAIL STORE MANAGEMENT**	This program helps management students to understand the fundamentals of Distribution management and familiarizing the participants with the global dynamism of retail practices and provides a specialize platform for developing cutting edge skills in retails. Class participation will be fundamental to the development of these skills.
BM 653	**NEW HORIZONS IN RETAILING**	This program helps management students to understand the fundamentals of Distribution management and familiarizing the participants with the global dynamism of retail practices and provides a specialize platform for developing cutting edge skills in retails. Class participation will be fundamental to the development of these skills.
BM 654	**RETAIL MARKETING & SALES STRATEGIES**	This program helps management students to understand the fundamentals of Distribution management and familiarizing the participants with the global dynamism of retail practices and provides a specialize platform for developing cutting

		edge skills in retails.Class participation will be fundamental to the development of these skills.
BM 655	**Customer Relationship Management**	The paper is designed to impart the skill based knowledge of Customer Relationship Management. The syllabus encompasses almost the entire aspect of the subject. The purpose of the syllabus is to not just make the students aware of the concepts and practices of CRM in modern businesses but also enable them to design suitable practices and programs for the company they would be working.