AMRITSAR GROUP OF COLLEGES NAAC Grade "A" 3rd Cycle | Autonomous College under Autonomous Category | (Since 2014) Conferred by UGC	**PO/PSO/CO COMPILATION** **Session: 2023-2024**	**AQAR CRITERIA 2.6.1**

	Programme Outcomes (POs)	**Graduate Attributes**
PO 1	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems	Engineering knowledge
PO 2.	Identify, formulate and analyze complex engineering problems in the field of Electrical Engineering.	Problem analysis
PO 3.	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the cultural, societal and environmental considerations.	Design/development of solutions
PO 4	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 in the field of Electrical Engineering.	Conduct investigations of complex problems
PO 5	Create, select and apply appropriate techniques, resources, and modern engineering for modeling of complex engineering activities in the field of Electrical Engineering.	Modern tool usage
PO 6	Apply reasoning by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.	The engineer and society
PO 7	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	Environment and sustainability
PO 8	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice	Ethics
PO 9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings	Individual and team work
PO 10	Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations.	Communication
PO 11	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	Project management and finance
PO 12	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	Life-long learning

Department of Applied Sciences

Semester 1st

AGCH 21101- ENGINEERING CHEMISTRY **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand periodic properties and arrangement of elements in periodic table according to electronic configuration.
CO-2	Differentiate between different types of polymers and to understand their properties and their applications.
CO-3	Evaluate hardness present in water and to solve the problems related to municipal water.
CO-4	Study different types of corrosion, its consequences and the methods to minimize corrosion.
CO-5	Recognize different properties and physical separation methods of petrochemicals, applicability of engineering and nanomaterials in our day to day life .
CO-6	Evaluate fundamentals of electrochemistry, electrodes and cell.

AGES 21101- ENVIRONMENTAL STUDIES **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Attribute the knowledge of multidisciplinary nature of environmental studies.
CO-2	Identify the role of natural resource on the basis of their utilization and recognize overexploitation of natural resources.
CO-3	Evaluate the interlink between biotic and abiotic components of ecosystem.
CO-4	Differentiate the terms of biodiversity and understanding the role of biodiversity in society.
CO-5	Apply the knowledge to understand the problems and remedies of environmental sciences.
CO-6	Relate the importance of environment sciences for sustainable development of the society.

AGAM 21101- ENGINEERING MATHEMATICS -I After studying the course, students will be able to:	
CO-1	Apply range of techniques to find solution of standard partial differential equations.
CO-2	Analyze how a function can be minimized or maximized.
CO-3	Understand the convergence and divergence of infinite series**.**
CO-4	Apply the engineering problem mathematically using theory of matrices.
CO-5	Analyze and designing complex systems that involve quantities with both magnitude and direction.
CO-6	Determine gradient vector fields and find potential functions.

AGHU 21101 -ENGLISH-I **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand and build vocabulary for preparing the foundation to learn English Language.
CO-2	Generate a coherent argument in response to a situation or question.
CO-3	Understand the given text to enhance Reading Skills for the use of English in everyday life.
CO-4	Create understanding of the various grammatical components to master Communicative Skills in English.
CO-5	Create awareness of appropriate format and competence of explaining views in a rational manner.
CO-6	Understand the relation between language and literature for enhancing interest in literature.

AGHU 21103- ENGLISH-I LAB **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Develop the skills of writing and expressing his ideas about introduction
CO-2	Present before others/audience to highlight special traits/qualities/weaknesses etc
CO-3	Think cognitively extensively about a situation and put the ideas on paper in writing
CO-4	Speak instantaneously on any topic/situation which will enhance his confidence to speak fluently
CO-5	Imagine a situation and develop conversation in writing in association with another student
CO-6	Master the skill to converse in telecommunication mode in day-to-day life as well organizational setup

AGCS 21101- PROGRAMMING FOR PROBLEM SOLVING **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Demonstrate the basic building blocks of general-purpose digital computer system like hardware/software, memory and peripheral devices and the program development life cycle using various tools like flowcharts algorithms and pseudo-code.
CO-2	Familiarize and classify character set, data types, operators, expressions and control statements of a programming language.
CO-3	Understand the concept arrays and strings.
CO-4	Apply the concept of modular programming and code reusability using functions.
CO-5	Understand the concept of structures, unions and pointers.
CO-6	Implement the concept of file handling for developing real world applications.

AGEG-21101 (Engineering Graphics & Design) **Course Outcomes:** After studying the course, students will be able to:	
CO-1	It will help the students to know and understand the different type of lines and use the drawing instruments effectively
CO-2	The students will be able to know how to represents letters, numbers and scale in drawing sheets

CO-3	It will help the students to know and understand the projection of points, lines, planes and sectional view of solid
CO-4	The students will be able to draw the views related to isometric projections
CO-5	The students will come to know about how to Create and modify two-dimensional orthographic drawings using AutoCAD software, complete with construction lines, dimensions, and layers.
CO-6	To know about how to Create three-dimensional solid models using AutoCAD software, and set up of drawing page and printer

AGCS-21102- PROGRAMMING FOR PROBLEM SOLVING LAB **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Demonstrate building block of computers, installation of C compiler and proper usage of IDE for debugging and execution.
CO-2	Understand and implement basic concepts of C Programming and various control structures.
CO-3	Perform linear array, matrices and strings in C programming.
CO-4	Apply the concept of modular programming and code reusability using functions.
CO-5	Understand and implement the concepts of structures, union, pointers.
CO-6	Apply skill of identifying appropriate programming constructs for problem solving using file handling.

Semester- 2nd

AGPH 21101-ENGINEERING PHYSICS **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand new concepts of physics like laser emission, holography etc which will help the students in engineering and technological applications.
CO-2	Generate logical thinking and ability to solve numerical problems which will lead to improve the problem solving ability in students.
CO-3	Understand need of quantum mechanics and it applications in every branch of engineering.
CO-4	Analyse and classify different types of electronic materials such as Magnetic materials, Nanomaterials, Metamaterials, Superconductors, etc and concept of superconductivity.
CO-5	Understand about the concept of heat, different modes of transfers of heat and thermal expansion of materials which is required for every branch of engineering in upcoming semesters
CO-6	Classify branches of physics like Electromagnetics, modern physics which will surely help the students in engineering and technology in future.

AGEE 21101- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Verify the basic laws in DC circuits and understand the concepts related to solar energy.
CO-2	Understand the concept of AC circuits with R, L, C and their combinations.

CO-3	Understand the concept of balanced 3-phase system and magnetic circuits.
CO-4	Understand the concept of single-phase conventional transformer and autotransformer
CO-5	Verify the working of DC and AC Motors and generators.
CO-6	To understand the applications of various electronic devices like diodes, transistors, rectifiers, logic gates and transducers.

AGHV 21101- HUMAN VALUES AND PROFESSIONAL ETHICS	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand Need and Process of Value Education.
CO-2	Identify and Analyse Basic Human Aspirations.
CO-3	Analyse the Needs and Activities of Self and Body.
CO-4	Identify and Understand the Comprehensive Human Goal.
CO-5	Understand Existence as Co-existence at all levels
CO-6	Visualize futuristic goals for Holistic Development.

AGHU 21104- ENGLISH-II LAB	
Course Outcomes: After studying the course, students will be able to:	
CO-1	The students will learn about their strengths, weaknesses, threats and work enthusiastically to transfer weaknesses into strengths and threats into opportunities.
CO-2	They will be able to produce on their own clear and coherent texts.
CO-3	Students will be able to gain greater proficiency in English language and its technical aspects for its effective use in personal and professional life.
CO-4	Students will acquire basic proficiency in arranging the thoughts in written form and create hold on the language.
CO-5	The students will achieve greater refinement of techniques to present himself / herself before audience in an effective way.
CO-6	Students will be able to increase the memory capacity of the mind.

AGMP 21101- Manufacturing Practice	
Course Outcomes: After studying the course, students will be able to:	
CO 1	Identify the basics of tools and equipment used in Foundry Shop and welding shop. Also understand the various processes of Foundry shop and welding shop.
CO 2	Identify the basics of tools and equipment‘s used in Smithy shop and fitting shop. Also understand the basic processes of Smithy shop and Fitting shop.
CO 3	To make an ability to understand the various tools and processes performed in Machine Shop.
CO 4	To make an ability to understand the various tools used in Electrical and Electronic shop. Also make an ability to understand the exercises used in preparing PCB.

CO 5	Identify the basics of tools and equipment‘s used in carpentry shop. Also familiarize with the production of models in Sheet Metal shop
CO 6	Identify the basics of tools and equipment‘s used in carpentry shop. Also familiarize with the production of simple models in carpentry shop

AGEE 21102- BASIC ELECTRICAL ENGINEERING AND ELECTRONICS LAB	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Learn to measure the electrical quantities with different measuring devices like multimeter, voltmeter, ammeter, etc. and understand the concept of solar panel
CO-2	Explain the concept of circuit laws and apply them to laboratory measurements.
CO-3	Be able to understand the connections of single phase and three phase transformers.
CO-4	Acknowledge the principles of operation and the main features of rotating electric machines and their applications.
CO-5	Prepare projects related to basic electrical circuits
CO-6	Prepare projects related to basic electronic circuits

Part	**AGPH-21102- ENGINEERING PHYSICS LABORATORY** **Course Outcomes:** After studying the course, students will be able to:	**CO**
CO-1	Study the properties of variety of electrical and optical systems.	A
CO-2	Understand principle, concept, working and application of new technology and comparison of results with theoretical calculations.	
CO-3	Understand measurement technology, usage of new instruments and real time applications in engineering studies.	
CO-4	Design new instruments with practical knowledge.	
CO-5	Develop experimentation skills and understand importance of measurement practices in Science & Technology.	
CO-6	To make a mini project that demonstrate a concept, based on the content of AGPH-21101 (Engineering Physics)	B

AGHU 21102- ENGLISH-II	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Generate their communicative skills for their forthcoming professional needs.
CO-2	Organize accurately, clearly, deeply and present well the matter/ logic/ facts/ opinion in a concrete and interesting manner.
CO-3	Understand the need to use English in their everyday life.
CO-4	Understand the language through grammatical components of English.
CO-5	Construct appropriate format and generate the capacity of explaining the views in a rational manner.
CO-6	Understand the relation between language and literature through textual reading and to enhance the reader’s interest in Literature.

AGAM 21102- ENGINEERING MATHEMATICS II
Course Outcomes: After studying the course, students will be able to:

CO-1	Calculate the area of the region and the average value of a function of two variables over a rectangular region.
CO-2	Find the relation between line, surface and volume integral.
CO-3	Identify the type of a given differential equation and select and apply the analytical technique for finding the solution.
CO-4	Be familiar with the modelling assumptions and derivations that lead to PDEs
CO-5	Describe the need for extending the set of real numbers to the set of complex numbers.
CO-6	Understand the significance of differentiability for complex functions.

Department of Electrical Engineering

	Programme Specific Outcomes (PSOs)
PSO 1	Able to understand, design and implement the various electrical Networks, Transmission and distribution networks for various industrial and research purposes.
PSO 2	Able to excel in various electrical software/project competitions and technological challenges in the modern era.
PSO 3	Able to gain practical competency with emerging technologies, electrical devices and Instrumentations.

Semester – 3rd

AGEE-21301 - Mathematics – III After studying the course, students will be able to:	
CO1	Solve Algebraic and Transcendental equations, linear system of equations using gauss elimination, Jordan and Seidel. Enable the students to learn the properties of Linear Transformation
CO2	Apply Numerical Methods to find the solution of equation using different methods like Euler method, RK Methods, how we can fit a given data in equations.
CO3	Use the concept of Fourier Series and different wave forms, know about Laplace transform and its properties: use of Laplace transform of various standard functions
CO4	Learn the formation of partial differential equations
CO5	Apply partial differential equation to solve various problems of heat conduction and wave equation.
CO6	Know the concept of complex variables, complex integration and its applications.

AGEE-21302 - Network Analysis and Synthesis After studying the course, students will be able to:	
CO1	Understand method of analysis of the circuits by using different theorem & to calculate Z, Y, ABCD and h parameter for two port networks.
CO2	Study different transient conditions using Laplace technique and to prove convolution theorem.
CO3	Design different types of filters and their analysis.
CO4	Detail comparison of different existing filter networks.
CO5	Understand and apply the knowledge gained in analysis and design of different types of circuits.
CO6	Understand and apply method of synthesis of network using foster and causer forms.

AGEE-21303 - Transformers and Direct Current Machines After studying the course, students will be able to:	
CO1	Understand the various concepts related to single phase transformer
CO2	Explore mathematical concepts related to transformer.
CO3	Understand various concepts related to auto transformer
CO4	Understand the various concepts related to 3 phase transformers.
CO5	Describe about DC Generator.
CO6	Describe about DC Motor

AGEE-21304 - Semiconductor Devices and Circuits After studying the course, students will be able to:	
CO1	Understand the concept of semiconductor materials, PN diode and special purpose diodes
CO2	Understand the implementation and usage of various transistors and their current components
CO3	Understand the common transistor characteristics and operating point stabilization
CO4	Understand the hybrid transistor models and feedback concept of amplifiers
CO5	Understand the basic concept of oscillators and their types
CO6	Understand and analyze the differential and operational amplifiers

AGEE-21305 - Electrical Measurements and Instrumentation After studying the course, students will be able to:	
CO1	Analyze and study the various bridges used for measurement purposes
CO2	Understand the concept of analog measuring tools
CO3	Understand the utility and applications of digital measuring instruments
CO4	Understand the concept of DC and AC potentiometers
CO5	Understand about the magnetic measurement methods and about their losses
CO6	Understand the basic principle and types of transducers and tachogenerators

AGEE-21306 - Machine Lab.-I After studying the course, students will be able to:	
CO1	Analyze the performance of single-phase transformer
CO2	Understand experimentally the various concepts of transformers i.e. voltage regulation, efficiency etc.
CO3	Perform the parallel operation of transformer
CO4	Analyze the performance of DC motor transformer
CO5	Understand virtual contents related with laboratory
CO6	Understand the design of winding in transformer and dc machines

AGEE-21307 - Semiconductor Devices and Circuits Lab. After studying the course, students will be able to:	
CO1	Implement Zener diode characteristics in physical and virtual form
CO2	Understand and calculate the transistor characteristics in different configurations
CO3	Understand and demonstrate the oscillator characteristics
CO4	Understand and analyze the characteristics of operational amplifier
CO5	Understand and analyze the operational amplifier waveshapes virtually
CO6	Understand and implement of different minor projects using semiconductor components

AGEE-21308 - Electrical Measurements and Instrumentation Lab. After studying the course, students will be able to:	
CO1	Understand the characteristics of LDR and RTD sensor
CO2	Evaluate the earth resistance and insulation
CO3	Understand the working of CRO in detail
CO4	Understand experimentally the working of LVDT
CO5	Virtually analyze the working of Q meter and measure the capacitance of Schering bridge
CO6	Construct minor projects related to electrical measurements and instrumentation

AGFE-21301 - Functional English – I After studying the course, students will be able to:	
CO1	Self Introduction to prepare students to face one to one interaction.
CO2	Body Language detail to prepare students in non-verbal communication.
CO3	Vocabulary based session to improve language proficiency of students.
CO4	Basic Grammar to make students proficient in English correspondence.
CO5	Book reading to improve reading skills of students.
CO6	Formal/ Informal Letter writing to make students proficient in written correspondence.

AGEE-21309 - Institutional Training After studying the course, students will be able to:	
CO1	Familiarize the students with basic hands-on training of wiring and different types of switches and basic elements.
CO2	Study the use of multimeter, CRO etc. in lab.
CO3	Identify different basic components used in electrical engineering and their testing.
CO4	Observing response of circuits on CRO and design, fabrication of power supply.
CO5	Make single line diagram of power generation, transmission, and distribution, also, introduction to the concept of heating, ventilation and air conditioning.
CO6	Make small project by themselves.

Semester – 4th

AGEE-21401 - Linear Control Systems After studying the course, students will be able to:	
CO1	Introduce the fundamental concepts of control systems with emphasis on open loop and closed loop control system and to determining the transfer function of a control system using block diagram reduction technique and signal flow graph technique.
CO2	Understand the concept of P, PI, PD and PID Modes of Feedback in control system stability.
CO3	Introduce the concept of analogies between different types of systems and to study Routh Hurwitz Stability Technique for stability of Linear Control System.
CO4	Introduction to the transient and steady state response of 1^{st} and 2^{nd} order control systems with different inputs.
CO5	Demonstrate the use of root locus, bode plot and Nyquist plot to determine the stability of a system which is very useful in designing of control system.
CO6	Understand the need of compensation in control system.

AGEE-21402 - Asynchronous Machines After studying the course, students will be able to:	
CO1	Understand various concepts related to three phase motors
CO2	Explore mathematical concepts related to slip, rotor frequency etc
CO3	Understand the various concepts related to starters.
CO4	Explore about the concept related with induction generator.
CO5	Understand the various concepts related to special machines.
CO6	Explore about the concepts related to single phase motors.

AGEE-21403 - Power Generation and Economics After studying the course, students will be able to:	
CO1	Focus on the resources and types of electric power generation and understand the concepts of co-generation
CO2	Estimate load requirements using various factors and load curves.
CO3	Understand various factors for site selection of power plants
CO4	Explore their knowledge about existing tariff plans and power plant economics.
CO5	Explore the significance of economic operation of steam plants.
CO6	Understand the combined operation of power plants and pollution from various power plants.

AGEE-21404 - Digital Electronics and Microprocessors After studying the course, students will be able to:	
CO1	Be well versed with Number Systems, Boolean Algebra, logic gates and Boolean minimization techniques
CO2	Design combinational circuits such as encoder, decoder, code converters, adder, Subtractor, multiplexer and de-multiplexer
CO3	Understand the basic sequential circuits such as flip flops, shift registers and counters
CO4	Have working knowledge of various types of D/A and A/D converters.
CO5	Understand the architecture 8085 along with various instructions required in programming
CO6	Know about the architecture of 8086.

AGEE-21405 - Object Oriented Programming System After studying the course, students will be able to:	
CO1	Apply the various datatypes, operators, UDF in program design.
CO2	Understand and implement the object-oriented concepts of Classes & Objects, friend function in program design.
CO3	Understand memory management techniques using pointers, constructors, destructors, etc.
CO4	Design and implement various forms of inheritance, operator overloading.
CO5	Understand exception handling.
CO6	Analyze and explore file handling.

AGEE-21406 - Control System Lab After studying the course, students will be able to:	
CO1	Study basics of MATLAB for Control System
CO2	Describe the use of synchro's as an error detector.
CO3	Study the speed - torque characteristics of an AC servomotor and to explore its applications.
CO4	Determination the transfer function of a control system using MATLAB.
CO5	Finding the time and frequency response of a control system.
CO6	Implement and find stability of control system using root loci, bode plot and Nyquist plot in MATLAB.

AGEE-21407 - Digital Electronics and Microprocessors Lab. After studying the course, students will be able to:	
CO1	Verify the truth table of universal gates.
CO2	Implement combinational logic circuits such as half/full adder and subtractor.
CO3	Verify the truth table of the Multiplexer and demultiplexer

CO4	Verify the truth table of S-R, J-K, D and T Flip flops.
CO5	Understand the basic architecture of 8- bit microprocessor and 16- bit microprocessor
CO6	Learn the programming of 8085 microprocessor

AGEE-21408 - Object Oriented Programming System Lab. After studying the course, students will be able to:	
CO1	Understand and Applying various Datatypes, Operators, Conversions in program design.
CO2	Apply the concepts of Classes & Objects, friend function, constructors & destructors in program design.
CO3	Design & implement various forms of inheritance, constructors.
CO4	Apply & Analyze operator overloading, runtime polymorphism.
CO5	Usage of file handling to store and retrieve data.
CO6	Analyze and explore various Stream classes, exception handling.

AGAP-21401 - Engineering Aptitude – I After studying the course, students will be able to:	
CO1	Develop a Proper Understanding of the Number system
CO2	Understand the Concept of HCF &LCM to solve problems related to Racetracks, Traffic lights etc.
CO3	Recognize parts and wholes both visually and numerically
CO4	Recognize and apply Ratios, Proportions and Percentage to solve real-life problems
CO5	Recognize company's revenues and expenditures over a specified period of time,
CO6	Understand the concept of time value of money

AGFE-21402 - Functional English – II After studying the course, students will be able to:	
CO1	Self Introduction and Body Language to prepare students to face one to one interaction.
CO2	Spoken Activity such as Topic Presentation or extempore to hone spoken skills of students.
CO3	Vocabulary based session to improve language proficiency of students.
CO4	Basic Grammar to make students proficient in English correspondence.
CO5	Book reading to improve reading skills of students.
CO6	Formal/ Informal Letter writing to make students proficient in written correspondence.

Semester – 5th

AGEE-21501 - Synchronous Machines After studying the course, students will be able to:	
CO1	Study general aspects related to Synchronous Machine
CO2	Solve mathematical concepts related Synchronous Motor and Alternator
CO3	Study the concepts of voltage regulation and characteristics of Alternator
CO4	Study parallel operation of Alternator and performance of Synchronous Motor
CO5	Study concepts related to transients.
CO6	Study various concepts related to single phase motors.

AGEE-21502 - Electrical Power System – I After studying the course, students will be able to:

CO1	Study supply system of a power system.
CO2	Gain knowledge about Construction of Transmission line and types of conductors.
CO3	Study various mathematical concepts related to Power System.
CO4	Study various types of transmission lines and its performance.
CO5	Study line Compensation Techniques in power system.
CO6	Gain knowledge about Underground System.

AGEE-21503 - Power Electronics After studying the course, students will be able to:	
CO1	Understand the basics and importance of thyristor family.
CO2	Explain the different types of commutation techniques.
CO3	Describe the various types of phase-controlled rectifiers.
CO4	Understand the operation and function of choppers and cycloconverters.
CO5	Familiar with different kind of inverters.
CO6	Acquainted with various types of power devices.

AGEE-21504A - Electromagnetic Fields After studying the course, students will be able to:	
CO1	Understand the various applications and basic laws of electromagnetism.
CO2	Apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions and electric energy density.
CO3	Apply the principles of magnetostatics to the solutions of problems relating to magnetic field and magnetic potential, boundary conditions and magnetic energy density.
CO4	Understand the concepts related to Maxwell equations for solving the problems of electromagnetic fields.
CO5	Understand the concept of Poynting vector and boundary conditions for time varying electromagnetic fields.
CO6	Apply Maxwell's equations to solutions of problems relating to EM wave propagation.

AGEE-21504B - Antenna and Wave Propagation After studying the course, students will be able to:	
CO1	Understand the performance parameters of Antenna
CO2	Get familiar with Linear Wire and Aperture Antenna
CO3	Understand the Microstrip Patch and Fractal Antenna
CO4	Understand antenna array with its classification
CO5	Know about the ground wave propagation
CO6	Acquaint with Ionospheric Propagation

AGEE-21504C - Power Quality and FACTS After studying the course, students will be able to:	
CO1	Know the severity of power quality problems in distribution system and understand the concept of voltage sag transformation from up-stream (higher voltages) to down-stream (lower voltage).
CO2	Study the concept of harmonics concept and transient as well as steady state variations.
CO3	Discuss about selection of proper controller and filter for the specific application based on system requirements
CO4	Study about importance of power quality and various types of disturbances.

CO5	Understand the static series compensator.
CO6	Understand the Power and control circuits of Series Controllers GCSC, TSSC and TCSC

AGEE-21504D - Energy Efficient Machines After studying the course, students will be able to:	
CO1	Introduce about basics of energy efficient machines and discuss concept of Tariff.
CO2	Study different Energy Efficient Motors and method to make them more efficient.
CO3	Focus on role of power factor for make motor energy efficient.
CO4	Study Induction Motor and adjustable Drive Motor as Energy Efficient Motor.
CO5	Study applications of Electric Motor.
CO6	Study Economics of Energy Efficient Motor and System.

AGEE-21505 - Programming in Python (skill course) After studying the course, students will be able to:	
CO1	Interpret the python syntax and semantics of control flow statements.
CO2	Apply lists, tuples, sets, dictionaries, functions and string handling in python to solve problems.
CO3	Analyze the concepts of object - oriented approach to solve problems.
CO4	Implement inheritance programming.
CO5	Implement operator overloading, function overloading.
CO6	Implement exception handling, file handling and GUI design.

AGEE-21506 - Machine Lab-II After studying the course, students will be able to:	
CO1	Perform various types of test on 3-phase and 1-phase Induction Motor
CO2	Study and Perform various Speed Control Techniques
CO3	Perform Voltage Regulation and Characteristics of Synchronous Motor
CO4	Perform Parallel Operation of Alternators
CO5	Prepare Industry based project on Alternator
CO6	Prepare Industry based project on Synchronous Motor

AGEE-21507 - Power Electronics Lab. After studying the course, students will be able to:	
CO1	Learn to measure the V-I characteristics and study the effect of gate triggering on turning on of SCR, UJT.
CO2	Plot waveforms, for single phase full-wave, fully controlled bridgerectifier, for resistive and resistive cum inductive loads.
CO3	Study of Jones chopper or any chopper circuit to check the performance.
CO4	Study the performance of inverter and a single-phase cycloconverter.
CO5	Prepare projects related to the SCR components.
CO6	Prepare projects related to the electronics components.

AGEE-21508 - Electrical: Estimation and Costing Lab After studying the course, students will be able to:	
CO1	Gain Knowledge about Indian electricity rules and lighting Schemes
CO2	Draw and design various electricity systems

CO3	Estimate the cost of Industrial Installation and Underground System
CO4	Estimate the cost of Overhead System and the repair Cost of electrical appliances
CO5	Prepare projects related to Domestic Installation
CO6	Prepare projects related to the Estimation Cost of electricity in a Campus

AGAP-21502 - Engineering Aptitude – II After studying the course, students will be able to:	
CO1	Learn and practice Aptitude questions based on *"Problems on Ages"* and improve their skills in order to face the interview, competitive exams.
CO2	Understand the relationships among things or finite groups of things.
CO3	Outline the various formulas for calculating area, volume and surface area.
CO4	Use a calendar to determine a Date and Day.
CO5	Use a time schedule to determine ending time of a given event.
CO6	Find out missing part of an element by subsequent comparison.

AGEE-21509 - 6-8 Weeks Industrial Training After completion of this course, the students would be able to:	
CO1	Gain exposure to industrial environment and latest technology trends.
CO2	Understand organizational hierarchy.
CO3	Enhance technical and managerial skills
CO4	Draw electrical machines and wiring diagrams
CO5	Simulate/test simple electrical and electronics circuits using Simulation software
CO6	Prepare projects related to electrical and electronic circuits using AutoCAD Electrical software through hands on experience.

Semester – 6th

AGEE-21601 - Electrical Power System – II After studying the course, students will be able to:	
CO1	Gain knowledge about Substation, Isolator and Fuses.
CO2	Gain knowledge about operation of Circuit Breaker in power system.
CO3	Study operation of various types of relays.
CO4	Gain Knowledge about protection of Feeders.
CO5	Study various protection schemes for Generator and Transformer.
CO6	Gain knowledge about protection against over voltage.

AGEE-21602 - Advanced Control Systems After studying the course, students will be able to:	
CO1	Study state variable techniques and to verify observability and controllability using state variable
CO2	Study different phase plane analysis method for second order system.
CO3	Focus on the study of different types of non-linearity and their effects on the system
CO4	Study Lyapunov stability method for stability of system and to find describing function of different non-linearities.
CO5	Study Z-transformation, inverse z-transformation and its application digital control system.
CO6	Estimate stability of digital control system.

AGEE-21603 - Signal and Systems After studying the course, students will be able to:	
CO1	Understand the various continuous time and discrete time signals and systems.
CO2	Analysis of continuous time signals using fourier series and fourier transform.
CO3	Understanding of the concept of PSD, ESD.
CO4	Analysis of discrete time signals using sampling and DTFT.
CO5	Introduction to linear time invariant continuous time systems.
CO6	Analyze linear time invariant discrete time systems and the concept of random signal theory.

AGEE-21604A - Microcontroller, PLC & SCADA After studying the course, students will be able to:	
CO1	Understand the basics of microcontrollers and how they differ from microprocessor.
CO2	Develop logic so that they are able to develop their programming skills and make assembly language programs.
CO3	Understand different types of instructions of 8051 and basics of arduino concepts.
CO4	Introduction to timers and counters, serial communication and interrupts of 8051.
CO5	Interface external devices with 8051 microcontroller and able to analyse how they interact with each other.
CO6	Understand PLC's, develop simple applications using ladder logic in PLC and basics of scada.

AGEE-21604B - Embedded System Design After studying the course, students will be able to:	
CO1	Understand the major components that constitute an embedded system
CO2	Get familiarize with PIC microcontroller.
CO3	Make understand the interfacing with controller.
CO4	Develop familiarity with software development in an embedded environment.
CO5	Make understand the concept of the debugging tools.
CO6	Understand the real time operating system.

AGEE-21604C - Robotics and Automation After studying the course, students will be able to:	
CO1	Understand basic concept of robotics.
CO2	Analyze direct and inverse kinematics.
CO3	Know about the various solutions and methods used in kinematics
CO4	Know about the differential manipulator
CO5	Know about the Static Analysis-Force and moment Balance.
CO6	Design and implement the robotic system and path planning

AGEE-21604D - Digital Signal Processing After studying the course, students will be able to:	
CO1	Understand the various discrete time signals and systems.
CO2	Understanding the concept of convolution, correlation and autocorrelation, difference equations and various LTI properties.
CO3	Analysis of discrete time signals using DFT and FFT.

CO4	Understanding of the concept of z - transform and its properties.
CO5	Structures of discrete time system and designing of digital filters.
CO6	Introduction to DSP processors and applications of DSP.

AGEE-21605 - AutoCAD Electrical After studying the course, students will be able to:	
CO1	Understand the practical issues related to practical implementation of electrical circuits and choose appropriate components, software and hardware platforms.
CO2	Use various symbols and notations in electrical and electronics engineering drawings.
CO3	Draw various electrical and electronics circuits according to standard practices using AutoCAD Electrical software.
CO4	Draw electrical machines and wiring diagrams
CO5	Simulate/test simple electrical and electronics circuits using Simulation software
CO6	Prepare projects related to electrical and electronic circuits using AutoCAD Electrical software through hands on experience.

AGEE-21606 - Power System Lab. After studying the course, students will be able to:	
CO1	Perform Various Parameters of a Transmission Line and its Protection
CO2	Study and Perform the Characteristics of Fuse and Circuit Breaker
CO3	Study and perform the characteristics of Relay.
CO4	Gain knowledge about strength of transformer oil
CO5	Prepare Projects Related to Power System Operation
CO6	Prepare Projects Related to Power System Protection

AGEE-21607A - Microcontroller, PLC & SCADA Lab. After studying the course, students will be able to:	
CO1	Understand the basic features and functions of 8051 microcontroller.
CO2	Understand assembly language programs of addition, subtraction and multiplication operation of two 8 - bit numbers using 8051 kit and simulator.
CO3	Develop program for division of two 8 - bit numbers, addition of natural numbers and finding complement of 8 - bit number using 8051 kit and simulator.
CO4	Develop program for splitting of a number using 8051 kit and simulator, displaying any name on LCD using 8051, studying the 8051interrupt structure and PLC and Scada based experiments.
CO5	Implementation of different minor projects using microcontroller, PLC and Scada.
CO6	Implementation of different minor projects using Arduino board.

AGEE-21607B - Embedded System Design Lab After studying the course, students will be able to:	
CO1	Study ARM7 processor with LED and interrupts.
CO2	Perform interfacing of the ARM with ADC, stepper motor.
CO3	Perform interfacing of ARM with LCD display, DAC.
CO4	Perform interfacing of ARM with ZIGBEE, DC motor.
CO5	Prepare projects related to the LED / LCD display with embedded system control
CO6	Prepare projects related to the embedded system.

AGEE-21607C - Robotics and Automation Lab After studying the course, students will be able to:	
CO1	Understand the kinematics and coordinate transformation of robot
CO2	Differentiate between open-loop and feedback control for motion (position and velocity) for the robot.
CO3	Design appropriate simple robotic systems to accomplish a specific task
CO4	Implement and analyze 3-degree-of-freedom manipulator
CO5	Prepare projects related to robotics
CO6	Prepare projects related to automation

AGEE-21607D - Digital Signal Processing Lab. After studying the course, students will be able to:	
CO1	Understand the generation basic elementary signal, sequences and apply basic operations on signals.
CO2	Implement convolution and correlation using matlab.
CO3	Find z - transform, DFT and IDFT of discrete time signal using matlab.
CO4	Find response, spectral density of a system, plotting pole - zero plot, designing filters and study of DSP kit.
CO5	Implement different simulative projects based on signals using matlab Simulink.
CO6	Implement different practical life simulative projects using matlab Simulink and filter designing on DSP kit.

AGEE-21608 - Signal and Systems Lab. After studying the course, students will be able to:	
CO1	Understand the basic commands of MATLAB.
CO2	Implement continuous and discrete time sine and cosine signals using MATLAB.
CO3	Generation of sinc and rectangular pulse using MATLAB.
CO4	Generate unit impulse, unit step, rising and decaying exponential signal using MATLAB.
CO5	Implement different simulative projects based on signals using MATLAB Simulink.
CO6	Implement different practical life simulative projects using MATLAB Simulink.

AGFE-21603 - Functional English – III After studying the course, students will be able to:	
CO1	Self-Introduction and Body Language to prepare students to face one to one interaction.
CO2	Spoken Activity such as Group Discussion to hone spoken skills and interpersonal communication of students.
CO3	Vocabulary based session to improve language proficiency of students.
CO4	Resume writing and cover letter writing to make students proficient in English correspondence.
CO5	Book reading to improve reading skills of students.
CO6	Corporate Profile Report to make students aware of companies of their stream and their selection criteria.

AGAP-21603 - Engineering Aptitude – III After studying the course, students will be able to:	
CO1	Enhance the logical thinking of students
CO2	How likely events could happen and so the risks could be determined and resolved professionally

CO3	Understand he time taken by an individual or a group of individuals to complete a piece of work
CO4	Understand different relations among the members of a family
CO5	Determine if a system of linear equations has no solution, one solution, or infinitely many solutions
CO6	Use Quadratic equations in real life

Semester – 7th

ACEE-16701 - Power System Analysis After studying the course, students will be able to:	
CO1	Create computational models for analysis of power systems and able to understand per unit system.
CO2	Understand different methods to solve Impedance and Admittance matrices.
CO3	Perform load flow computations and analyze the load flow results using different methods.
CO4	Understand positive sequence, negative sequence & zero sequence transformation components.
CO5	Analyze unsymmetrical fault in power system network under symmetrical conditions.
CO6	Understand basic concepts on power system stability and analyze steady state and transient stability of power systems.

ACEE-16702 – High Voltage Engineering After studying the course, students will be able to:	
CO1	Understand the various concepts related to EHVAC
CO2	Understand the various concepts related to Compensation
CO3	Understand the various concepts related to HVDC
CO4	Understand the various concepts related to Breakdown of Dielectrics
CO5	Understand the various concepts related to generation of high DC
CO6	Understand the various concepts related to generation of high AC

ACEE-16703A - Non - Conventional Energy Sources After studying the course, students will be able to:	
CO1	Focus on the non - conventional resources that are available for electric power generation.
CO2	Study principle, types and application of MHD generator.
CO3	Study principle, types and application of thermoelectric generator.
CO4	Explore photovoltaic effect and solar collector, solar furnaces and its application.
CO5	Study principle, description, types and application of fuel cell.
CO6	Application and description of various sources like geothermal, wind power, tidal.

ACEE-16703B - Power Quality Monitoring and Conditioning After studying the course, students will be able to:	
CO1	Focus on power quality problems and its regulations.
CO2	Understand voltage sag analysis and mitigation.
CO3	Study harmonic effects and measurements.
CO4	Explore sources of harmonics and calculations for distortions occurred.

CO5	Study principles for controlling harmonics using filter designs.
CO6	Understand monitoring power quality and power conditioning.

ACEE-16703C - Computer Aided Electrical Machine Design After studying the course, students will be able to:	
CO1	Understand the review of magnetic and insulating materials.
CO2	Study principles of design of Machines.
CO3	Study heating, cooling and types of ventilation.
CO4	Explore the specifications related to design of transformers.
CO5	Explore the specifications related to design of three-phase induction motors
CO6	Understand the introduction to computer aided electrical machine design.

ACEE-16703D - Power System Reliability After studying the course, students will be able to:	
CO1	Understand the review of probability concepts and problems related to engineering.
CO2	Study power system reliability and their calculations.
CO3	Study generation system reliability evaluation.
CO4	Explore transmission system reliability evaluation.
CO5	Study interconnected and bulk power system reliability.
CO6	Understand reliability analysis of radial systems with switching.

ACEE-16704A - HVDC Transmission After studying the course, students will be able to:	
CO1	Focus on the different types of available power electronics devices used for HVDC Transmission.
CO2	Analysis of different types of converter station for HVDC power Transmission.
CO3	Study principal of HVDC system control
CO4	Explore different type of HVDC fault and protection
CO5	Application of smoothing rector and DC braker in HVDC line
CO6	Study component modeling for analysis of AC/DC system.

ACEE-16704B - Power System Operation and Control After studying the course, students will be able to:	
CO1	Understand Characteristics and variations of power generation units.
CO2	Understand economic operation of Power Systems with and without transmission losses
CO3	Study unit commitment and its solution methods, and understand hydrothermal scheduling
CO4	Understand Power system control factors, interconnected operation and tie-line operations.
CO5	Understand the concept of automatic voltage regulator (AVR) controllers and contingency analysis
CO6	Study power flow analysis in AC/DC systems.

ACEE-16704C - Flexible AC Transmission Systems After studying the course, students will be able to:	
CO1	Understand fundamental of Flexible Alternating Current Transmission Systems.
CO2	Study principle and configuration of shunt compensation.
CO3	Study principle and configuration of series compensation.
CO4	Explore Phase Shifter and Unified Power Flow Controllers
CO5	Understand reactive power control with harmonics and filters.
CO6	Study transmission line steady state operation and congestion management on transmission lines using FACT devices.

ACEE-16704D - Power System Restructuring and Deregulation After studying the course, students will be able to:	
CO1	Understand an overview of the restructured power system.
CO2	Study the concept of deregulation of power sector and various models.
CO3	Understand wholesale electricity market characteristics, auctions, market clearing and pricing, market power and its mitigation techniques.
CO4	Understand open access same time information system.
CO5	Understand basic concepts related to congestion management.
CO6	Study distributed generation on power quality.

ACEE-16705 - Lab-I (Power System Analysis) After studying the course, students will be able to:	
CO1	Get the knowledge of software's like MATLAB and E-TAP
CO2	Draw single line diagrams using soft tools
CO3	Get the knowledge for formation of Y and Z buses using soft tools.
CO4	Perform load flow analysis using soft tools
CO5	Perform fault analysis using soft tools
CO6	Do any one project related to Part-I of Syllabus

ACEE-16706 – Seminar After studying the course, students will be able to:	
CO1	Exploring the vital areas of electrical engineering beyond the syllabus.
CO2	Develop skills to do literature survey
CO3	Rereading the existing literature on selected topics and understanding the research done by different researchers.
CO4	Implementation and verification of selected topic through simulation/hardware and documentation.
CO5	Explore a variety of research projects and activities and enrich their academic experience.
CO6	Develop skills in presentation and discussion of research topics in a public forum.

ACEE-16707 – Major Project After studying the course, students will be able to:	
CO1	Identify problems based on societal /research needs.
CO2	Apply Knowledge and skill to solve societal problems in a group.
CO3	Develop interpersonal skills to work as member of a group or leader

CO4	Draw the proper inferences from available results through theoretical/ experimental/ simulations.
CO5	Analyze the impact of solutions in societal and environmental context for sustainable development.
CO6	Excel in written and oral communication and Demonstrate project management principles during project work

Semester – 8th

ACEE-16801 - Industrial Training-II After studying the course, students will be able to:	
CO1	Identify industry engineering problems and economic solution.
CO2	Apply the knowledge to mitigate industry problems.
CO3	Demonstrate the skills and attitudes of an engineer.
CO4	Communicate with engineers and the community at large in written and oral forms.
CO5	Acquire “Hands on” training and practice use of various tools.
CO6	Undertake problem identification, formulation and solution by considering ethical responsibility.

ACEE-16802 - Software Training After studying the course, students will be able to:	
CO1	Identify various software and fields for software training related to Electrical engineering.
CO2	Apply the knowledge to mitigate industry problems.
CO3	Demonstrate the skills and attitudes of an engineer.
CO4	Understand the process to make reports and presentation.
CO5	Analyze ethical practices and tools used in different technologies.
CO6	Design and develop the solution for complex engineering problems.

Department of Computer Science and Engineering

Programme Specific Outcomes (PSOs)	
PSO 1	Acquaintance with the contemporary trends in industry and innovate novel solutions to existing problems.
PSO 2	Ability to apply various computing techniques using theoretical and practical knowledge for developing solutions to the real time problems.
PSO 3	Inculcate skills required for a successful career in the emerging technologies based on sound principles of software project management and ethical practices with the spirit of entrepreneurship to nurture the quest for higher levels of knowledge.

3rd Semester	
AGCS-21301: MATHEMATICS AND STATISTICS	
CO-1	Understand the concept of Fourier series and partial differential equations.
CO-2	Understand linear system of equations, algebraic and transcendental equations.
CO-3	Gain knowledge of differential equations and curve fitting.
CO-4	Gain knowledge about the basic concepts of statistics.
CO-5	Understand the concept of probability distribution.
CO-6	Understand the concept of sampling and analysing different testing methods to solve real world problems.
AGCS-21302: DATA STRUCTURES	
CO-1	Understand the concept of Dynamic memory management and complexity in algorithms.
CO-2	Implementation and usage of data structures on searching and sorting techniques.
CO-3	Usage of data structure linked list for implementation of stacks and queues for efficient memory management.
CO-4	Gain knowledge of tree data structure to organize the data.
CO-5	Apply graph data structure to solve computational problems.
CO-6	Understanding the hash function and using it for collision and its resolution.
AGCS-21303: OBJECT-ORIENTED PROGRAMMING USING C++	
CO-1	Apply the various data types, operators and user-defined functions in program design.
CO-2	To understand the concept of object-oriented paradigm.
CO-3	To understand the concept of dynamic memory management techniques using pointers, constructors and destructors.
CO-4	To understand the concept of different types of inheritance.
CO-5	To understand the concept of polymorphism and overloading of operators.
CO-6	Analyse and explore various stream classes, I/O operations, exception handling and templates.
AGCS-21304: COMPUTER NETWORKS	
CO-1	Understand the basic concepts of networks and functions of different layers of OSI & TCP/IP reference models.
CO-2	Understand the working of physical layer and various transmission media.
CO-3	Understand data flow control protocols & error control mechanism.
CO-4	Understand routing and congestion in network layer, routing algorithm and addressing.
CO-5	Understand the working of TCP, UDP and Session Management.
CO-6	Explore the various application layer protocols and issues related to network security.
AGCS-21305: COMPUTER ARCHITECTURE	
CO-1	Understand the basics of number system, conversions, concept of k-MAP and combinational circuits.
CO-2	Understand the concept of RTL, bus and memory transfer and the various micro-operations.
CO-3	Computer Organization, instruction formats and the design of control unit.
CO-4	Understand the working of central processing unit, RISC /CISC architecture and Input Output organization.
CO-5	Understand the concept of Input Output organization- DMA, CPU-IOP communication.
CO-6	Understand the concept of different types of memory with hardware, parallel processing and pipelining.
AGCS-21306: DATA STRUCTURES	
CO-1	Implement different sorting and searching algorithms.
CO-2	Perform different operations using arrays.

CO-3	Perform different operations using linked lists.
CO-4	Able to design & implement the stacks, queues and their applications.
CO-5	Perform basic operations on trees and graphs.
CO-6	Develop a project using various linear and non-linear data structures.
AGCS-21307: OBJECT ORIENTED PROGRAMMING USING C++ LAB	
CO-1	Understanding and applying various data types, operators, and conversions in program design.
CO-2	Apply the concepts of Classes &Objects, constructors and destructors.
CO-3	Able to design & implement various forms of inheritance.
CO-4	Apply & analyse operator overloading and runtime polymorphism.
CO-5	Usage of file handling to store and retrieve data and to explore exception handling.
CO-6	Developing an application using file handling.
AGCS-21308: COMPUTER NETWORKS LAB	
CO-1	Identify and visualize the various components used in implementation of Computer Network.
CO-2	Prepare and test the straight and cross cable.
CO-3	Study and analyze the various network topologies.
CO-4	Plan the subnet and assign the IP addresses in a network accordingly.
CO-5	Access and monitor the remote network.
CO-6	Usage of various network tools.
AGFE-21301: FUNCTIONAL ENGLISH– I	
CO-1	Self-Introduction to prepare students to face one to one interaction.
CO-2	Body Language detail to prepare students in non-verbal communication.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.
AGCS-21309: INSTITUTIONAL TRAINING	
CO-1	Basic Industry Awareness: Recognize the structure and functioning of the IT and software industry, gaining insight into professional practices and workflows.
CO-2	Foundational Skill Application: Apply fundamental programming concepts and problem-solving techniques to simple tasks and projects, reinforcing classroom learning.
CO-3	Introduction to Tools and Technologies: Familiarize themselves with basic software development tools, including text editors, IDEs, and version control systems, to build a foundation for future learning.
CO-4	Hands-on Practice: Enhance understanding of basic coding principles by working on guided mini-projects or problem sets using languages such as C/C++.
CO-5	Teamwork and Communication: Develop introductory teamwork skills by collaborating on group activities and improve technical communication through presentations and reports.
CO-6	Professional Development: Build an understanding of time management, workplace discipline, and the importance of continuous learning in a rapidly evolving technological landscape.

4th Semester	
AGCS -21401: DISCRETE STRUCTURES	
CO-1	Understand the concepts of sets, relations and functions.
CO-2	Understand the concept of rings and Boolean algebra.
CO-3	Understand the concept of combinatorial mathematics.
CO-4	Gain knowledge about groups.
CO-5	Understand the concept of propositional logic and calculus.
CO-6	Gain knowledge of trees and graphs for decision making
AGCS-21402: RELATIONAL DATABASE MANAGEMENT SYSTEMS	
CO-1	Understand the concept of Database Management System and its various applications in real life.
CO-2	Understand the different database languages i.e., (DDL, DML, DCL, and TCL) along with the usage of SQL and PL/SQL.
CO-3	Understand the concept of E-R diagrams for conceptual modelling.
CO-4	Understand the concept of normalizing tables for effective database design.
CO-5	Understand the concept of database security, concurrent transactions and handling deadlock.
CO-6	Understand the concept of distributed databases and its application in the real world.
AGCS-21403: PROGRAMMING IN PYTHON	
CO-1	To interpret the python syntax and semantics of control flow statements.

CO-2	To apply list, tuple, dictionary, functions, modules and string handling in Python to solve problems.
CO-3	To analyse the concepts of object-oriented approach to solve problems.
CO-4	To implement inheritance and multithreaded programming.
CO-5	To implement operator overloading, function overloading and visualization.
CO-6	To implement exception handling, file handling, database connectivity and GUI design.
AGCS-21404: OPERATING SYSTEMS	
CO-1	Understand the basics of operating system like kernel, shell, types and views of operating system.
CO-2	Understand the concept of process, thread, concurrency and process scheduling algorithms.
CO-3	Gain knowledge about deadlock, deadlock prevention, deadlock avoidance and deadlock recovery.
CO-4	Familiarize with the concept of memory management, fragmentation, paging, segmentation, virtual memory and page replacement algorithms.
CO-5	Understand disk management and disk scheduling algorithms, file system interface.
CO-6	Gain knowledge about protection & security of operating systems.
AGCS-21405: WEB DEVELOPMENT	
CO-1	Introducing the fundamentals of internet & its terminology and construction of basic websites using HTML.
CO-2	Understand design principles in CSS for making web pages presentable.
CO-3	Understanding Client-side scripting language like JavaScript.
CO-4	Understanding of Document Object Modelling and the JavaScript library.
CO-5	Understanding of server-side scripting language like AJAX.
CO-6	Developing modern interactive web applications using PHP and its database connectivity.
AGCS-21406: RELATIONAL DATABASE MANGEMENT SYSTEMS LAB	
CO-1	Understand the concept of Database Management System and its various applications in real life.
CO-2	Understand the concept of joins and sub queries.
CO-3	Understand the concept of normalizing tables for effective database design.
CO-4	Understand the different database languages i.e., (DDL, DML, DCL, and TCL) along with the usage of SQL and PL/SQL.
CO-5	Understand the concept of concurrent transactions, database security and handling deadlocks effectively.
CO-6	Develop an application using Oracle SQL and connecting it with a front-end technology.
AGCS-21407: PROGRAMMING IN PYTHON LAB	
CO-1	To interpret the python syntax and semantics of control flow statements.
CO-2	To apply functions, modules and string handling in Python to solve problems.
CO-3	To determine the methods to create and manipulate programs with Python data structures list, tuple and dictionary.
CO-4	To analyse the concepts of object-oriented approach to solve problems.
CO-5	To design and implement GUI application and how to handle exceptions.
CO-6	To develop an application using the concepts of file handling and database connectivity.
AGCS-21408: OPERATING SYSTEMS LAB	
CO-1	Understand the concept of operating system and installation of operating system.
CO-2	Utilize the concept of virtualization for creating a virtual machine and installing operating system on virtual machine.
CO-3	Execute Linux commands for files and directories, creating and viewing files, File comparisons, file manipulation, program execution, and printing text.
CO-4	Understand the concept of Vi editor.
CO-5	Demonstrate shell programming by using shell variables and shell keywords for automated system tasks.
CO-6	To demonstrate the concept of CPU scheduling and page replacement algorithms used in Operating systems.
AGCS-21409: WEB DEVELOPMENT LAB	
CO-1	Develop the Web pages using HTML.
CO-2	Design principles in CSS for beautification of Web Pages.
CO-3	Design the Interactive Web Pages using Client-Side Scripting Language.
CO-4	Creation of web pages using JQuery Library.
CO-5	Development using server-side Scripting Language.
CO-6	Develop the web site with Frontend & Backend Connectivity.
AGAP-21401: ENGINEERING APTITUDE-I	
CO-1	Develop a Proper Understanding of the Number system
CO-2	Understand the Concept of HCF &LCM to solve problems related to Racetracks, Traffic lights etc.
CO-3	Recognize parts and wholes both visually and numerically
CO-4	Recognize and apply Ratios, Proportions and Percentage to solve real-life problems

CO-5	Recognize company's revenues and expenditures over a specified period of time
CO-6	Understand the concept of time value of money
AGFE-21402: FUNCTIONAL ENGLISH-II	
CO-1	Self Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Topic Presentation or extempore to hone spoken skills of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.

5th Semester	
AGCS-21501: DESIGN AND ANALYSIS OF ALGORITHMS	
CO-1	Understand the concept of asymptotic notations and analysis of algorithms.
CO-2	Gain practical experience in implementing searching and sorting techniques.
CO-3	Acquire skills to implement efficient algorithms using the dynamic programming strategy.
CO-4	Learn and apply various algorithmic techniques such as greedy method and backtracking strategy to solve computational problems.
CO-5	Develop the ability to understand techniques for traversing the graphs to finds shortest path.
CO-6	Classify the problems into class P or NP and explore efficient algorithms for the pattern matching.
AGCS-21502: SOFTWARE ENGINEERING	
CO-1	Understand the processes and models involved in SDLC lifecycle.
CO-2	Understand software requirements specification and design.
CO-3	Understand the role of project management planning
CO-4	Implement different coding standards and software testing approaches such as unit testing and integration testing.
CO-5	Understand the basics software quality strategies.
CO-6	Understand the role of project risk management, ethical and professional issues.
AGCS-21503: PROGRAMMING IN JAVA	
CO-1	Understand Object-Oriented Programming constructs, Byte codes, basics of java console and programming concepts.
CO-2	Implementation of Classes, Inheritance, and Packages.
CO-3	Developing logic for problem solving with String handling and Exception handling.
CO-4	Developing simple java applications with JDBC connectivity.
CO-5	Understand and utilize Java Graphical User Interface in the program writing.
CO-6	Utilize the knowledge of Multithreading and Networking to develop java applications.
AGCS- 21505: ARTIFICIAL INTELLIGENCE	
CO-1	Understand the basics of AI and its ethical considerations, problem solving and state space search.
CO-2	Understand, classify and implement various search techniques.
CO-3	Understand the game playing algorithm and the significance of planning in AI.
CO-4	Understand and represent knowledge using logic and structures
CO-5	Understand the concept of reasoning & inferencing and get acquainted to natural language processing.
CO-6	Understand the significance of neural network and learning in developing AI systems
AGCS-21506: DESIGN AND ANALYSIS OF ALGORITHMS LAB	
CO-1	Understand the trade-offs involved in various sorting algorithm techniques.
CO-2	Improve efficiency of searching and sorting algorithms using Divide and Conquer strategy.
CO-3	Develop the ability to apply dynamic programming algorithms for various computational problems.
CO-4	Acquire skills to design minimum spanning tree using various techniques.
CO-5	Understand the implementation of string-matching Algorithms.
CO-6	Develop an application using various algorithms studied in the course.
AGCS-21507 SOFTWARE ENGINEERING LAB	
CO-1	Use Openproj tool to track the progress of project.
CO-2	Prepare SRS document, design document.
CO-3	Implement different software designs using suitable software tools.
CO-4	Prepare test cases and implement different testing techniques
CO-5	Prepare Software configuration management and risk management related document.
CO-6	Make a mini project that demonstrates a concept, based on Software Engineering.
AGCS-21508: PROGRAMMING IN JAVA LAB	

CO-1	Gain knowledge about Java Runtime Environment and basic concepts
CO-2	Applying Object-Oriented Programming (OOP) Concepts
CO-3	Implement String and Exception handling.
CO-4	Learn about developing Graphical User Interface and Java Database Connectivity
CO-5	Implement multithreading and networking in Java
CO-6	Develop an application deploying java concepts
AGCS- 21509: ARTIFICIAL INTELLIGENCE LAB	
CO-1	Understand and implement uninformed search techniques.
CO-2	Understand and implement informed search techniques.
CO-3	Understand and solve crypt arithmetic problems.
CO-4	Understand and implement common AI problems.
CO-5	Understand and implement common gaming problems.
CO-6	Develop AI based applications.
AGAP-21502: ENGINEERING APTITUDE - II	
CO-1	Learn and practice Aptitude questions based on *"Problems on Ages"* and improve their skills in order to face the interview, competitive exams.
CO-2	Understand the relationships among things or finite groups of things.
CO-3	Outline the various formulas for calculating area , volume and surface area.
CO-4	Use a calendar to determine a Date and Day.
CO-5	Use a time schedule to determine ending time of a given event.
CO-6	Find out missing part of an element by subsequent comparison.
AGCS-21504A: THEORY OF COMPUTATIONS(PEC-1)	
CO1	Understand the basic concepts, design of finite automata and their applications.
CO2	Illustrate the formal languages and grammar types.
CO3	Demonstrate the relationship between regular sets and regular grammar.
CO4	Understand the concepts of context-free languages and different types in normal forms.
CO5	Familiarize and design pushdown automata and Turing machines for performing tasks of moderate complexity.
CO6	Outline the formal properties and definition of LL (k) and LR (k) grammars, Decidability, Recursively Enumerable Languages and PCP.
AGCS-21504B: COMPILER DESIGN(PEC-1)	
CO-1	Demonstrate the knowledge of patterns, tokens & regular expressions for lexical analysis.
CO-2	Use lex & yacc tool for developing a scanner and parser.
CO-3	Understand syntax directed translation.
CO-4	Analyse different representations of intermediate code.
CO-5	Apply type checking in values.
CO-6	Understand code optimization and code generation.
AGCS-21504C: SOFT COMPUTING(PEC-1)	
CO-1	Elucidate the basics of soft computing.
CO-2	Understand Genetic Algorithms concepts and its applications.
CO-3	Analyze various Neural Network architectures
CO-4	Apply Fuzzy logic to solve real world problems.
CO-5	Integrate the neural networks and fuzzy logic to design automated systems.
CO-6	Design a solution for multi-objective optimization algorithms.
AGCS-21504D: DISTRIBUTED SYSTEMS(PEC-1)	
CO-1	Understand the foundations of a Distributed System.
CO-2	Implement inter process communication in distributed environment.
CO-3	Learn issues related to clock synchronization and need of global state in distributed systems.
CO-4	Manage transactions and concurrency control.
CO-5	Understand distributed deadlock and transaction recovery.
CO-6	Design and implement shared memory management in distributed computing.
AGCS-21510: SUMMER TRAINING	
CO-1	Industry Exposure and Application: Relate core concepts learned during the first four semesters to industrial practices and workflows, bridging the gap between academics and industry.
CO-2	Foundational Skill Development: Strengthen technical proficiency in programming, database management, and software tools while gaining hands-on experience in real-world applications.
CO-3	Problem-Solving and Logical Thinking: Analyze basic technical problems encountered during projects and propose innovative, efficient solutions using structured methodologies.

CO-4	Understanding Industry Tools and Technologies: Familiarize themselves with professional tools, such as integrated development environments (IDEs), version control systems, and testing frameworks, as used in a corporate environment.
CO-5	Teamwork and Communication: Collaborate effectively in a team setting to achieve project goals, while enhancing verbal and written communication skills through presentations and technical documentation.
CO-6	Professional and Ethical Practices: Develop an understanding of workplace ethics, time management, and the importance of quality assurance in delivering successful projects.

6th Semester	
AGCS-21601: MACHINE LEARNING	
CO-1	Learn about applications areas of machine learning.
CO-2	Implement supervised machine learning algorithms.
CO-3	Evaluate the performance of supervised machine learning algorithms.
CO-4	Implement unsupervised machine learning algorithms.
CO-5	Understand the concept of neural networks.
CO-6	Understand new trends in the field of machine learning.
AGCS-21602: CLOUD COMPUTING	
CO-1	Understand the core concepts of the cloud computing paradigm and the driving factors towards Cloud.
CO-2	Understand the Cloud computing Architecture, its Services and Deployment Models.
CO-3	Apply the fundamental concepts in cloud infrastructures to understand the trade-offs in power, efficiency, and cost to build and deploy cloud applications that are resilient, elastic and cost-efficient.
CO-4	Understand the Different types of Virtualizations, Virtual Machine creation and deployment, Hypervisors and Multitenancy
CO-5	Understand the security issues and their impact on cloud computing.
CO-6	Understand the various real-life implementation of Cloud Computing like GCP, IBM Cloud, Amazon Web Services and Microsoft Azure.
ACGS-21603: BIG DATA ANALYTICS	
CO-1	Understand Ecosystem of Hadoop and Hadoop installation for carrying out Analytics on Big Data
CO-2	Understand HDFS and its usage in storage of Big Data
CO-3	Implement the HDFS commands for managing operations on huge files in a Hadoop cluster
CO-4	Explore tools like Pig and Map reduce for analyzing Big Data
CO-5	Explore various operators in Apache Pig for performing analytics
CO-6	Explore various functions in Apache Pig for performing analytics
AGCS-21605: MOBILE APPLICATION DEVELOPMENT	
CO-1	Understand the Android Architecture, Anatomy, Components and tools required to develop an android application.
CO-2	Work with Intents, Intent Filter Collision, Fragments and Notification.
CO-3	Develop and Design various Android applications related to layouts and using interactive user Interfaces
CO-4	Design interface using different Menus and List Views
CO-5	Work with different Storage Options available in Android System.
CO-6	Implement the Working of SMS, Gmail, Location based, services including JSON.
AGCS-21606: MACHINE LEARNING LAB	
CO-1	Gain knowledge about basic concepts of machine learning.
CO-2	Perform data visualization using machine learning libraries.
CO-3	Explore different data preprocessing and data cleaning methods.
CO-4	Gain practical experience in implementing algorithms using supervised machine learning techniques.
CO-5	Solve the problems using unsupervised machine learning techniques.
CO-6	Design an application using machine learning techniques studied in the subject.
AGCS-21607: CLOUD COMPUTING LAB	
CO-1	Configure various virtualization tools such as Virtual Box, VMware workstation.
CO-2	Design and deploy a web application in a PaaS environment.
CO-3	Learn how to simulate a cloud environment to implement new schedulers.
CO-4	Install and use a generic cloud environment that can be used as a private cloud.
CO-5	Implement the security aspects of Cloud.
CO-6	Implement the storage on Amazon Web Services.
AGCS-21608: BIG DATA ANALYTICS LAB	
CO-1	To install the relevant software for setting up a Hadoop cluster
CO-2	To install the relevant software for setting up Apache Pig and to understand its architecture

CO-3	To implement the various commands of Hadoop distributed file systems (HDFS)
CO-4	To explore various operators in Apache Pig for performing analytics
CO-5	To explore various functions in Apache Pig for performing analytics
CO-6	To create a project that demonstrates storage and subsequent analysis of a given dataset using ApachePig
AGCS-21609: MOBILE APPLICATION DEVELOPMENT LAB	
CO-1	Install the Android Studio and Understand the design of Android Program.
CO-2	Implement Intents, Intent Filter Collision, Fragments and Notification.
CO-3	Develop and design layout of various Android applications.
CO-4	Design user interface using different Menus and List Views
CO-5	Implement SMS, Gmail, Location based services including JSON.
CO-6	Design and develop an application using SQLite and other Storage Options available in Android System
	AGCS-21604A: INFORMATION SECURITY(PEC-2)
CO-1	Elucidate the CIA triad of Confidentiality, Integrity and Availability and various encryption techniques.
CO-2	Implement symmetric and asymmetric encryption systems, public key cryptography and RSA.
CO-3	Implement the various authentication protocols used for the protection of information.
CO-4	Understand the concept of network security and security architecture.
CO-5	Illustrate the concept of web security and SET.
CO-6	Implement system security concepts.
AGCS-21604B: CYBER SECURITY(PEC-2)	
CO-1	Analyze the cyber security needs of an organization.
CO-2	Explore various types of attacks.
CO-3	Understand various cyber security regulation and roles of Cyber Laws.
CO-4	Examine software vulnerabilities and security solutions to reduce the risk of exploitation.
CO-5	Identify the tools for mitigating cyber-attacks.
CO-6	Apply intrusion prevention techniques.
AGCS-21604C: BLOCKCHAIN TECHNOLOGY	
CO-1	Understand emerging abstract models for Block chain Technology.
CO-2	Identify major research challenges and technical gaps existing between theory and practice in crypto currency domain.
CO-3	Understand Bitcoin Consensus and Issues in permissioned blockchain.
CO-4	Understand Distributed Consensus and its method.
CO-5	Apply hyperledger Fabric and Etherum platform to implement the Block chain Application.
CO-6	Learn the application of Blockchain technology in various fields.
AGCS-21604D: ETHICAL HACKING	
CO-1	Understand the basics of computer-based vulnerabilities.
CO-2	Explore different foot printing, reconnaissance and scanning methods.
CO-3	Expose the enumeration and vulnerability analysis methods.
CO-4	Learn hacking options available in Web and wireless applications.
CO-5	Explore the options for network protection.
CO-6	Study various tools and website to perform ethical hacking to expose the vulnerabilities.
AGFE-21603: FUNCTIONAL ENGLISH-III	
CO-1	Self-Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Group Discussion to hone spoken skills and interpersonal communication of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Resume writing and cover letter writing to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Corporate Profile Report to make students aware of companies of their stream and their selection criteria.
AGAP-21603: ENGINEERING APTITUDE-III	
CO-1	Enhance the logical thinking of students
CO-2	How likely events could happen and so the risks could be determined and resolved professionally
CO-3	Understand the time taken by an individual or a group of individuals to complete a piece of work
CO-4	Understand different relations among the members of a family
CO-5	Determine if a system of linear equations has no solution, one solution, or infinitely many solutions
CO-6	Use Quadratic equations in real life

$7^{th}/8^{th}$ Semester	
AGCS-21701: DATA SCIENCE	
CO-1	Understanding the foundations and applications of data science
CO-2	Mastering data acquisition and preparation techniques
CO-3	Refining data for analysis and harnessing exploratory insights
CO-4	Analyzing data through probabilistic inference and statistical methods
CO-5	Evaluating and fine-tuning predictive models for real-world application
CO-6	Exploring cutting-edge trends and crafting insights through data visualization
AGCS-21703: DATA SCIENCE LAB	
CO-1	Performing manipulation of data using Pandas.
CO-2	Performing basic web scraping and apply data cleaning techniques.
CO-3	Implement Exploratory Data Analysis (EDA) and advanced visualizations using matplotlib and seaborn.
CO-4	Applying various probability concepts.
CO-5	Evaluation of supervised learning models.
CO-6	Development and execution of Data Science project
AGCS-21702A: SOFTWARE TESTING	
CO-1	Understand the need of software testing
CO-2	Prepare test cases for different types and levels of testing
CO-3	Verify the intended functionality of software
CO-4	Create test plan for variety of applications
CO-5	Test software for specialized environment
CO-6	Understand best practices and industry standards in testing
AGCS-21702B: DEEP LEARNING	
CO-1	To understand the basic principles and mathematical foundations of deep learning.
CO-2	To learn and apply neural networks for training deep learning models.
CO-3	To apply autoencoders and generative models for suitable applications.
CO-4	To analyse regularization in deep learning approaches.
CO-5	To provide a more scalable approach to visual detection and recognition tasks using CNN.
CO-6	To understand the vanishing gradient problem present in traditional RNNs
AGCS-21702C: COMPUTER VISION	
CO-1	Identify basic terminology and analyse the image theories.
CO-2	Study the foundation of image formation and measurement.
CO-3	Analyse the geometric and other image features and methods.
CO-4	Extract meaningful representations from high-dimensional time series data.
CO-5	Study processing and analysing discrete data of image.
CO-6	Assess the methods to solve and analyse the accuracy of the methods.
AGCS-21702D: ADVANCED COMPUTER NETWORKS	
CO-1	Analyze some of the most advanced routing and switching techniques.
CO-2	Understand Packet classification methods and techniques for data transfer.
CO-3	Understand the architecture of SDN and NFV for security in Softwarized Networks.
CO-4	Analyze various Data Planes, P4 Switches in Programmable Networks.
CO-5	Understand the concept of Data Center Networking and its technologies used
CO-6	Understand the concept of content distribution and delivery over internet
AGCS-21702E: BUSINESS INTELLIGENCE AND ANALYTICS	
CO-1	Understand the role of business intelligence and analytics in decision-making processes.
CO-2	Understand the concepts of data warehousing, data mining, and data visualization.
CO-3	Understand statistical techniques to analyze and interpret business data.
CO-4	Use BI tools to extract, transform, and load (ETL) data from various sources.
CO-5	Utilize predictive analytics techniques to forecast future trends and outcomes.
CO-6	Understand the ethical and privacy implications of using business intelligence and analytics.
AGCS-21702F: INTRODUCTION TO INTERNET OF THINGS	
CO-1	Understand the concept of IoT and its Architecture.
CO-2	Learn the function of various components and the communication modules.
CO-3	Understand the physical and application layer protocols for IoT.
CO-4	Implement the interface between hardware and Arduino board using Python Programming.
CO-5	Implementing the various python packages on Raspberry pi Board
CO-6	Analyse applications of IoT in real time scenario.

AGCS-21702G: SOCIAL NETWORK ANALYSIS	
CO-1	Analyze a social network using various visualization tools.
CO-2	Illustrate large-scale network data and mechanisms used for network growth models.
CO-3	Understand the signed networks and applications of the Link Analysis
CO-4	Acquaint with the community detection and Link Prediction ways
CO-5	Examine social networks analysis and prediction using case studies.
CO-6	Apply appropriate anomaly detection and graph representation method on a network
AGCS-21702H: REINFORCEMENT LEARNING	
CO-1	Gain a foundational understanding of deep reinforcement learning principles.
CO-2	Make use of various exploration and exploitation strategies.
CO-3	Understanding eligibility traces and their role in temporal difference learning.
CO-4	Delve into Bellman Optimality and its significance in reinforcement learning algorithms.
CO-5	Explore value-based reinforcement learning approaches with function approximation.
CO-6	Demonstrate various Policy based Reinforcement Learning Algorithms.
AGCS-21702I: OBJECT ORIENTED ANALYSIS & DESIGN USING UML	
CO-1	Exploring Object-Oriented Design and Unified Modeling Language (UML).
CO-2	Understanding Use Case Diagrams and Prioritization Techniques.
CO-3	Mastering Class and Sequence Diagrams along with Advanced Concepts.
CO-4	Delving into State Chart Diagrams, Design Processes, and Anti-Patterns.
CO-5	Introduction to Design Patterns and Addressing Common Pitfalls.
CO-6	Implementing GRASP Patterns and Exploring GoF Patterns in Depth.
AGCS-21702J: FOUNDATIONS OF CRYPTOGRAPHY	
CO-1	Understand the basics paradigms and principles of Cryptography
CO-2	Understand and Implement Symmetric Key Cryptography
CO-3	Apply message authentication functions in secure communication scenario
CO-4	Understand and Implement Asymmetric Key Cryptography
CO-5	Analyze Public Key Cryptosystems
CO-6	To understand various protocols for network security to protect against the threats in the networks.
AGCS-21702K: NATURAL LANGUAGE PROCESSING	
CO-1	Understand the basic principles, techniques, and applications of Natural Language Processing.
CO-2	Analyse words based on Morphology and CORPUS.
CO-3	Create CORPUS linguistics based on digestive approach.
CO-4	Use of statistical approaches to machine translation.
CO-5	Perform Part-of-speech tagging technique based on the structure of the language.
CO-6	Understand the techniques for text-based processing.

7th/8th Semester	
AGCS-21801: INDUSTRIAL TRAINING	
CO-1	Practical Application of Knowledge: Demonstrate the ability to apply theoretical knowledge from Computer Science and Engineering to real-world industrial challenges, including software development, system design, and implementation.
CO-2	Technical Skill Development: Acquire and enhance proficiency in contemporary programming languages, tools, and technologies commonly used in the industry.
CO-3	Problem-Solving and Critical Thinking: Analyze, design, and develop solutions for complex engineering problems using a structured approach, including debugging, testing, and deployment processes.
CO-4	Professional and Team Collaboration Skills: Exhibit strong communication and teamwork abilities by effectively collaborating in multidisciplinary teams to complete assigned projects and meet organizational goals.
CO-5	Industry-Specific Best Practices: Understand and implement industry-standard protocols, methodologies, and ethical practices, including Agile development, version control systems, and data security.
CO-6	Career Readiness and Lifelong Learning: Prepare for future professional opportunities by developing a portfolio of completed projects, gaining industry insights, and recognizing the importance of lifelong learning to adapt to emerging trends.

Department of Computer Engineering

Programme Specific Outcomes (PSOs)	
PSO 1	Acquaintance with the contemporary trends in industry and innovate novel solutions to existing problems.
PSO 2	Ability to apply various computing techniques using theoretical and practical knowledge for developing solutions to the real time problems.
PSO 3	Inculcate skills required for a successful career in the emerging technologies based on sound principles of software project management and ethical practices with the spirit of entrepreneurship to nurture the quest for higher levels of knowledge.

3rd Semester	
AGCS-21301: MATHEMATICS AND STATISTICS	
CO-1	Understand the concept of Fourier series and partial differential equations.
CO-2	Understand linear system of equations, algebraic and transcendental equations.
CO-3	Gain knowledge of differential equations and curve fitting.
CO-4	Gain knowledge about the basic concepts of statistics.
CO-5	Understand the concept of probability distribution.
CO-6	Understand the concept of sampling and analysing different testing methods to solve real world problems.
AGCS-21302: DATA STRUCTURES	
CO-1	Understand the concept of Dynamic memory management and complexity in algorithms.
CO-2	Implementation and usage of data structures on searching and sorting techniques.
CO-3	Usage of data structure linked list for implementation of stacks and queues for efficient memory management.
CO-4	Gain knowledge of tree data structure to organize the data.
CO-5	Apply graph data structure to solve computational problems.
CO-6	Understanding the hash function and using it for collision and its resolution.
AGCS-21303: OBJECT-ORIENTED PROGRAMMING USING C++	
CO-1	Apply the various data types, operators and user-defined functions in program design.
CO-2	To understand the concept of object-oriented paradigm.
CO-3	To understand the concept of dynamic memory management techniques using pointers, constructors and destructors.
CO-4	To understand the concept of different types of inheritance.
CO-5	To understand the concept of polymorphism and overloading of operators.
CO-6	Analyse and explore various stream classes, I/O operations, exception handling and templates.
AGCS-21304: COMPUTER NETWORKS	
CO-1	Understand the basic concepts of networks and functions of different layers of OSI & TCP/IP reference models.
CO-2	Understand the working of physical layer and various transmission media.
CO-3	Understand data flow control protocols & error control mechanism.
CO-4	Understand routing and congestion in network layer, routing algorithm and addressing.
CO-5	Understand the working of TCP, UDP and Session Management.
CO-6	Explore the various application layer protocols and issues related to network security.
AGCS-21305: COMPUTER ARCHITECTURE	
CO-1	Understand the basics of number system, conversions, concept of k-MAP and combinational circuits.
CO-2	Understand the concept of RTL, bus and memory transfer and the various micro-operations.
CO-3	Computer Organization, instruction formats and the design of control unit.
CO-4	Understand the working of central processing unit, RISC /CISC architecture and Input Output organization.
CO-5	Understand the concept of Input Output organization- DMA, CPU-IOP communication.
CO-6	Understand the concept of different types of memory with hardware, parallel processing and pipelining.
AGCS-21306: DATA STRUCTURES	
CO-1	Implement different sorting and searching algorithms.
CO-2	Perform different operations using arrays.
CO-3	Perform different operations using linked lists.

CO-4	Able to design & implement the stacks, queues and their applications.
CO-5	Perform basic operations on trees and graphs.
CO-6	Develop a project using various linear and non-linear data structures.
AGCS-21307: OBJECT ORIENTED PROGRAMMING USING C++ LAB	
CO-1	Understanding and applying various data types, operators, and conversions in program design.
CO-2	Apply the concepts of Classes &Objects, constructors and destructors.
CO-3	Able to design & implement various forms of inheritance.
CO-4	Apply & analyse operator overloading and runtime polymorphism.
CO-5	Usage of file handling to store and retrieve data and to explore exception handling.
CO-6	Developing an application using file handling.
AGCS-21308: COMPUTER NETWORKS LAB	
CO-1	Identify and visualize the various components used in implementation of Computer Network.
CO-2	Prepare and test the straight and cross cable.
CO-3	Study and analyze the various network topologies.
CO-4	Plan the subnet and assign the IP addresses in a network accordingly.
CO-5	Access and monitor the remote network.
CO-6	Usage of various network tools.
AGFE-21301: FUNCTIONAL ENGLISH– I	
CO-1	Self-Introduction to prepare students to face one to one interaction.
CO-2	Body Language detail to prepare students in non-verbal communication.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.
AGCS-21309: INSTITUTIONAL TRAINING	
CO-1	Basic Industry Awareness: Recognize the structure and functioning of the IT and software industry, gaining insight into professional practices and workflows.
CO-2	Foundational Skill Application: Apply fundamental programming concepts and problem-solving techniques to simple tasks and projects, reinforcing classroom learning.
CO-3	Introduction to Tools and Technologies: Familiarize themselves with basic software development tools, including text editors, IDEs, and version control systems, to build a foundation for future learning.
CO-4	Hands-on Practice: Enhance understanding of basic coding principles by working on guided mini-projects or problem sets using languages such as C/C++.
CO-5	Teamwork and Communication: Develop introductory teamwork skills by collaborating on group activities and improve technical communication through presentations and reports.
CO-6	Professional Development: Build an understanding of time management, workplace discipline, and the importance of continuous learning in a rapidly evolving technological landscape.

4th Semester	
AGCS -21401: DISCRETE STRUCTURES	
CO-1	Understand the concepts of sets, relations and functions.
CO-2	Understand the concept of rings and Boolean algebra.
CO-3	Understand the concept of combinatorial mathematics.
CO-4	Gain knowledge about groups.
CO-5	Understand the concept of propositional logic and calculus.
CO-6	Gain knowledge of trees and graphs for decision making
AGCS-21402: RELATIONAL DATABASE MANAGEMENT SYSTEMS	
CO-1	Understand the concept of Database Management System and its various applications in real life.
CO-2	Understand the different database languages i.e., (DDL, DML, DCL, and TCL) along with the usage of SQL and PL/SQL.
CO-3	Understand the concept of E-R diagrams for conceptual modelling.
CO-4	Understand the concept of normalizing tables for effective database design.
CO-5	Understand the concept of database security, concurrent transactions and handling deadlock.
CO-6	Understand the concept of distributed databases and its application in the real world.
AGCS-21403: PROGRAMMING IN PYTHON	
CO-1	To interpret the python syntax and semantics of control flow statements.
CO-2	To apply list, tuple, dictionary, functions, modules and string handling in Python to solve problems.

CO-3	To analyse the concepts of object-oriented approach to solve problems.
CO-4	To implement inheritance and multithreaded programming.
CO-5	To implement operator overloading, function overloading and visualization.
CO-6	To implement exception handling, file handling, database connectivity and GUI design.
AGCS-21404: OPERATING SYSTEMS	
CO-1	Understand the basics of operating system like kernel, shell, types and views of operating system.
CO-2	Understand the concept of process, thread, concurrency and process scheduling algorithms.
CO-3	Gain knowledge about deadlock, deadlock prevention, deadlock avoidance and deadlock recovery.
CO-4	Familiarize with the concept of memory management, fragmentation, paging, segmentation, virtual memory and page replacement algorithms.
CO-5	Understand disk management and disk scheduling algorithms, file system interface.
CO-6	Gain knowledge about protection & security of operating systems.
AGCS-21405: WEB DEVELOPMENT	
CO-1	Introducing the fundamentals of internet & its terminology and construction of basic websites using HTML.
CO-2	Understand design principles in CSS for making web pages presentable.
CO-3	Understanding Client-side scripting language like JavaScript.
CO-4	Understanding of Document Object Modelling and the JavaScript library.
CO-5	Understanding of server-side scripting language like AJAX.
CO-6	Developing modern interactive web applications using PHP and its database connectivity.
AGCS-21406: RELATIONAL DATABASE MANGEMENT SYSTEMS LAB	
CO-1	Understand the concept of Database Management System and its various applications in real life.
CO-2	Understand the concept of joins and sub queries.
CO-3	Understand the concept of normalizing tables for effective database design.
CO-4	Understand the different database languages i.e., (DDL, DML, DCL, and TCL) along with the usage of SQL and PL/SQL.
CO-5	Understand the concept of concurrent transactions, database security and handling deadlocks effectively.
CO-6	Develop an application using Oracle SQL and connecting it with a front-end technology.
AGCS-21407: PROGRAMMING IN PYTHON LAB	
CO-1	To interpret the python syntax and semantics of control flow statements.
CO-2	To apply functions, modules and string handling in Python to solve problems.
CO-3	To determine the methods to create and manipulate programs with Python data structures list, tuple and dictionary.
CO-4	To analyse the concepts of object-oriented approach to solve problems.
CO-5	To design and implement GUI application and how to handle exceptions.
CO-6	To develop an application using the concepts of file handling and database connectivity.
AGCS-21408: OPERATING SYSTEMS LAB	
CO-1	Understand the concept of operating system and installation of operating system.
CO-2	Utilize the concept of virtualization for creating a virtual machine and installing operating system on virtual machine.
CO-3	Execute Linux commands for files and directories, creating and viewing files, File comparisons, file manipulation, program execution, and printing text.
CO-4	Understand the concept of Vi editor.
CO-5	Demonstrate shell programming by using shell variables and shell keywords for automated system tasks.
CO-6	To demonstrate the concept of CPU scheduling and page replacement algorithms used in Operating systems.
AGCS-21409: WEB DEVELOPMENT LAB	
CO-1	Develop the Web pages using HTML.
CO-2	Design principles in CSS for beautification of Web Pages.
CO-3	Design the Interactive Web Pages using Client-Side Scripting Language.
CO-4	Creation of web pages using JQuery Library.
CO-5	Development using server-side Scripting Language.
CO-6	Develop the web site with Frontend & Backend Connectivity.
AGAP-21401: ENGINEERING APTITUDE-I	
CO-1	Develop a Proper Understanding of the Number system
CO-2	Understand the Concept of HCF &LCM to solve problems related to Racetracks, Traffic lights etc.
CO-3	Recognize parts and wholes both visually and numerically
CO-4	Recognize and apply Ratios, Proportions and Percentage to solve real-life problems
CO-5	Recognize company's revenues and expenditures over a specified period of time

CO-6	Understand the concept of time value of money
AGFE-21402: FUNCTIONAL ENGLISH-II	
CO-1	Self Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Topic Presentation or extempore to hone spoken skills of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.

Department of Artificial Intelligence & Machine Learning

Programme Specific Outcomes (PSOs)	
PSO 1	Acquaintance with the contemporary trends in industry and innovate novel solutions to existing problems.
PSO 2	Ability to apply various computing techniques using theoretical and practical knowledge for developing solutions to the real time problems.
PSO 3	Inculcate skills required for a successful career in the emerging technologies based on sound principles of software project management and ethical practices with the spirit of entrepreneurship to nurture the quest for higher levels of knowledge.

3rd Semester	
AGAM-21301: PROBABILITY AND STATISTICS	
CO-1	Find weather forecasting, sports betting, sales for e -casting.
CO-2	Understand the relation between conditional probability and Baye's theorem.
CO-3	Find average, median and mode of given data, variation of class interval and range.
CO-4	Derive relation between two data values, how we can derive regression line between two data.
CO-5	Fifth equation of straight line and equations of second-degree parabolas and higher order equations
CO-6	Derive relation between sample mean, covariance with population mean and variance.
AGCS-21302: DATA STRUCTURES	
CO-1	Understand the concept of Dynamic memory management and complexity in algorithms.
CO-2	Implementation and usage of data structures on searching and sorting techniques.
CO-3	Usage of data structure linked list for implementation of stacks and queues for efficient memory management.
CO-4	Gain knowledge of tree data structure to organize the data.
CO-5	Apply graph data structure to solve computational problems.
CO-6	Understanding the hash function and using it for collision and its resolution.
AGCS-21303: OBJECT-ORIENTED PROGRAMMING USING C++	
CO-1	Apply the various data types, operators and user-defined functions in program design.
CO-2	To understand the concept of object-oriented paradigm.
CO-3	To understand the concept of dynamic memory management techniques using pointers, constructors and destructors.
CO-4	To understand the concept of different types of inheritance.
CO-5	To understand the concept of polymorphism and overloading of operators.
CO-6	Analyse and explore various stream classes, I/O operations, exception handling and templates.
AGCS-21304: COMPUTER NETWORKS	
CO-1	Understand the basic concepts of networks and functions of different layers of OSI & TCP/IP reference models.
CO-2	Understand the working of physical layer and various transmission media.
CO-3	Understand data flow control protocols & error control mechanism.
CO-4	Understand routing and congestion in network layer, routing algorithm and addressing.
CO-5	Understand the working of TCP, UDP and Session Management.
CO-6	Explore the various application layer protocols and issues related to network security.
AGAM-21302: INTRODUCTION TO ARTIFICIAL INTELLIGENCE	
CO-1	Understand the basics of Artificial Intelligence, problem solving and state space search.
CO-2	Understand, classify and implement various search techniques.
CO-3	Understand the role of knowledge and apply specific knowledge using predicate logic.
CO-4	Understand and implement various knowledge representation structures.
CO-5	Understand the concept of reasoning & inferencing and get acquainted to the features of AI languages.
CO-6	Understand the concept of probability and fuzzy logic to deal with uncertainty and ambiguity lined with given situation and problem.
AGCS-21306: DATA STRUCTURES LAB	
CO-1	Implement different sorting and searching algorithms.
CO-2	Perform different operations using arrays.
CO-3	Perform different operations using linked lists.

CO-4	Able to design & implement the stacks, queues and their applications.
CO-5	Perform basic operations on trees and graphs.
CO-6	Develop a project using various linear and non-linear data structures.
AGCS-21307: OBJECT ORIENTED PROGRAMMING USING C++ LAB	
CO-1	Understanding and applying various data types, operators, and conversions in program design.
CO-2	Apply the concepts of Classes &Objects, constructors and destructors.
CO-3	Able to design & implement various forms of inheritance.
CO-4	Apply & analyse operator overloading and runtime polymorphism.
CO-5	Usage of file handling to store and retrieve data and to explore exception handling.
CO-6	Developing an application using file handling.
AGCS-21308: COMPUTER NETWORKS LAB	
CO-1	Identify and visualize the various components used in implementation of Computer Network.
CO-2	Prepare and test the straight and cross cable.
CO-3	Study and analyze the various network topologies.
CO-4	Plan the subnet and assign the IP addresses in a network accordingly.
CO-5	Access and monitor the remote network.
CO-6	Usage of various network tools.
AGFE-21301: FUNCTIONAL ENGLISH– I	
CO-1	Self-Introduction to prepare students to face one to one interaction.
CO-2	Body Language detail to prepare students in non-verbal communication.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.
AGCS-21309: INSTITUTIONAL TRAINING	
CO-1	Basic Industry Awareness: Recognize the structure and functioning of the IT and software industry, gaining insight into professional practices and workflows.
CO-2	Foundational Skill Application: Apply fundamental programming concepts and problem-solving techniques to simple tasks and projects, reinforcing classroom learning.
CO-3	Introduction to Tools and Technologies: Familiarize themselves with basic software development tools, including text editors, IDEs, and version control systems, to build a foundation for future learning.
CO-4	Hands-on Practice: Enhance understanding of basic coding principles by working on guided mini-projects or problem sets using languages such as C/C++.
CO-5	Teamwork and Communication: Develop introductory teamwork skills by collaborating on group activities and improve technical communication through presentations and reports.
CO-6	Professional Development: Build an understanding of time management, workplace discipline, and the importance of continuous learning in a rapidly evolving technological landscape.

4th Semester	
AGCS -21401: DISCRETE STRUCTURES	
CO-1	Understand the concepts of sets, relations and functions.
CO-2	Understand the concept of rings and Boolean algebra.
CO-3	Understand the concept of combinatorial mathematics.
CO-4	Gain knowledge about groups.
CO-5	Understand the concept of propositional logic and calculus.
CO-6	Gain knowledge of trees and graphs for decision making
AGCS-21402: RELATIONAL DATABASE MANAGEMENT SYSTEMS	
CO-1	Understand the concept of Database Management System and its various applications in real life.
CO-2	Understand the different database languages i.e., (DDL, DML, DCL, and TCL) along with the usage of SQL and PL/SQL.
CO-3	Understand the concept of E-R diagrams for conceptual modelling.
CO-4	Understand the concept of normalizing tables for effective database design.
CO-5	Understand the concept of database security, concurrent transactions and handling deadlock.
CO-6	Understand the concept of distributed databases and its application in the real world.
AGCS-21403: PROGRAMMING IN PYTHON	
CO-1	To interpret the python syntax and semantics of control flow statements.
CO-2	To apply list, tuple, dictionary, functions, modules and string handling in Python to solve problems.

CO-3	To analyse the concepts of object-oriented approach to solve problems.
CO-4	To implement inheritance and multithreaded programming.
CO-5	To implement operator overloading, function overloading and visualization.
CO-6	To implement exception handling, file handling, database connectivity and GUI design.
AGCS-21404: OPERATING SYSTEMS	
CO-1	Understand the basics of operating system like kernel, shell, types and views of operating system.
CO-2	Understand the concept of process, thread, concurrency and process scheduling algorithms.
CO-3	Gain knowledge about deadlock, deadlock prevention, deadlock avoidance and deadlock recovery.
CO-4	Familiarize with the concept of memory management, fragmentation, paging, segmentation, virtual memory and page replacement algorithms.
CO-5	Understand disk management and disk scheduling algorithms, file system interface.
CO-6	Gain knowledge about protection & security of operating systems.
AGAM-21401: ADVANCED ARTIFICIAL INTELLIGENCE	
CO-1	Understand the basics of AI and differentiate it with machine learning and deep learning.
CO-2	Identify problems that are amenable to solution by AI framework and apply the suitable technique to a given problem.
CO-3	Understand the game playing algorithm and the significance of planning in AI.
CO-4	Get acquainted to expert system and natural language processing.
CO-5	Understand the role and importance of neural network in developing AI systems.
CO-6	Apply Genetic algorithm as an optimisation tool.
AGCS-21406: RELATIONAL DATABASE MANGEMENT SYSTEMS LAB	
CO-1	Understand the concept of Database Management System and its various applications in real life.
CO-2	Understand the concept of joins and sub queries.
CO-3	Understand the concept of normalizing tables for effective database design.
CO-4	Understand the different database languages i.e., (DDL, DML, DCL, and TCL) along with the usage of SQL and PL/SQL.
CO-5	Understand the concept of concurrent transactions, database security and handling deadlocks effectively.
CO-6	Develop an application using Oracle SQL and connecting it with a front-end technology.
AGCS-21407: PROGRAMMING IN PYTHON LAB	
CO-1	To interpret the python syntax and semantics of control flow statements.
CO-2	To apply functions, modules and string handling in Python to solve problems.
CO-3	To determine the methods to create and manipulate programs with Python data structures list, tuple and dictionary.
CO-4	To analyse the concepts of object-oriented approach to solve problems.
CO-5	To design and implement GUI application and how to handle exceptions.
CO-6	To develop an application using the concepts of file handling and database connectivity.
AGCS-21408: OPERATING SYSTEMS LAB	
CO-1	Understand the concept of operating system and installation of operating system.
CO-2	Utilize the concept of virtualization for creating a virtual machine and installing operating system on virtual machine.
CO-3	Execute Linux commands for files and directories, creating and viewing files, File comparisons, file manipulation, program execution, and printing text.
CO-4	Understand the concept of Vi editor.
CO-5	Demonstrate shell programming by using shell variables and shell keywords for automated system tasks.
CO-6	To demonstrate the concept of CPU scheduling and page replacement algorithms used in Operating systems.
AGAM- 21402: ADVANCED ARTIFICIAL INTELLIGENCE LAB	
CO-1	Understand and implement uninformed search techniques
CO-2	Understand and implement informed search techniques
CO-3	Understand and solve crypt arithmetic problems
CO-4	Understand and implement common AI problems
CO-5	Understand and implement common gaming applications
CO-6	Understand and exhibit conceptual understanding of the subject by developing AI based application.
AGAP-21401: ENGINEERING APTITUDE-I	
CO-1	Develop a Proper Understanding of the Number system
CO-2	Understand the Concept of HCF &LCM to solve problems related to Racetracks, Traffic lights etc.
CO-3	Recognize parts and wholes both visually and numerically
CO-4	Recognize and apply Ratios, Proportions and Percentage to solve real-life problems

CO-5	Recognize company's revenues and expenditures over a specified period of time
CO-6	Understand the concept of time value of money
AGFE-21402: FUNCTIONAL ENGLISH-II	
CO-1	Self Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Topic Presentation or extempore to hone spoken skills of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.

5th Semester	
AGCS-21501: DESIGN AND ANALYSIS OF ALGORITHMS	
CO-1	Understand the concept of asymptotic notations and analysis of algorithms.
CO-2	Gain practical experience in implementing searching and sorting techniques.
CO-3	Acquire skills to implement efficient algorithms using the dynamic programming strategy.
CO-4	Learn and apply various algorithmic techniques such as greedy method and backtracking strategy to solve computational problems.
CO-5	Develop the ability to understand techniques for traversing the graphs to finds shortest path.
CO-6	Classify the problems into class P or NP and explore efficient algorithms for the pattern matching.
AGCS-21502: SOFTWARE ENGINEERING	
CO-1	Understand the processes and models involved in SDLC lifecycle.
CO-2	Understand software requirements specification and design.
CO-3	Understand the role of project management planning
CO-4	Implement different coding standards and software testing approaches such as unit testing and integration testing.
CO-5	Understand the basics software quality strategies.
CO-6	Understand the role of project risk management, ethical and professional issues.
AGCS-21503: PROGRAMMING IN JAVA	
CO-1	Understand Object-Oriented Programming constructs, Byte codes, basics of java console and programming concepts.
CO-2	Implementation of Classes, Inheritance, and Packages.
CO-3	Developing logic for problem solving with String handling and Exception handling.
CO-4	Developing simple java applications with JDBC connectivity.
CO-5	Understand and utilize Java Graphical User Interface in the program writing.
CO-6	Utilize the knowledge of Multithreading and Networking to develop java applications.
AGAM 21501:STATISTICAL ANALYSIS USING R	
CO-1	Interpret the basics elements of R language and semantics of control flow statements.
CO-2	Apply list, modules and string handling in R to solve problems.
CO-3	Apply the concepts of arrays, factors, data frames and CSV modules to solve problems.
CO-4	Plot and visualize the results of statistical function using R.
CO-5	Understand the libraries to implement various statistical functions.
CO-6	Learn the implementation of Probability, Sampling and Covariance using R.s
AGCS-21506: DESIGN AND ANALYSIS OF ALGORITHMS LAB	
CO-1	Understand the trade-offs involved in various sorting algorithm techniques.
CO-2	Improve efficiency of searching and sorting algorithms using Divide and Conquer strategy.
CO-3	Develop the ability to apply dynamic programming algorithms for various computational problems.
CO-4	Acquire skills to design minimum spanning tree using various techniques.
CO-5	Understand the implementation of string-matching Algorithms.
CO-6	Develop an application using various algorithms studied in the course.
AGCS-21507 SOFTWARE ENGINEERING LAB	
CO-1	Use Openproj tool to track the progress of project.
CO-2	Prepare SRS document, design document.
CO-3	Implement different software designs using suitable software tools.
CO-4	Prepare test cases and implement different testing techniques
CO-5	Prepare Software configuration management and risk management related document.
CO-6	Make a mini project that demonstrates a concept, based on Software Engineering.
AGCS-21508: PROGRAMMING IN JAVA LAB	

CO-1	Gain knowledge about Java Runtime Environment and basic concepts
CO-2	Applying Object-Oriented Programming (OOP) Concepts
CO-3	Implement String and Exception handling.
CO-4	Learn about developing Graphical User Interface and Java Database Connectivity
CO-5	Implement multithreading and networking in Java
CO-6	Develop an application deploying java concepts
AGAM 21502: STATISTICAL ANALYSIS USING R LAB	
CO-1	Install the R studio and work with variables, Input and Output.
CO-2	Interpret the R syntax and semantics of control flow statements.
CO-3	Apply list, functions and string handling in R to solve problems.
CO-4	Analyse the concepts of arrays, factors and data frames to solve problems.
CO-5	Use the CSV Module and implement, plot and visualise the results of statistical functions.
CO-6	Develop an application deploying the concepts of Statistical Analysis.
AGAP-21502: ENGINEERING APTITUDE - II	
CO-1	Learn and practice Aptitude questions based on *"Problems on Ages"* and improve their skills in order to face the interview, competitive exams.
CO-2	Understand the relationships among things or finite groups of things.
CO-3	Outline the various formulas for calculating area , volume and surface area.
CO-4	Use a calendar to determine a Date and Day.
CO-5	Use a time schedule to determine ending time of a given event.
CO-6	Find out missing part of an element by subsequent comparison.
AGCS-21504A: THEORY OF COMPUTATIONS(PEC-1)	
CO1	Understand the basic concepts, design of finite automata and their applications.
CO2	Illustrate the formal languages and grammar types.
CO3	Demonstrate the relationship between regular sets and regular grammar.
CO4	Understand the concepts of context-free languages and different types in normal forms.
CO5	Familiarize and design pushdown automata and Turing machines for performing tasks of moderate complexity.
CO6	Outline the formal properties and definition of LL (k) and LR (k) grammars, Decidability, Recursively Enumerable Languages and PCP.
AGCS-21504B: COMPILER DESIGN(PEC-1)	
CO-1	Demonstrate the knowledge of patterns, tokens & regular expressions for lexical analysis.
CO-2	Use lex & yacc tool for developing a scanner and parser.
CO-3	Understand syntax directed translation.
CO-4	Analyse different representations of intermediate code.
CO-5	Apply type checking in values.
CO-6	Understand code optimization and code generation.
AGCS-21504C: SOFT COMPUTING(PEC-1)	
CO-1	Elucidate the basics of soft computing.
CO-2	Understand Genetic Algorithms concepts and its applications.
CO-3	Analyze various Neural Network architectures
CO-4	Apply Fuzzy logic to solve real world problems.
CO-5	Integrate the neural networks and fuzzy logic to design automated systems.
CO-6	Design a solution for multi-objective optimization algorithms.
AGCS-21504D: DISTRIBUTED SYSTEMS(PEC-1)	
CO-1	Understand the foundations of a Distributed System.
CO-2	Implement inter process communication in distributed environment.
CO-3	Learn issues related to clock synchronization and need of global state in distributed systems.
CO-4	Manage transactions and concurrency control.
CO-5	Understand distributed deadlock and transaction recovery.
CO-6	Design and implement shared memory management in distributed computing.
AGAM-21503: SUMMER TRAINING	
CO-1	Industry Exposure and Application: Relate core concepts learned during the first four semesters to industrial practices and workflows, bridging the gap between academics and industry.
CO-2	Foundational Skill Development: Strengthen technical proficiency in programming, database management, and software tools while gaining hands-on experience in real-world applications.
CO-3	Problem-Solving and Logical Thinking: Analyze basic technical problems encountered during projects and propose innovative, efficient solutions using structured methodologies.

CO-4	Understanding Industry Tools and Technologies: Familiarize themselves with professional tools, such as integrated development environments (IDEs), version control systems, and testing frameworks, as used in a corporate environment.
CO-5	Teamwork and Communication: Collaborate effectively in a team setting to achieve project goals, while enhancing verbal and written communication skills through presentations and technical documentation.
CO-6	Professional and Ethical Practices: Develop an understanding of workplace ethics, time management, and the importance of quality assurance in delivering successful projects.

6th Semester	
AGCS-21601: MACHINE LEARNING	
CO-1	Learn about applications areas of machine learning.
CO-2	Implement supervised machine learning algorithms.
CO-3	Evaluate the performance of supervised machine learning algorithms.
CO-4	Implement unsupervised machine learning algorithms.
CO-5	Understand the concept of neural networks.
CO-6	Understand new trends in the field of machine learning.
AGCS-21602: CLOUD COMPUTING	
CO-1	Understand the core concepts of the cloud computing paradigm and the driving factors towards Cloud.
CO-2	Understand the Cloud computing Architecture, its Services and Deployment Models.
CO-3	Apply the fundamental concepts in cloud infrastructures to understand the trade-offs in power, efficiency, and cost to build and deploy cloud applications that are resilient, elastic and cost-efficient.
CO-4	Understand the Different types of Virtualizations, Virtual Machine creation and deployment, Hypervisors and Multitenancy
CO-5	Understand the security issues and their impact on cloud computing.
CO-6	Understand the various real-life implementation of Cloud Computing like GCP, IBM Cloud, Amazon Web Services and Microsoft Azure.
ACGS-21603: BIG DATA ANALYTICS	
CO-1	Understand Ecosystem of Hadoop and Hadoop installation for carrying out Analytics on Big Data
CO-2	Understand HDFS and its usage in storage of Big Data
CO-3	Implement the HDFS commands for managing operations on huge files in a Hadoop cluster
CO-4	Explore tools like Pig and Map reduce for analyzing Big Data
CO-5	Explore various operators in Apache Pig for performing analytics
CO-6	Explore various functions in Apache Pig for performing analytics
AGAM-21601 NATURAL LANGUAGE PROCESSING	
CO-1	Understand the basic principles, techniques, and applications of Natural Language Processing.
CO-2	Analyse words based on Morphology and CORPUS.
CO-3	Create CORPUS linguistics based on digestive approach.
CO-4	Use of statistical approaches to machine translation.
CO-5	Perform Part-of-speech tagging technique based on the structure of the language.
CO-6	Understand the techniques for text-based processing.
AGCS-21606: MACHINE LEARNING LAB	
CO-1	Gain knowledge about basic concepts of machine learning.
CO-2	Perform data visualization using machine learning libraries.
CO-3	Explore different data preprocessing and data cleaning methods.
CO-4	Gain practical experience in implementing algorithms using supervised machine learning techniques.
CO-5	Solve the problems using unsupervised machine learning techniques.
CO-6	Design an application using machine learning techniques studied in the subject.
AGCS-21607: CLOUD COMPUTING LAB	
CO-1	Configure various virtualization tools such as Virtual Box, VMware workstation.
CO-2	Design and deploy a web application in a PaaS environment.
CO-3	Learn how to simulate a cloud environment to implement new schedulers.
CO-4	Install and use a generic cloud environment that can be used as a private cloud.
CO-5	Implement the security aspects of Cloud.
CO-6	Implement the storage on Amazon Web Services.
AGCS-21608: BIG DATA ANALYTICS LAB	
CO-1	To install the relevant software for setting up a Hadoop cluster
CO-2	To install the relevant software for setting up Apache Pig and to understand its architecture

CO-3	To implement the various commands of Hadoop distributed file systems (HDFS)
CO-4	To explore various operators in Apache Pig for performing analytics
CO-5	To explore various functions in Apache Pig for performing analytics
CO-6	To create a project that demonstrates storage and subsequent analysis of a given dataset using ApachePig
AGAM-21602 NATURAL LANGUAGE PROCESSING LAB	
CO-1	Import the NLTK package.
CO-2	Analyse words based on Morphology and CORPUS.
CO-3	Create CORPUS linguistics based on digestive approach.
CO-4	Use of statistical approaches to machine translation.
CO-5	Perform Part-of-speech tagging technique based on the structure of the language.
CO-6	Understand the techniques for text-based processing.
	AGCS-21604A: INFORMATION SECURITY(PEC-2)
CO-1	Elucidate the CIA triad of Confidentiality, Integrity and Availability and various encryption techniques.
CO-2	Implement symmetric and asymmetric encryption systems, public key cryptography and RSA.
CO-3	Implement the various authentication protocols used for the protection of information.
CO-4	Understand the concept of network security and security architecture.
CO-5	Illustrate the concept of web security and SET.
CO-6	Implement system security concepts.
AGCS-21604B: CYBER SECURITY(PEC-2)	
CO-1	Analyze the cyber security needs of an organization.
CO-2	Explore various types of attacks.
CO-3	Understand various cyber security regulation and roles of Cyber Laws.
CO-4	Examine software vulnerabilities and security solutions to reduce the risk of exploitation.
CO-5	Identify the tools for mitigating cyber-attacks.
CO-6	Apply intrusion prevention techniques.
AGCS-21604C: BLOCKCHAIN TECHNOLOGY(PEC-2)	
CO-1	Understand emerging abstract models for Block chain Technology.
CO-2	Identify major research challenges and technical gaps existing between theory and practice in crypto currency domain.
CO-3	Understand Bitcoin Consensus and Issues in permissioned blockchain.
CO-4	Understand Distributed Consensus and its method.
CO-5	Apply hyperledger Fabric and Etherum platform to implement the Block chain Application.
CO-6	Learn the application of Blockchain technology in various fields.
AGCS-21604D: ETHICAL HACKING(PEC-2)	
CO-1	Understand the basics of computer-based vulnerabilities.
CO-2	Explore different foot printing, reconnaissance and scanning methods.
CO-3	Expose the enumeration and vulnerability analysis methods.
CO-4	Learn hacking options available in Web and wireless applications.
CO-5	Explore the options for network protection.
CO-6	Study various tools and website to perform ethical hacking to expose the vulnerabilities.
AGFE-21603: FUNCTIONAL ENGLISH-III	
CO-1	Self-Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Group Discussion to hone spoken skills and interpersonal communication of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Resume writing and cover letter writing to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Corporate Profile Report to make students aware of companies of their stream and their selection criteria.
AGAP-21603: ENGINEERING APTITUDE-III	
CO-1	Enhance the logical thinking of students
CO-2	How likely events could happen and so the risks could be determined and resolved professionally
CO-3	Understand the time taken by an individual or a group of individuals to complete a piece of work
CO-4	Understand different relations among the members of a family
CO-5	Determine if a system of linear equations has no solution, one solution, or infinitely many solutions
CO-6	Use Quadratic equations in real life

$7^{th}/8^{th}$ Semester	
AGCS-21701: DATA SCIENCE	
CO-1	Understanding the foundations and applications of data science
CO-2	Mastering data acquisition and preparation techniques
CO-3	Refining data for analysis and harnessing exploratory insights
CO-4	Analyzing data through probabilistic inference and statistical methods
CO-5	Evaluating and fine-tuning predictive models for real-world application
CO-6	Exploring cutting-edge trends and crafting insights through data visualization
AGCS-21703: DATA SCIENCE LAB	
CO-1	Performing manipulation of data using Pandas.
CO-2	Performing basic web scraping and apply data cleaning techniques.
CO-3	Implement Exploratory Data Analysis (EDA) and advanced visualizations using matplotlib and seaborn.
CO-4	Applying various probability concepts.
CO-5	Evaluation of supervised learning models.
CO-6	Development and execution of Data Science project
AGCS-21702A: SOFTWARE TESTING	
CO-1	Understand the need of software testing
CO-2	Prepare test cases for different types and levels of testing
CO-3	Verify the intended functionality of software
CO-4	Create test plan for variety of applications
CO-5	Test software for specialized environment
CO-6	Understand best practices and industry standards in testing
AGCS-21702B: DEEP LEARNING	
CO-1	To understand the basic principles and mathematical foundations of deep learning.
CO-2	To learn and apply neural networks for training deep learning models.
CO-3	To apply autoencoders and generative models for suitable applications.
CO-4	To analyse regularization in deep learning approaches.
CO-5	To provide a more scalable approach to visual detection and recognition tasks using CNN.
CO-6	To understand the vanishing gradient problem present in traditional RNNs
AGCS-21702C: COMPUTER VISION	
CO-1	Identify basic terminology and analyse the image theories.
CO-2	Study the foundation of image formation and measurement.
CO-3	Analyse the geometric and other image features and methods.
CO-4	Extract meaningful representations from high-dimensional time series data.
CO-5	Study processing and analysing discrete data of image.
CO-6	Assess the methods to solve and analyse the accuracy of the methods.
AGCS-21702D: ADVANCED COMPUTER NETWORKS	
CO-1	Analyze some of the most advanced routing and switching techniques.
CO-2	Understand Packet classification methods and techniques for data transfer.
CO-3	Understand the architecture of SDN and NFV for security in Softwarized Networks.
CO-4	Analyze various Data Planes, P4 Switches in Programmable Networks.
CO-5	Understand the concept of Data Center Networking and its technologies used
CO-6	Understand the concept of content distribution and delivery over internet
AGCS-21702E: BUSINESS INTELLIGENCE AND ANALYTICS	
CO-1	Understand the role of business intelligence and analytics in decision-making processes.
CO-2	Understand the concepts of data warehousing, data mining, and data visualization.
CO-3	Understand statistical techniques to analyze and interpret business data.
CO-4	Use BI tools to extract, transform, and load (ETL) data from various sources.
CO-5	Utilize predictive analytics techniques to forecast future trends and outcomes.
CO-6	Understand the ethical and privacy implications of using business intelligence and analytics.
AGCS-21702F: INTRODUCTION TO INTERNET OF THINGS	
CO-1	Understand the concept of IoT and its Architecture.
CO-2	Learn the function of various components and the communication modules.
CO-3	Understand the physical and application layer protocols for IoT.
CO-4	Implement the interface between hardware and Arduino board using Python Programming.
CO-5	Implementing the various python packages on Raspberry pi Board
CO-6	Analyse applications of IoT in real time scenario.

AGCS-21702G: SOCIAL NETWORK ANALYSIS	
CO-1	Analyze a social network using various visualization tools.
CO-2	Illustrate large-scale network data and mechanisms used for network growth models.
CO-3	Understand the signed networks and applications of the Link Analysis
CO-4	Acquaint with the community detection and Link Prediction ways
CO-5	Examine social networks analysis and prediction using case studies.
CO-6	Apply appropriate anomaly detection and graph representation method on a network
AGCS-21702H: REINFORCEMENT LEARNING	
CO-1	Gain a foundational understanding of deep reinforcement learning principles.
CO-2	Make use of various exploration and exploitation strategies.
CO-3	Understanding eligibility traces and their role in temporal difference learning.
CO-4	Delve into Bellman Optimality and its significance in reinforcement learning algorithms.
CO-5	Explore value-based reinforcement learning approaches with function approximation.
CO-6	Demonstrate various Policy based Reinforcement Learning Algorithms.
AGCS-21702I: OBJECT ORIENTED ANALYSIS & DESIGN USING UML	
CO-1	Exploring Object-Oriented Design and Unified Modeling Language (UML).
CO-2	Understanding Use Case Diagrams and Prioritization Techniques.
CO-3	Mastering Class and Sequence Diagrams along with Advanced Concepts.
CO-4	Delving into State Chart Diagrams, Design Processes, and Anti-Patterns.
CO-5	Introduction to Design Patterns and Addressing Common Pitfalls.
CO-6	Implementing GRASP Patterns and Exploring GoF Patterns in Depth.
AGCS-21702J: FOUNDATIONS OF CRYPTOGRAPHY	
CO-1	Understand the basics paradigms and principles of Cryptography
CO-2	Understand and Implement Symmetric Key Cryptography
CO-3	Apply message authentication functions in secure communication scenario
CO-4	Understand and Implement Asymmetric Key Cryptography
CO-5	Analyze Public Key Cryptosystems
CO-6	To understand various protocols for network security to protect against the threats in the networks.

8th Semester	
AGAM-21801: INDUSTRIAL TRAINING	
CO-1	Practical Application of Knowledge: Demonstrate the ability to apply theoretical knowledge from Computer Science and Engineering to real-world industrial challenges, including software development, system design, and implementation.
CO-2	Technical Skill Development: Acquire and enhance proficiency in contemporary programming languages, tools, and technologies commonly used in the industry.
CO-3	Problem-Solving and Critical Thinking: Analyze, design, and develop solutions for complex engineering problems using a structured approach, including debugging, testing, and deployment processes.
CO-4	Professional and Team Collaboration Skills: Exhibit strong communication and teamwork abilities by effectively collaborating in multidisciplinary teams to complete assigned projects and meet organizational goals.
CO-5	Industry-Specific Best Practices: Understand and implement industry-standard protocols, methodologies, and ethical practices, including Agile development, version control systems, and data security.
CO-6	Career Readiness and Lifelong Learning: Prepare for future professional opportunities by developing a portfolio of completed projects, gaining industry insights, and recognizing the importance of lifelong learning to adapt to emerging trends.

Department of Civil Engineering

	Programme Specific Outcomes (PSOs)
PSO 1	Practice Civil Engineering in a responsible professional and ethical manner and implement eco friendly sustainable technologies for the benefit of industries as well as societies.
PSO 2	Take up higher education and engage in research and development in Civil Engineering as well as applied areas of science and technology.
PSO 3	Analysis design and used skills in order to formulate and solve Civil Engineering problems.

Semester – 3rd

AGCE - 21301 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Determine the stresses, strains, and displacements in structures and their components due to the acting loads.
CO-2	Understand various fundamental issues of elasto-mechanics, i. e. the mechanics of solids, and deformable bodies, and able to understand concept of complex stresses and strains also can draw Mohr's circle.
CO-3	Draw shear-force and bending-moment diagrams for different types of loading.
CO-4	Understand concept of pure bending and shear stresses for simple, built up and composite sections.
CO-5	Understand the behaviour of axially/laterally/eccentrically loaded columns and torsional behaviour of circular shafts.
CO-6	Understand various theories regarding failure of any column or beam in building.

AGCE - 21302 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Know about concrete as an important construction material with wide range of applications
CO-2	Know about cement and admixtures as constituents of concrete and perform various tests on cement
CO-3	Know about aggregates as constituents of concrete and classify them as fine and coarse aggregates.
CO-4	Know about various properties of fresh and hardened concrete and effect of water cement ratio on various properties of concrete.
CO-5	Handle the fresh concrete and understand the importance of vibration in placing the concrete.
CO-6	Design the proportion of various constituents for a specified grade of concrete.

AGCE - 21303 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the concept of various demands of water and population forecasting procedure.
CO-2	Emphasize the environment, its cycle and transmission system for water supply.
CO-3	Assess the efficiencies of pumping systems and pumping operation.
CO-4	Know various quality parameters required to determine purity of water for drinking purpose.
CO-5	Know about treatments processes involved to treat water.
CO-6	Know various methods of transportation of water in urban and rural areas.

AGCE - 21304 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Define the nature of a fluid and its properties and introduce viscosity effects on flow and characteristics of Newtonian and Non-Newtonian fluids.
CO-2	Quantify the stability of floating and submerged bodies through conceptual understanding.
CO-3	Use flow measurement devices for flow computations.
CO-4	Understand the concept of velocity and acceleration of fluid particle and verify Bernoulli's equation
CO-5	Understand the concept of laminar and turbulent flow.
CO-6	Understand the concept of boundary layer formation.

AGCE - 21305 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Demonstrate knowledge about bricks, stones, aggregates and their quality.
CO-2	Examine quality of cement and concrete based on their test results.
CO-3	Have knowledge on miscellaneous materials like plastics, Iron and steel and some composite materials.
CO-4	Supervise and inspect masonry construction, mainly brick and stone masonry.
CO-5	Have knowledge on various building components.
CO-6	Understand the importance of various building services.

AGCE - 21306 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the behavior of Ductile and Brittle material in tension
CO-2	Understand the behavior of Ductile and Brittle material in compression
CO-3	Perform Izod and Charpy test to get impact strength.
CO-4	Perform Rockwell & Brinell hardness test to get hardness of a material.
CO-5	Understand the behavior of Ductile and Brittle material in torsion.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject Strength of Materials

AGCE - 21307 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Determine the consistency and setting times of cement.
CO-2	Determine strength of cement.
CO-3	Determine various properties of aggregates.
CO-4	Ascertain quality standards of fresh concrete.
CO-5	Determine compressive and tensile strength of hardened concrete.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject of Concrete Technology.

AGCE - 21308 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the significance of meta-centre of floating vessels.
CO-2	Verify Bernoulli's equation and interdependence of various heads.
CO-3	Calibrate and use orifice-meter for measurement of discharge through pipes.
CO-4	Calibrate and use venturi-meter for measurement of discharge through pipes.
CO-5	Compute discharge flowing through an open channel using a notch.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject Fluid Mechanics

AGFE - 21301 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Self Introduction to prepare students to face one to one interaction.
CO-2	Body Language detail to prepare students in non-verbal communication.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.

AGCE - 21309 **Course Outcomes:** After going through this training, students will be able to:	
CO-1	Abide by traffic rules as responsible citizens of the country.
CO-2	Contribute towards environment protection and spread awareness further.
CO-3	Understand fire exit symbols in public buildings and operate basic fire extinguishers if needed.
CO-4	Think towards alternate sources of energy for better future.
CO-5	Understand importance of water, reduce its wastage and conserve water.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

Semester- 4th

AGCE - 21401 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Analyse various elements of buildings and identify determinate/indeterminate structures and compute slope and deflections by geometric methods.
CO-2	Perform analysis and compute slope and deflections in determinate beams, simple frames and trusses by using energy method
CO-3	Analyse three hinged arch and girders under different loading conditions.
CO-4	Draw bending-moment/shear-force diagrams for single/multiple concentrated rolling loads
CO-5	Draw influence line diagrams for beams, girders, frames and ILD for displacements and bar forces in trusses.
CO-6	Analyse cables and suspension bridges.

AGCE - 21402 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the concept of surveying with reference to chain surveying, Compass surveying and Plane table surveying.
CO-2	Understand the concept and significance of elevations and compute elevations by various procedures.
CO-3	Apply the knowledge of elevations to prepare contour maps and use them for various projects.
CO-4	Know about theodolites and tacheometers and use them to find distances and elevations of points.
CO-5	Understand the concept of Photogrammetry and Remote sensing.
CO-6	Know about concept and utility of GIS and GPS in Civil Engineering.

AGCE - 21403 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the systems of sanitation and sewerage system of waste water engineering.
CO-2	Learn about house drainage, system of plumbing and drainage layouts of residences.
CO-3	Know about different characteristics of domestic and industrial sewage.
CO-4	Understand and design various units of sewage treatment.
CO-5	Understand and design tanks and ponds of low cost sanitation systems.
CO-6	Know about wastewater treatment plants and advanced wastewater treatment.

AGCE - 21404 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Describe the key terminology, concepts tools and techniques used in statistical analysis and establish relationship between various parameters of a process through regression analysis.
CO-2	Know about piecewise continuous functions, Laplace transforms and its properties; use of Laplace transform and Inverse transform for solving initial value problems.
CO-3	Form and solve partial differentia equations in two variables.
CO-4	Know the concept of complex differentiation and also the concept of complex integration by the methods of residues and Cauchy integral formula.
CO-5	Apply numerical methods to find the solution of algebraic equations using different methods under different conditions, and numerical solution of system of algebraic equations.
CO-6	Solve differential equation by initial value problem and Calculate data with help of Interpolation and curve fitting.

AGCE - 21405 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the objective of analysing any structure and their design approaches with the understanding of properties of Concrete and Steel.
CO-2	Recognize various design philosophies for reinforced concrete structures.
CO-3	Compute various parameters of design equations and understand the concept of neutral axis and moment of resistance.
CO-4	Design the various types of beams with the understanding of Shear, Bond, Anchorage, Development Length and Torsion
CO-5	Design the compression members under axial load with biaxial and uniaxial bending.
CO-6	Design and provide the reinforcement details for one way slabs and two way slabs.

AGCE - 21406	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Use chain surveying and compass surveying for plotting details of an area.
CO-2	Use plane table surveying for plotting details of an area.
CO-3	To compute Elevation of a point by using Level.
CO-4	Use the theodolite for measuring horizontal/ vertical angle by theodolite.
CO-5	Compute distances and levels of points by optical observations.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject AGCE – 21402 (Survey).

AGCE - 21407	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Decide the acidic or basic character of a water sample.
CO-2	Determine hardness of a water sample.
CO-3	Decide the extent of acidic or basic character of a water sample.
CO-4	Find the chloride content of a given water sample.
CO-5	Determine the amount of solids dissolved in a given water sample.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGCE - 21408	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Have knowledge of the provisions made in National Building Code. (SP7:2016 Vol. 1&2)
CO-2	Decide a suitable plan for a residential building.
CO-3	Prepare an optimum wall plan for a building.
CO-4	Prepare and read sectional plans of buildings.
CO-5	Prepare and read sectional plans of public buildings and supervise the building construction work.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGAP - 21401	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Develop a Proper Understanding of the Number system
CO-2	Understand the Concept of HCF & *LCM* to solve problems related to Racetracks, Traffic lights etc.
CO-3	Recognize parts and wholes both visually and numerically
CO-4	Recognize and apply Ratios ,Proportions and Percentage to solve real-life problems
CO-5	Recognize company's revenues and expenditures over a specified period of time,
CO-6	Understand the concept of time value of money

AGFE - 21402	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Self Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Topic Presentation or extempore to hone spoken skills of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.

Semester -5th

AGCE - 21501	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand basic Concept of Soil Mechanics and index properties of Soil.
CO-2	Monitor the compaction process in the field.
CO-3	Analyze consolidation differential equation for settlement of soils.
CO-4	Evaluate permeability of different soils under different conditions.
CO-5	Evaluate earth pressure with different earth-pressure-theories.
CO-6	Test the strength of soil in shear and settlement.

AGCE - 21502
Course Outcomes: After studying the course, students will be able to:

CO-1	Understand basics of irrigation engineering, its importance, necessity and various methods of irrigation.
CO-2	Design different types of irrigation canals.
CO-3	Design lined canals to reduce losses in canals and prevent waterlogging.
CO-4	Analyse the yield, porosity and interference among the irrigation wells.
CO-5	Understand the process of planning of water resources projects.
CO-6	Understand various river training works.

AGCE - 21503	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand characteristics of road transport, Highway development and planning.
CO-2	Compute various design parameters of highways
CO-3	Know about various materials and construction techniques used for highways.
CO-4	Evaluate a pavement for its construction in water logged areas.
CO-5	Perform various studies related to traffic.
CO-6	Know different traffic signs and signals.

AGCE – 21504A	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Evaluate static and kinematic indeterminacy of different structures.
CO-2	Analyse indeterminate structures by Slope Deflection method
CO-3	Analyse indeterminate structures by Moment distribution method and Rotation contribution method
CO-4	Analyse indeterminate structures by consistent deformation method and theorem of three moments
CO-5	Analyse indeterminate frames by Portal method and Cantilever method
CO-6	Draw influence line diagrams for indeterminate structures

AGCE - 21505	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze and design different types of staircases as per the stipulations of IS 456.
CO-2	Analyze and design the different types of shallow foundations.
CO-3	Analyze and design the circular, semi-circular and continuous beam for the RCC structures.
CO-4	Analyze and design the retaining wall construction in hilly areas, basements etc.
CO-5	Analyze and design RCC circular & rectangular water tank resting on ground for storage purposes.
CO-6	Analyze and design the spherical and conical domes for the lightning through the roofs.

AGCE - 21506	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Verify Clark-Maxwell's theorem and understand deflection in simply supported beams.
CO-2	Compute Flexural Rigidity of a given beam
CO-3	verify the Moment- area theorem for slope and deflection of a given beam
CO-4	Compute moment required to produce a given rotation
CO-5	Understand behavior of columns and struts with different end conditions
CO-6	Exhibit his/her creativity and conceptual understanding of the subject AGCE 21401 – (Structural Analysis)

AGCE - 21507	
Course Outcomes: After studying the course, students will be able to:	
CO-1	draw the different types of stairs and their elements of the stairs use for different types of structures.
CO-2	draw the different types of foundations and their elements use for the residential and commercial buildings.
CO-3	draw the retaining walls use in buildings and hilly areas.
CO-4	draw the various elements of domes for the buildings for the lightning and decorative purposes.
CO-5	draw the elements of water tanks resting on the ground for the storage purposes.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject AGCE – 21507 (CADD LAB-I).

AGCE - 21508

Course Outcomes: After studying the course, students will be able to:	
CO-1	Compute in-situ density of soil by core cutter and sand replacement method.
CO-2	Evaluate cassagrande limits of a soil sample.
CO-3	Perform grain size analysis of sand
CO-4	Compute maximum dry density of a soil sample.
CO-5	Compute Relative Density of soil
CO-6	Exhibit his/her creativity and conceptual understanding of the subject AGCE – 21501 (Geotechnical Engineering).

AGAP - 21502 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Learn and practice Aptitude questions based on *"Problems on Ages"* and improve their skills in order to face the interview, competitive exams.
CO-2	Understand the relationships among things or finite groups of things.
CO-3	Outline the various formulas for calculating area , volume and surface area.
CO-4	Use a calendar to determine a Date and Day.
CO-5	Use a time schedule to determine ending time of a given event.
CO-6	Find out missing part of an element by subsequent comparison.

AGCE - 21509 **Course Outcomes:** After going through this training, students will be able to:	
CO-1	Perform reconnaissance survey in any terrain.
CO-2	Execute shifting of Reduce Level from a Temporary/Permanent Benchmark by Fly-Levelling.
CO-3	Plot details of an area by plane tabling.
CO-4	Use optical measurements and plot the spot levels on a survey sheet.
CO-5	Interpolate contours in a sheet of spot levels.
CO-6	Write the report of the training exercise of Survey Camp.

Semester – 6th

AGCE - 21601 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Know about **rolled steel sections and design** and **analyse** the bolted and welded connections.
CO-2	**Design** and **analyse** steel tension members**.**
CO-3	**Design** and **analyse** steel compression members.
CO-4	**Design** and **analyse** various members of steel under combined forces
CO-5	**Design** and **analyse** column bases.
CO-6	**Classify** and **design** structural steel components of industrial building.

AGCE - 21602 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the hydrological cycle, its components and the concept of catchment.
CO-2	Apply knowledge of hydrology in computing average precipitation, and other hydrological computation related to rainfall.
CO-3	Understand concept of abstractions like Evaporation, Transpiration and Infiltration.
CO-4	Understand the concept of runoff and measurements of stage and stream velocity.
CO-5	Compute stream-flow discharge using direct and indirect methods.
CO-6	To compute different hydrographs for varied designs as per need.

AGCE - 21603 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the Indian Railway gauges , railway track and components.
CO-2	Learn about geometric design of railway track , points and crossing.
CO-3	Understand various station and yards, signalling and interlocking of railway engineering.
CO-4	Understand the track speed and air transport.
CO-5	Know about airport planning, design and runway.
CO-6	Acquire knowledge of taxiway, aircraft parking and visual aids of air transport.

AGCE – 21604B	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understanding the procedures of soil investigation.
CO-2	Compute earth pressure in varied conditions by the application of various earth pressure theories.
CO-3	Analyse bearing capacity of shallow foundations using different theories.
CO-4	Design shallow foundations.
CO-5	Compute functional parameters for the design of pile foundations.
CO-6	Evaluate allowable bearing pressure for Caissons and Wells.

AGCE - 21605	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Analyze complete set of estimate and their parameters.
CO-2	Know the concept of specifications of building and roads.
CO-3	Analyze rates of different works involved in a structure.
CO-4	Distinguish various procedures involving tender and accounting procedures and project planning and management.
CO-5	Evaluate various construction networks involving PERT and CPM.
CO-6	Analyze cost and contracts in planning different components of Civil Engineering projects.

AGCE - 21606	
Course Outcomes: After studying the course, students will be able to:	
CO-1	perform shape test and impact value test on road aggregates
CO-2	perform crushing value test and los angles abrasion value test on road aggregates
CO-3	perform Penetration Test on bitumen sample
CO-4	perform Softening Point Test on bitumen sample
CO-5	perform Ductility Test on bitumen sample
CO-6	Exhibit his/her creativity and conceptual understanding of the subjects AGCE – 21503 (Transportation Engineering - I) and AGCE 21603 (Transportation Engineering - II).

AGCE - 21607	
Course Outcomes: After studying the course, students will be able to:	
CO-1	draw different welded and bolted connections
CO-2	draw beam to beam and beam to column connections (seated and framed)
CO-3	draw plan and elevation of a built up column
CO-4	draw plan and elevation of a column base and gusseted base
CO-5	draw elevation and sections of a roof truss
CO-6	Exhibit his/her creativity and conceptual understanding of the subject AGCE-21601 (Design of Steel Structures-I)

AGCE - 21608	
Course Outcomes: After studying the course, students will be able to:	
CO-1	create a document and apply different formatting options
CO-2	Create his/her own resume using different options in MS Word.
CO-3	Use headers and footers along with page titles in a document.
CO-4	Insert and use tables in to a document
CO-5	Create different drawing objects using insert shapes in an MS word document
CO-6	Create any document as per need using different options in MS Word.

AGFE - 21603	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Self Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Group Discussion to hone spoken skills and interpersonal communication of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Resume writing and cover letter writing to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Corporate Profile Report to make students aware of companies of their stream and their selection criteria.

AGAP - 21603	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Enhance the logical thinking of students
CO-2	How likely events could happen and so the risks could be determined and resolved professionally
CO-3	Understand he time taken by an individual or a group of individuals to complete a piece of work
CO-4	Understand different relations among the members of a family
CO-5	Determine if a system of linear equations has no solution, one solution, or infinitely many solutions
CO-6	Use *Quadratic equations in real life*

Semester – 7th

AGCE21701	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Describe the elements of a plate girder, distinguish between riveted and welded plate girders.
CO-2	Design a plate girder with curtailment of flanges, splicing and various type of stiffeners.
CO-3	Design economical, safe and simple to assemble steel truss bridge for pedestrian crossing purpose.
CO-4	Analyze and design gantry girder for the industrial buildings.
CO-5	know the design specifications for the various elements of the industrial shed like column bracket and mill bents.
CO-6	Analyze and design various components of railway bridge, like stringer, main girders and cross girders.

AGCE21702	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Differentiate components of diversion headworks and silt control devices based on their functions.
CO-2	Design complete structure of a weir through understanding of its types, modes of failure and protection elements.
CO-3	Apply the knowledge of various seepage theories to design the impervious floors for various hydraulic structures.
CO-4	Compare and design canal regulation works.
CO-5	Design canal falls and cross drainage works.
CO-6	Understand the concept of canal outlets.

AGOE 21702	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Students will be able to understand different level of disasters in various regions.
CO-2	To able to understand the prevent and preparedness against the disaster.
CO-3	To be able to understand the risk and management for disaster.
CO-4	Know about the various government and non-government agencies role in management.
CO-5	To be able to understood the various tools and techniques to identify the level of disaster.
CO-6	To be able to understand about the method of dissemination and learn from experiences.

AGCE 21703E	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand Reinforced Concrete bridges.
CO-2	The difference between culverts and bridges.
CO-3	Understand the construction of various types of bridges.
CO-4	Know about the various types of spans in bridges.
CO-5	Understand the elements of bridges.
CO-6	Understand the latest technologies in bridges.

AGCE 21704	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Identify the current issues related to civil engineering local/ reginal/ national/global.

CO-2	Analyse the existing research, identify the gray areas, and articulates specific objectives.
CO-3	Create time bound project execution plan.
CO-4	Organise and analyse the research data.
CO-5	Articulate specific research findings after analysing the results.
CO-6	Create/prepare a research document in the form of a report.

AGCE 21705 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Draw different falls in irrigation engineering as per design
CO-2	Understand the difference between the various regulators use in canals.
CO-3	Explain structure of launching aprons.
CO-4	Draw and read the drawings of vertical drop weirs.
CO-5	understand the construction of impervious floor.
CO-6	Design the transitions for cross drainage works.

AGCE 21706 **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Create and read drawings of plate girders
CO-2	Understand various details of splices and stiffeners used in plate girders.
CO-3	Draw and read drawings of plate girders
CO-4	Create and read drawings of a Gantry girder
CO-5	Create and read drawings of elements of industrial buildings
CO-6	Create and read drawings of railway bridges

Department of Mechanical Engineering

	Programme Specific Outcomes (PSOs)
PSO 1	To apply the acquired theoretical and practical skills to identify, formulate, investigate and solve the complex engineering problems in mechanical engineering. and allied areas.
PSO 2	To apply appropriate techniques, modern engineering tools to develop and implement the professional engineering solutions for the betterment of the society keeping environmental issues in mind.
PSO 3	To be able to start enterprises, take up carrier in industrial/ research organizations, government & non-government sector and pursue higher studies with regard for social and professional ethics.

3rd Semester

AGME-21301: Applied Thermodynamics-I **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand thermodynamics of combustion of fuel in IC engines
CO-2	Understand properties of Steam
CO-3	Understand steam generators
CO-4	Learn about Steam Nozzles
CO-5	Understand Steam Turbines
CO-6	Understand Steam condensers

AGME-21302: Theory of Machines – I **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the basic concepts of machines
CO-2	To learn the principles of transmission devices and to determine the tension and power of these devices
CO-3	Understand the basic concepts of cam and to draw cam profile for different types of follower.
CO-4	Compute the essential parameters like fluctuation of speed and energy of a flywheel in a vehicle
CO-5	To learn the principles of steering gear mechanism and universal joint.
CO-6	Understand the parameters involved in the working and application of different types of governor.

AGME-21303: Strength of Materials **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Determine the stresses, strains, and displacements in structures and their components due to the acting loads.
CO-2	Understand various fundamental issues of elasto-mechanics, i. e. the mechanics of solids, and deformable bodies, and able to understand concept of complex stresses and strains also can draw Mohr's circle.
CO-3	Draw shear-force and bending-moment diagrams for different types of loading.
CO-4	Understand concept of pure bending and shear stresses for simple, built up and composite sections.
CO-5	Understand the behaviour of axially/laterally/eccentrically loaded columns and torsional behaviour of circular shafts.
CO-6	Understand various theories regarding failure of any column or beam in building.

AGME-21304 Engineering Materials and Metallurgy **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the significance of the metallurgical characteristics of engineering materials.
CO-2	Explain the role of Phase diagrams, Fe-C and TTT diagram for controlling the desired structure and properties of the materials.
CO-3	Understand the significance of ferrous and metals and their alloys.
CO-4	Analyse various heat treatment processes and their applications for different materials
CO-5	Understand the fundamental principles of improving surface properties of bulk material like hardness, corrosion and wear resistance, etc.

CO-6	Understand the fundamental principles of Powder Metallurgy and recognize related machine tools and parameters of the processes for analyzingthe effect of process parameters on performance.

AGME-21305: Manufacturing Processes **Course Outcomes:** After studying the course, students will be able to:	
CO-1	To develop the ability to understand the basics of Manufacturing, Creativity and General Trends in Manufacturing
CO-2	To understand the different types of Mouldings, furnaces and casting techniques.
CO-3	To Understand the different types of Welding techniques.
CO-4	To develop the ability to inspect the various Casting and Welding defects with various testing techniques.
CO-5	To develop the ability to understand the tool geometry and chip formation.
CO-6	To develop the ability to understand the various machine tools of Workshop.

AGME-21306: Strength of Materials – Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the behavior of Ductile and Brittle material in tension
CO-2	Understand the behavior of Ductile and Brittle material in compression
CO-3	Perform Izod and Charpy test to get impact strength.
CO-4	Perform Rockwell & Brinell hardness test to get hardness of a material.
CO-5	Understand the behavior of Ductile and Brittle material in torsion.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME-21307: Engineering Materials and Metallurgy – Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Perform Annealing and Hardness Test on steel specimen.
CO-2	Perform Quenching operation on Steel specimen.
CO-3	Specimen preparation with various operations.
CO-4	Study the various microstructures of various materials.
CO-5	Perform Jominy end quench test on steel specimen.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME-21308: Manufacturing Processes- Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	To study the various machine tools.
CO-2	Perform Grinding operations on cutting tools.
CO-3	Perform various operations on Lathe Machine.
CO-4	Perform Various operations on Shaper Machine
CO-5	Perform Various operations on Milling Machine.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGFE-21301: Functional English - I **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Self Introduction to prepare students to face one to one interaction.
CO-2	Body Language detail to prepare students in non-verbal communication.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.

AGME-21309: Institutional Training **Course Outcomes:** After going through this training, students will be able to:	
CO-1	Understand the various operations of Foundry and Smithy Shop.
CO-2	Understand the various operations of Welding Shop.
CO-3	Understand the various operations of Carpentry Shop.
CO-4	Understand the various operations of Machine Shop.
CO-5	Understand the various operations of Fitting and Electrical.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

4th Semester

AGME-21401: Applied Thermodynamics -II **Course Outcomes:** After studying the course, students will be able to:	
CO1	Understand Introduction to compressors and Reciprocating Air Compressors:
CO2	Understand Positive Displacement Rotary Compressors
CO3	Understand Centrifugal Compressor
CO4	Understand Axial Flow Compressor
CO5	Understand Gas Turbine
CO6	Understand Jet Propulsions

AGME-21402: Theory of Machines -II **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the basic concepts of static forces and draw free body diagram of different mechanism.
CO-2	Select suitable type of gears for different application in transmission system.
CO-3	To analyse the motion of different elements of gear trains.
CO-4	Understand balancing of rotating and reciprocating parts of machines.
CO-5	Understand the basic concepts of inertia forces & couples applied to reciprocating parts of a machine.
CO-6	Understand the concept of kinematic synthesis.

AGME-21403: Mathematics in Mechanical Engineering **Course Outcomes:** After studying the course, students will be able to:	
CO1	To enable the students to use the concept of Fourier series and different wave forms.
CO2	Know about piecewise continuous functions, Laplace transforms and its properties; use of Laplace transform. Inverse transform and use for solving initial value problems.
CO3	To enable students solving Partial differential equation , Wave and Heat equations
CO4	To enable the students to know the concept of complex differentiation, complex integration by the concept of Residues
CO5	Apply numerical methods to find the solution of algebraic equations using different methods under different conditions, and numerical solution of system of algebraic equations.
CO6	Solution of differential equation by initial value problem Calculation of data with help of Interpolation and curve fitting.

AGME-21404: Computer Aided design and Manufacturing **Course Outcomes:** After studying the course, students will be able to:	
CO1	Understand the Introduction to CADM and Geometric modelling
CO2	understand the representation of curves, surfaces and FEM
CO3	learn Geometric Transformations
CO4	Understand NC , CNC , DNC. Adaptive control and rapid prototyping
CO5	Learn CNC Part Programming and Group Technology
CO6	understand Computer aided process planning and computer integrated Manufacturing

AGME-21405: Automobile Engineering **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Identify different parts of an automobile and to understand the related terminology, and the science behind them.
CO-2	Understand the working characteristics of the power unit, fuel supply systems and fuels used in modern automobiles and the impact of the emissions generated on the environment and how to minimize the effects.
CO-3	Understand the working of various lubrication and cooling systems and rating/characteristics of lubricants and coolants.
CO-4	Understand various types of frames, chassis, suspension systems and wheel & tyre constructional details and their applications
CO-5	Understand the automated/manual transmissions, steering systems with steering geometry and wheel alignment principles.
CO-6	Understand the various braking systems, electronic and electrical systems, ECU and various sensors.

AGME-21406: Applied Thermodynamics – Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the construction and operation of 2 stroke and 4 stroke Petrol and Diesel engines
CO-2	Understand the actual valve timing diagram of a 4 stroke petrol and diesel engines
CO-3	Calculate dryness fraction of steam using Seperating Calorimeter.
CO-4	Calculate the brake power, indicated power, friction power and mechanical efficiency of a multi-cylinder petrol engine
CO-5	Calculate the brake power, indicated power, and mechanical efficiency of a single-cylinder diesel engine
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME-21407: Computer aided design and Manufacturing - Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand and learn the commands related to Draw menu
CO-2	Understand and learn the commands related to Modify menu
CO-3	Understand and learn the commands related to dimensioning and layers
CO-4	Understand commands related to 3d drawing.
CO-5	Learn the CNC programming
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME-21409: Theory of Machines- Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Calculate the torque and power of shaft.
CO-2	Understand the working of cam and follower.
CO-3	Understand the working of governor.
CO-4	Balance Rotating parts of a system.
CO-5	Understand the concepts of gear train and able to design gear train.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGAP-21401: Engineering Aptitude - I **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Develop a Proper Understanding of the Number system
CO-2	Understand the Concept of HCF &*LCM* to solve problems related to Racetracks, Traffic lights etc.
CO-3	Recognize parts and wholes both visually and numerically
CO-4	Recognize and apply Ratios ,Proportions and Percentage to solve real-life problems
CO-5	Recognize company's revenues and expenditures over a specified period of time,
CO-6	Understand the concept of time value of money

AGFE-21402: Functional English - II **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Self Introduction and Body Language to prepare students to face one to one interaction.
CO-2	Spoken Activity such as Topic Presentation or extempore to hone spoken skills of students.
CO-3	Vocabulary based session to improve language proficiency of students.
CO-4	Basic Grammar to make students proficient in English correspondence.
CO-5	Book reading to improve reading skills of students.
CO-6	Formal/ Informal Letter writing to make students proficient in written correspondence.

5th Semester

AGME-21501: Design of Machine Elements-I **Course Outcomes**: After studying the course, students will be able to:	
CO-1	Understand the basics of Design, Creativity, Design failures conditions of machines.
CO-2	Understand the Concept of concurrent engineering, FOS and various manufacturing considerations.
CO-3	Design the rivets for boilers and structures
CO-4	Design the cotter and knuckle joint.
CO-5	Design the shafts under different loading conditions.

CO-6	Design the various keys and couplings.

AGME-21502: Fluid Mechanics **Course Outcomes**: After studying the course, students will be able to:	
CO-1	To learn the concept of Fluid, Properties of fluid, Viscosity, Surface Tension and Capillarity
CO-2	To understand the concept of Fluid Statics, Buoyancy, Floatation and Metacentric height
CO-3	To Learn the concept of velocity, acceleration, Continuity Equation, velocity potential function and stream function
CO-4	To understand the concept of Fluid dynamics.
CO-5	To study about the Dimensional Analysis and Similitude
CO-6	To describe about the Internal Flows and flow Measurements

AGME-21503 Mechanical Measurements and Metrology **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the need of instruments and learn how they work, design and planning of experiments.
CO-2	Demonstrate various types of measurements standards used in industry and Understand the different types of errors and calibration standards.
CO-3	Demonstrate various types of measurements equipment used to measure linear dimension, angular dimension and surface roughness of object.
CO-4	Understanding the pressure, flow measurement, flow visualization techniques.
CO-5	Understand the concepts behind sensors and transducers involved in measurements of temperature.
CO-6	Understand the concepts of speed, force, torque and shaft power.

AGME-21504A : SOLID MECHNANICS **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Fundamental of solid mechanics.
CO-2	Concepts of stress & Strain.
CO-3	Understand energy method.
CO-4	To understand the torsional components & its effects.
CO-5	Theory of symmetrical & unsymmetrical solids.
CO-6	To understand the buckling of solids.

AGME-21504B : COMPUTER INTEGRATED MANUFACTURING **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the principle of automation.
CO-2	Compare NC and CNC machines.
CO-3	Know the constructional features of CNC machines.
CO-4	Construct part programmers using ISO format for given simple components
CO-5	Develop an FMS (Flexible Manufacturing System) with computer aided process planning
CO-6	Recognize use of robotics, in the field of manufacturing.

AGME-21504C : MECHATRONICS **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Importance of mechatronics systems & its applications.
CO-2	Usage of Sensors and Transducers.
CO-3	Significance of signals system.
CO-4	Understand of Pneumatic and Hydraulic Equipment.
CO-5	To understand of Components and its usage.
CO-6	Microprocessor and its application.

AGME-21504D : MACHINE TOOL DESIGN **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Importance of tool & its design.
CO-2	Significance of driving system.

CO-3	Development of Kinematics Scheme.
CO-4	Design of gear and gear trains.
CO-5	To understand of Spindle Design & Bearings.
CO-6	Machine Control System.

AGME-21505: Machine Drawing (Skill Course-I)	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Read the blue prints with detail of dimension, section, tolerance and machining symbols.
CO-2	Understand to read the thread geometry and able to draw riveted and welded joints.
CO-3	Understand the drawing of various types of couplings and clutches.
CO-4	Find the details of various components from the assembly drawing.
CO-5	Draw the views of assembly with the given details of various components.
CO-6	Recommend the appropriate pipe joint as per position and application.

AGME-21506: Design of Machine Elements-I Lab	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Design the product used in daily life.
CO-2	Understand the material properties of component and also find the other suitable material.
CO-3	Design the wall bracket.
CO-4	Design the knuckle joint used in daily practices.
CO-5	Design the shaft under different loading conditions.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME-21507: Fluid Mechanics Lab	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand how to find metacentric height of floating vessel
CO-2	Understand the flow through a variable area duct and verify Bernoulli's energy equation how
CO-3	Understand how to find discharge coefficient for a V- notch or rectangular notch
CO-4	Understand how to find the Reynolds's number
CO-5	Find the coefficient discharge of venture meter or orifice meter
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME-21508: Mechanical Measurements and Metrology Lab	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand how to find angle through sine bar
CO-2	Understand how to find linear dimensions with the help of Vernier Caliper.
CO-3	Understand the working of micrometre.
CO-4	Understand the working of tool maker microscope.
CO-5	Understand the working of stroboscope.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME-21509: Summer Training	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Communicate effectively with peers.
CO-2	Differentiate the layout of various industrial shops.
CO-3	Participate constructively and ethically in the industrial process.
CO-4	Describe detailed specifications of machinery/equipment/tool/software.
CO-5	Analyse the scope of training received towards his/her career goals.
CO-6	Write the report on an industrial project.

6th Semester

AGME-21601 Design of Machine Elements-II	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand the design procedure of sliding Journal bearing and roller bearing.
CO-2	Understand the design procedure of flywheel.
CO-3	Understand the design procedure of springs

CO-4	Understand the design procedure of clutches.
CO-5	Design different types of brakes.
CO-6	Understand the design procedure of levers.

AGME 21602 – Fluid Machinery	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Recognize basic components of turbo machines and understand related fundamental laws/ principles and apply these for calculation of various parameters like work done, force efficiency etc.
CO-2	Know about constructional details, working and design aspects of runner/wheel and evaluate the performance of various turbines like Pelton
CO-3	Understand abaut the working and velocity tringle diagram of Francis and Kaplan turbines
CO-4	Know about constructional details, working and evaluate the performance of centrifugal pump under different vane shape conditions
CO-5	Know about constructional details, working and evaluate the performance of reciprocating pump and evaluate the effect of various deviations from the ideal conditions on the work done.
CO-6	Know about constructional details and working of hydraulic devices like fluid coupling, accumulator and intensifier.

AGME-21603 : HEAT TRANSFER	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand concept of basic modes of heat transfer.
CO-2	Understand theory of conduction heat transfer**.**
CO-3	Understand theory of heat transfer in extended surfaces.
CO-4	Understand theory of convection heat transfer.
CO-5	Understand theory of heat transfer in boiling and condensation phase.
CO-6	Understand theory heat transfer through radiation process.

AGME-21604 A : Non Traditional Machining	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand the non-traditional machining process and need for it.
CO-2	Understand the constructional features and performance of USM, AJM, and WJM.
CO-3	Understand the constructional features and performance of ECM AND CHM
CO-4	Understand the constructional features and performance of EDM AND PAM
CO-5	Understand the constructional features and performance of LBM
CO-6	Understand the constructional features and performance of EBM.

AGME-21604 B : Non- Destructive Testing	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand the applications of Non Destructive Testing in Industry.
CO-2	Understand the practical applications of Radiographic.
CO-3	Understand the Magnetic particle inspection.
CO-4	Understand the principles electro analytical methods.
CO-5	Understand the theory of Ultrasonic Process.
CO-6	Understand the technique for measuring and visualizing.

AGME-21604 C : Cryogenic Technology	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand the application of cryogenic engineering.
CO-2	Understand the process used in cryogenic techniques.
CO-3	Understand the significance of heat transfers in cryogenic.
CO-4	Understand the insulation process.
CO-5	Understand the theory of temperature measurement.
CO-6	Understand the advance techniques used in Cryogenic.

AGME-21604 D : Power Plant Engineering **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the concept of power plant engineering.
CO-2	Understand the hydel power system.
CO-3	Understand the thermal power plant engineering.
CO-4	Understand the theory of gaseous power plant and its components.
CO-5	Understand the theory of nuclear study used in power plant and its effects
CO-6	Understand the advance energy convection system.

AGME-21605 Industrial Automation and Robotics (Skill Course-II) **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the need of Automation, its social impact and its various types.
CO-2	Understand the concept of Fluid power, working of cylinders and various valves.
CO-3	Understand the concept of Truth tables, Boolean algebra, Logic gates and Coanda Effect.
CO-4	Understand the various Electric and electronic controls used in Automation
CO-5	Understand the concept of various transfer devices and feeders.
CO-6	Understand the concept of Robotics, its programming and its Industrial applications.

AGME 21606 – Fluid Machinery Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand how to find work done of Francis turbine/Kaplan Turbine
CO-2	Understand about various parts of Pelton Turbine
CO-3	Understand the various characteristics of Centrifugal pump
CO-4	Understand the effect of vane shape and vane angle on the performance of centrifugal fan/Blower.
CO-5	Understand about the various turbines installed in the power station
CO-6	To make a mini project that demonstrates a concept, based on the content of AGME- 21606 (Fluid Machinery)

AGME 21606 – Heat Transfer Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Determine the thermal conductivity.
CO-2	Determine the coefficient of heat transfer.
CO-3	Understand the concept pool boiling.
CO-4	Find the Stefan Boltzmann's constant.
CO-5	Understand the surface extended by different boundary conditions.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME -21608 MS Office Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Understand the concept of MS office.
CO-2	Understand the various tools used in MS Word.
CO-3	Understand the Various tools used in MS Excel.
CO-4	Understand the various tools used in MS PowerPoint.
CO-5	Understand the various table formats in MS office
CO-6	To make effective project report.

7th Semester

AGME 21701: REFRIGERATION AND AIR-CONDITIONG **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Enhance the understanding of different types of refrigeration & their selection.
CO-2	Understand the concept of different refrigeration cycles, different types of refrigerants.
CO-3	Learn various refrigerants available and have knowledge of non-conventional refrigeration system.
CO-4	Knowledge to study the different conditions at different rates and alternate refrigeration system.

CO-5	Understand the air conditioning concept, psychometric process.
CO-6	Learn various refrigeration and air conditioning equipment and able to calculate refrigeration & air conditioning cooling/heating load.

AGME 21702: Mechanical Vibrations	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Knowledge of vibration analysis, different types of vibrations, Simple and harmonic motion.
CO-2	Compute the natural frequency of damped and undamped vibrations.
CO-3	Determination of natural frequency of two degree of freedom system
CO-4	Learn concept of vibration control and principles of various vibration absorbing methods and equipment.
CO-5	Determination of natural frequency of several degree of freedom system
CO-6	Understand the frequencies in practical components and continuous system after considering its natural frequency.

AGME 21703A : Modern System Design	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Describe the productivity improvement techniques.
CO-2	Develop skills to analyze work methods to identify inefficiencies and opportunities for improvement.
CO-3	Evaluate the impact of method study on work system performance using key performance indicators.
CO-4	Explain the principles, concept and significance of time study in work system design.
CO-5	Identify and categorize different types of allowances.
CO-6	Develop accurate work standards by integrating data from work sampling and performance rating techniques.

AGME 21703B : Project Management	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Describe the concept of project management.
CO-2	Identify potential risks that could impact the project.
CO-3	Develop skills in both quantitative and qualitative analysis techniques to evaluate decision options.
CO-4	Use techniques to optimize project schedules for time, cost and resource efficiency.
CO-5	Calculate EVM metrics and analyze project performance data to assess project health.
CO-6	Discuss how to analyze activities and paths in a GERT network.

AGME 21703C : Supply Chain Management	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Describe the concept of supply chain management.
CO-2	Develop skills to effectively communicate forecasting results and collaborate with other departments to align supply chain strategies.
CO-3	Create aggregate plans that align with organizational goals.
CO-4	Determine optimal inventory levels that balance holding costs, ordering cost and stockout cost.
CO-5	Develop skills to create efficient job shop schedules that minimize production time and optimize resource allocation.
CO-6	Design and optimize transportation networks to minimize costs, reduce transit times and improve service reliability.

AGME 21703D : Industrial Safety	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand role of Industrial Safety.
CO-2	Analyses and selection of different techniques to control hazard.
CO-3	About safety barrier and risk assessment.
CO-4	Apply the suitable safety process and its repair intensities.
CO-5	Identify the human error and its causes.
CO-6	Examine accident investigation and virtual reality.

AGME 21703E : Surface Engineering	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Describe the concept of surface engineering.

CO-2	Classify the different wear mechanisms.
CO-3	Explain the significance of fractography.
CO-4	Analyse the surface modification techinques.
CO-5	Assess the life cycle of the product.
CO-6	Discuss the mitigation methods of surface degradation in Surface Engineering.

AGME 21703F : Sustainable Engineering **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Describe the concept of sustainability.
CO-2	Explain different practices to move industries towards sustainability.
CO-3	Recognize the various challenges for sustainable service system design.
CO-4	Discuss the environmental impact assessment in real time problems.
CO-5	Differentiate between conventional and non-conventional forms of energy.
CO-6	Discuss various methods to implement green technology.

AGOE 21703: Product Design and Development **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Describe the product design and role of designer in product design.
CO-2	Explain the basic principle of value engineering in product design.
CO-3	Discuss the various types of fasteners and joining details.
CO-4	Classify various design tools and understand the concept of ergonomics in product design.
CO-5	Explain the design guidelines, manufacturing and economics aspects.
CO-6	Develop proficiency in 3D printing techniques and identify real-world applications of 3D printing.

AGOE 21704: Material Management **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Describe the concept of material management.
CO-2	Explain the basic techniques of material planning.
CO-3	Identify and analyze the key factors that influence consumer purchase decisions.
CO-4	Provide students with a comprehensive understanding of fundamental principles and concepts of inventory control and management.
CO-5	Familiarize students with inventory management tools that aid in monitoring of physical inventory.
CO-6	Design efficient storage layouts to maximize space utilization and improve workflow in warehouses.

AGME 21704 : Project **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Identify the current issues related to mechanical engineering local/ regional/ national/global.
CO-2	Analyse the existing research, identify the gray areas, and articulates specific objectives.
CO-3	Create time bound project execution plan.
CO-4	Organise and analyse the research data.
CO-5	Articulate specific research findings after analysing the results.
CO-6	Create/prepare a research document in the form of a report.

AGME 21705 : Refrigeration and Air Conditioning Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	To understand the vapour compression refrigeration system.
CO-2	To know the working of domestic refrigerator.
CO-3	To know the working of Electrolux refrigerator.
CO-4	To learn about the working of water cooler.
CO-5	To learn about the performance and working of window air conditioner.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

AGME 21706 : Mechanical Vibration Lab **Course Outcomes:** After studying the course, students will be able to:	
CO-1	Determine the oscillations of rotating pendulum.
CO-2	Understand the concept of compound pendulum.
CO-3	Examine the need vibrations absorber.

CO-4	Calculate undamped free vibrations of single degree of freedom.
CO-5	Analyses of forced vibrations under multi degree of freedom.
CO-6	Exhibit his/her creativity and conceptual understanding of the subject.

8th Semester

AGME 21801: Semester Training **Course Outcomes:** After going through this training, students will be able to:	
CO-1	Communicate effectively with peers.
CO-2	Differentiate the layout of various industrial shops.
CO-3	Participate constructively and ethically in the industrial process.
CO-4	Describe detailed specifications of machinery/equipment/tool/software.
CO-5	Analyse the scope of training received towards his/her career goals.
CO-6	Write the report on an industrial project.

Department of Fashion Design

Semester-1st

BFD24101- Elements of Textiles After study the course, students will be able to:	
CO1	Knowledge about overview of textile industry & SWOT industry.
CO2	Understand about different fiber properties.
CO3	Understand about manmade fibers properties & yarn classification.
CO4	Knowledge about yarn spinning and yarn numbering system.
CO5	Understand about different types of weaving & non-woven fabrics.
CO6	Knowledge about common fabric names & care labeling.

BFD24102- Elements of Fashion After study the course, students will be able to:	
CO1	Knowledge about overview of elements of Fashion.
CO2	Understand about Psychological association of color.
CO3	Understand about Fabric, texture, lines, necklines and variations of skirts.
CO4	Knowledge about pleats, tucks, hemlines and Fashion cycle.
CO5	Understand about fashion Forecasting, international designs and Brand Analysis.
CO6	Knowledge about Fashion Criticism, Trimmings and accessories.

BFD24103- Elements of Design After study the course, students will be able to:	
CO1	To determine the knowledge of shapes and lines.
CO2	To determine the textures like spontaneous, Decorative, Mechanical etc.
CO3	Draw the naturalized, stylized and geometrical motifs.
CO4	To determine the color.
CO5	To determine the theme board, collage and motifs development based on theme.
CO6	To determine the screen printing, block printing, tie & dye, stencil printing etc.

BFD24104A- Fashion Art-I After study the course, students will be able to:	
CO1	Understand about basic block, flesh figure.
CO2	Students will get learn about difference between normal and fashion figure and human figure using geometrical shape.
CO3	Learn about moveable ball joint figure and garment draping with the help of different art media.
CO4	Student will get knowledge about figure analysis photography and front, 3/4 pose.
CO5	Understand the structure of faces and hairstyle and fashion hands.
CO6	Students will get knowledge about different fashion accessories.

BFD24104B –Fashion Model Drawing-I After study the course, students will be able to:	
CO1	Students will get knowledge about stick figure movements.
CO2	Familiarize using grid proportion.
CO3	Understanding knowledge about gesture & scribbling.
CO4	Student will get knowledge through sports person magazine or photograph.
CO5	Learn about balance movement & body moves.
CO6	Students will get knowledge about 3 dimensional soft rendering techniques.

BFD24104C- Jewellery Design	
After study the course, students will be able to:	
CO1	Students will get knowledge about jewellery designing.
CO2	Students will get knowledge about Drawing & Rendering Techniques.
CO3	Students will get knowledge about different jewellery techniques.
CO4	Students will learn about how to make necklace.
CO5	Students will get knowledge about men's accessories.
CO6	Knowledge about teenagers fashion ornaments.

BFD24104D-Basics of Computer	
After study the course, students will be able to:	
CO1	Students will get knowledge about word processing package and MS-Office.
CO2	Learn about designing technique and creative reports letter and Brochures.
CO3	Familiarize spread sheet package and MS- Excel.
CO4	Students will get knowledge about balance sheet and statistical chart.
CO5	Students will learn about effective presentation with audio and video effects.
CO6	Understanding graphic effective pictures, flow chart block diagrams.

BFD24104E-Pattern Making	
After study the course, students will be able to:	
CO1	Familiarize with sloopers for skirts and tools of pattern making
CO2	Understand the introduction to pattern making.
CO3	Understand body measurement, dartless bodice block and basic block.
CO4	Learn bodice block with dart and test fit the garment
CO5	Understand the manipulation of darts.
CO6	Perform gathers and stylized darts.

BFD24105-Visual Merchandising & Retailing	
After study the course, students will be able to:	
CO1	Knowledge about overview of retail management.
CO2	Understand about plan to retail merchandising.
CO3	Understand about organization of retailing.
CO4	Knowledge about price in retailing.
CO5	Understand about visual merchandising.
CO6	Knowledge about sustainability in retail.

BFD24106-Garment Construction	
After study the course, students will be able to:	
CO1	Knowledge about introduction to garment construction.
CO2	Get knowledge about sewing machine.
CO3	Learn about making hand stitching.
CO4	Gain practical knowledge about basic seams.
CO5	Get knowledge will be given basic techniques tucks and pleats.
CO6	To determine knowledge about gathers, Sherring and ruffles.

BFD24107A-Yarn Craft	
After study the course, students will be able to:	
CO1	Understand the basic technique of Macramé, knotting and braiding.
CO2	Familiarized with the twinning, tasselling, interlacing and knitting.
CO3	Gain the knowledge about crochet, tatting, carpet-making & tufting.
CO4	Explore about types of yarns, vegetable fibers, threads & ropes.
CO5	To understand the ribbons, braids, trimming, paper wires etc.

CO6	Familiarized the making of the garment and accessories.

BFD24107E-Fabric Surface Techniques	
After study the course, students will be able to:	
CO1	Students will be knowledge about current trends with market.
CO2	Students will develop understand machine and hand embroideries.
CO3	Students will able to different types of printing techniques.
CO4	Students will familiarize with batik/tie and dye printing.
CO5	Knowledge will be given to students regarding patch work.
CO6	Students will give aware with shibori art.

BFD24107B-Craft Documentation	
After study the course, students will be able to:	
CO1	Understand the introduction of craft.
CO2	Learn about craft document content.
CO3	Gain knowledge about layouts and techniques.
CO4	Learn about photographs and illustration.
CO5	Understand the knowledge of survey for collection.
CO6	Exhibit a craft design.

BFD24107C-Hand Printing	
After study the course, students will be able to:	
CO1	The students will be enabled to learn basic water color technique.
CO2	Learn about different special effect techniques or texture.
CO3	Understand the different types of hand painting, stencils, brush strokes or blending technique.
CO4	Student will be able to development of floral motifs on fabric.
CO5	Learn about abstract painting.
CO6	Student will make any two articles according to their choice.

BFD24107D-Embroideries	
After study the course, students will be able to:	
CO1	To determine the knowledge about embroidery of Punjab.
CO2	To determine embroidery of Karnataka.
CO3	To determine the Kantha of Bengal.
CO4	To determine Gujarat culture.
CO5	Draw the designing of Rajasthan.
CO6	To determine the knowledge about Kashmir.

AEC24101-Foundation Course-English-I	
After study the course, students will be able to:	
CO1	Understand the Need and Purpose of Communication.
CO2	Recognize the different signals of nonverbal Communication.
CO3	Enhance and practice advance vocabulary in day-to-day life.
CO4	Understand the word formation in different contexts.
CO5	Develop proficiency in reading skills.
CO6	Activate and reinforce the Writing and critical thinking skills.

VAC24101-Human Values	
After study the course, students will be able to:	
CO1	Understand the Need and Process of Value Education.
CO2	Identify and Analyse Basic Human Aspirations.
CO3	Analyse the Needs and Activities of Self and Body.

CO4	Harmony in the Self and Body.
CO5	Identify and Understand the Comprehensive Human Goal.
CO6	Understand Existence as Co-existence at all levels.

Semester-2nd

BSFD201-18-History of Indian Costumes	
After study the course, students will be able to:	
CO-1	Students will get knowledge about regional costumes along with its origin.
CO-2	Students will develop understanding regarding Vedic period including its pre and post Vedic time and Mauryan & Sunga period.
CO-3	Students will be able to differentiate between Satvahana and Kushan period.
CO-4	Students will familiarize with Gupta period and Natya Shastra.
CO-5	Knowledge will be given to students regarding costumes of Mughal, British eras.
CO-6	Students will get aware with pre and post- independence era.

BSFD202-18-Indian Art Appreciation	
After study the course, students will be able to:	
CO-1	Students will get knowledge about Indian Art and Architecture.
CO-2	Students will be able to differentiate between the Mauryan art and Ajanta Ellora.
CO-3	Students will get knowledge about different types of temples.
CO-4	Knowledge will be given to students regarding Mughal and Rajasthani miniatures.
CO-5	Get knowledge about pahari miniature and humayun's tomb.
CO-6	Students will be understood about Taj Mahal and Buland Darwaza.

BSFD203-18-Traditional Indian Textiles and Embroideries	
After study the course, students will be able to:	
CO-1	Students will get hand on hand knowledge about various embroideries.
CO-2	Students will understand the origin types and production techniques of carpets and sarees.
CO-3	Students will be able to learn about different types of embroideries.
CO-4	Students will be able to learn about resist dyes.
CO-5	Students will be able to perform various printing techniques.
CO-6	Students will get aware different types of painting.

BSFD204-18-Elements of Design	
After study the course, students will be able to:	
CO-1	Understand introduction to color.
CO-2	Understand theme board of the theme.
CO-3	Learn about Design process.
CO-4	Understand the color pellets.
CO-5	Learn about visual merchandising.
CO-6	Understand the art forms.

BSFD205-18-Fashion Model Drawing-II	
After study the course, students will be able to:	
CO-1	Examine about illustration of designer dresses.
CO-2	Familiarized with different color.
CO-3	Understand the human bones and structure.
CO-4	Understand the details about texture, color and style.
CO-5	Understand the drapability of garments.
CO-6	Perform the inspiration theme of given project.

BSFD206-18/ Fashion Art-II	
After study the course, students will be able to:	
CO-1	Gain knowledge about drawing necklines, collars, sleeves etc.
CO-2	Learn about different style line of croquis.
CO-3	Get knowledge about draping different kind of garments on croquis.
CO-4	Creative mediums will be introduces in styling illustration.
CO-5	Gain knowledge about rendering the textures on paper.
CO-6	Textured outfits presentation on croquis.

BSFD207-18- Pattern Making	
After study the course, students will be able to:	
CO-1	Familiarize with sloopers for skirts and tools of pattern making
CO-2	Understand the introduction to pattern making.
CO-3	Understand body measurement, dartless bodice block and basic block.
CO-4	Learn bodice block with dart and test fit the garment
CO-5	Understand the manipulation of darts.
CO-6	Perform gathers and stylized darts.

BSFD208-18- Computer Application	
After study the course, students will be able to:	
CO-1	Students will get to learn about adobe photoshop how to opening new files, different tools in photoshop.
CO-2	Students will learn how to start with layers and painting commands, creating, selecting, deleting layers and introduce to blending modes.
CO-3	Understanding in photo draping in adobe photo, photo draping a garment with blending modes.
CO-4	Learn about in photoshop using the brush tool, working with color, swatches, creating and using gradients
CO-5	Knowledge about different type of tools, color correction, The clone stamp tool etc.
CO-6	Students will knowledge about pen tool, color setting, color palette getting started with photoshop filters etc.

BSFD209-18-Garment Construction-II	
After study the course, students will be able to:	
CO-1	Students get knowledge about types of necklines
CO-2	Students will able to know variations of collars.
CO-3	Knowledge about different sleeves.
CO-4	Get know about pockets.
CO-5	Learn about the zip faster.
CO-6	Knowledge about the attaching of buttons.

BSFD210-18-Fashion Photography	
After study the course, students will be able to:	
CO-1	Familiarize with type of camera, its functioning and lenses.
CO-2	Understand the photography techniques and methods of storage.
CO-3	Learn about rules for different angles of shots and framing in photography.
CO-4	Understand the functioning of camera with effects of lightning techniques.
CO-5	Understand the accessories of camera.
CO-6	Exhibit his/her creativity and conceptual understanding the shots for magazine.

EVS102-18-Environmental Science After study the course, students will be able to:	
CO-1	Attribute the knowledge of multidisciplinary nature of environmental studies.
CO-2	Identify the role of natural resources on the basis of their utilization and recognize over exploitation of natural resources.
CO-3	Evaluate the interlink between biotic and a biotic components of ecosystem
CO-4	Differentiate the terms of biodiversity and understanding the role of biodiversity in society.
CO-5	Apply the knowledge top understand the problems and remedies of environmental studies.
CO-6	Relate the importance of environmental sciences for sustainable development of the society

Semester-3rd

BSFD301-18-Dyeing and Printing Techniques After study the course, students will be able to:	
CO-1	Get knowledge about Grey fabric which includes Preparatory process of cotton
CO-2	Differentiate color, dyes, and pigments.
CO-3	Knowledge about classification of dyes.
CO-4	Understand about application and stages of dyeing.
CO-5	Familiarize with dyeing of blends.
CO-6	Get knowledge about methods and styles of printing including environmental concerns.

BSFD302-18-History of Western Costumes After study the course, students will be able to:	
CO-1	Students will get a deep understanding on Egyptian and Assyrain clothing.
CO-2	Students will get knowledge about of Babylonia, Greek period and Etruskan period clothing styles.
CO-3	Students will be able to differentiate between clothing styles of Roman and Byzantine period.
CO-4	Students will familiarize with century in different 13th &14th century.
CO-5	Knowledge will be given to the students regarding 15th, 16th & 17th century.
CO-6	Students will get aware with 18th & 19th century.

BSFD303-18-World Art Appreciation After study the course, students will be able to:	
CO-1	Understand the introduction about pre historic periods and their art.
CO-2	Knowledge about the Renaissance, Mannerism & Baroque masters.
CO-3	Learn about Realism, Impressionism & post Impressionism.
CO-4	Understand the detail of Cubism, Fauvism and Surrealism.
CO-5	Presentations on different topics.
CO-6	To develop a various designs of mood board, color board, concept board and other collection.

BSFD304-18-Pattern Making+ Draping After study the course, students will be able to:	
CO-1	To determine different types of collars.
CO-2	To determine sleeves variations.
CO-3	To determine basic principles of draping.
CO-4	To determine variations of bodice block.
CO-5	To determine the stylized lines in princess shoulder, armhole and plum line.

CO-6	To determine the knowledge about advance techniques of cowls and skirts, yokes and collars.

BSFD305-18-Design Process	
After study the course, students will be able to:	
CO-1	Know about the Design Process or overview of creativity.
CO-2	Understand about theme board.
CO-3	Knowledge about skills like dye & embroidery.
CO-4	Students will be aware about fabric.
CO-5	Students will be familizing final garment.
CO-6	Knowledge about source of inspiration.

BFSD306-18-CAD-I	
After study the course, students will be able to:	
CO-1	To determine the coral draw.
CO-2	To determine about the drawing and shaping tools.
CO-3	To determine block figure with the help of tools.
CO-4	To determine about the text effects.
CO-5	To determine the working with color, color pallets and outlines.
CO-6	To determine the sizing objects, rotating and text objects.

BSFD307-18-Garment Making	
After study the course, students will be able to:	
CO-1	To determine the introduction about kalidar kurta.
CO-2	To determine about churidar.
CO-3	To determine salwar process.
CO-4	To determine process of straight Kameez.
CO-5	To determine A line kurta.
CO-6	To determine the saree blouse.

BSFD308-18-Yarn Craft	
After study the course, students will be able to:	
CO-1	Understand the basic technique of Macramé, knotting and braiding.
CO-2	Familized with the twinning, tasselling, interlacing and knitting.
CO-3	Gain the knowledge about crochet, tatting, carpet-making & tufting.
CO-4	Explore about types of yarns, vegetable fibers, threads & ropes.
CO-5	To understand the ribbons, braids, trimming, paper wires etc.
CO-6	Familized the making of the garment and accessories.

BSFD309-18-Fashion Art-III	
After study the course, students will be able to:	
CO-1	Students will be learning about specification sheet of basic garment.
CO-2	To determine about mood board and creative design fashion Industry.
CO-3	Learn about how to developing a collection.
CO-4	To determine demographics and psychographics of customer profile.
CO-5	Student will be learning about Interpretation of the forecast.
CO-6	To determine about fashion illustration to specs.

BSFD310-18-Craft Documentation	
After study the course, students will be able to:	
CO-1	Understand the introduction of craft.

CO-2	Learn about craft document content.
CO-3	Gain knowledge about layouts and techniques.
CO-4	Learn about photographs and illustration.
CO-5	Understand the knowledge of survey for collection.
CO-6	Exhibit a craft design.

BSFD311-18-Hand Printing and Painting Techniques After study the course, students will be able to:	
CO-1	Understand the basic water color knowledge
CO-2	Learn about how to transfer design on fabric
CO-3	Draw floral and abstract motifs
CO-4	Understand the detail of batik printing
CO-5	Learn about tie & die printing
CO-6	Understand about two different styles

BSFD312-18-Embroideries After study the course, students will be able to:	
CO-1	To determine the knowledge about embroidery of Punjab.
CO-2	To determine embroidery of Karnataka.
CO-3	To determine the Kantha of Bengal.
CO-4	To determine Gujarat culture.
CO-5	Draw the designing of Rajasthan.
CO-6	To determine the knowledge about Kashmir.

Semester-4th

BSFD401-18-Fundamental of Apparel Production After study the course, students will be able to:	
CO-1	Students will get knowledge about ready to wear industrial fundamental structure of production process.
CO-2	Students will develop understanding fabric and use, various method of spreading fabric.
CO-3	Familiarize with patterns and cutting room.
CO-4	Student will familiarize type of cutting machine.
CO-5	Knowledge will be given to students regarding machine.
CO-6	Students will get aware with sewing, stitch types and application.

BSFD402-18-Survey of Apparel Merchandising After study the course, students will be able to:	
CO-1	Students will get knowledge about fashion marketing.
CO-2	Students will get knowledge about market research, advertising.
CO-3	Get knowledge about merchandising.
CO-4	Students will be understood about apparel business.
CO-5	Knowledge will be given to students about Indian garment industry.
CO-6	Get knowledge about forecasting trends and sizing standards

BSFD403-18-Fabric Research & Sourcing After study the course, students will be able to:	
CO-1	Students will be knowledge about Fabric count and Fabric Identification.
CO-2	Students will understand different sectors of Industry.
CO-3	Students will able to different types of sourcing of fabrics.
CO-4	Students will familiarize with processing of fabric with different texture and color.

CO-5	Knowledge will be given to students regarding National, International fabrics and NGO's.
CO-6	Students will give awareness lining and interlinings, green design and fabric design.

BSFD404-18-CAD-II	
After studying the course, students will be able to:	
CO1	Students will get knowledge about software
CO2	Students will get knowledge about introduction to filling & color adjustments
CO3	Familiarized with illustration drawing & different tools.
CO4	Understand about type formatting and type tools
CO5	Understand about gradient tools
CO6	Understand about printing tools & different effects

BSFD405-18-Pattern making+ Grading	
After study the course, students will be able to:	
CO-1	Students get knowledge about different types of skirts.
CO-2	Students get knowledge about patterns of waist coat.
CO-3	Understand about different grading options.
CO-4	Learn about bodice block.
CO-5	Students get knowledge about different stylized Collars, Sleeves and jackets.
CO-6	Understand about Uneven Grade and Style Grade.

BSFD406-18-Fashion Art-IV	
After study the course, students will be able to:	
CO-1	Understanding the introduction about casual wear for male
CO-2	Familiarized with the designing of formal wear
CO-3	Learn about illustration process of children for playwear
CO-4	Understand about formal wear designing for children
CO-5	Gain knowledge about design development sheet
CO-6	Learn about textile prints on women wear

BSFD407-18-Advance Draping	
After study the course, students will be able to:	
CO-1	Students will able to know about bodice variation.
CO-2	Students able to understand types of style lines.
CO-3	Get knowledge about cowl neck and armhole.
CO-4	Students will know about skirt cowl side seam.
CO-5	Students able to learn yokes.
CO-6	Students understand the types of collar.

BSFD408-18-Garment Construction+ Fabric Studies	
After study the course, students will be able to:	
CO-1	Students will able to know about drafting & cutting of skirt.
CO-2	Students able to understand stitching of skirt.
CO-3	Get knowledge about shirt drafting and cutting.
CO-4	Students will know about stitching of shirt.
CO-5	Students able to learn marking, spreading cutting of trouser.
CO-6	Students understand the different types of Trouser stitching.

BSFD409-18-Fabric Surface Technique	
After study the course, students will be able to:	
CO-1	Students will be knowledge about current trends with market.
CO-2	Students will develop understand machine and hand embroideries.
CO-3	Students will able to different types of printing techniques.
CO-4	Students will familiarize with batik/tie and dye printing.
CO-5	Knowledge will be given to students regarding patch work.
CO-6	Students will give aware with shibori art.

Semester-5th

BSFD501-18-Men's Wear	
After study the course, students will be able to:	
CO-1	Knowledge about Mood board and color board.
CO-2	Get Knowledge about making formal wear.
CO-3	Learn about making casual wear.
CO-4	Get practical Knowledge about sportswear.
CO-5	Get knowledge will be given by pattern making.
CO-6	Knowledge about specification sheets.

BSFD502-18-Knit wear	
After study the course, students will be able to:	
CO-1	Students will get knowledge about cotton & woven Knits.
CO-2	Get knowledge about pattern making.
CO-3	Learn about design project.
CO-4	Gain practical knowledge different types of yarns.
CO-5	Get Knowledge will be given to the students' different types of knitting samples.
CO-6	Gain knowledge about storyboard, mood board and color board.

BSFD503-18-Kids Wear	
After study the course, students will be able to:	
CO-1	Understand about the measurement of kids wear.
CO-2	Get to know about surface ornamentation techniques.
CO-3	Learn about how to make formal/Casual dresses.
CO-4	Understood the storyboard or mood board.
CO-5	Learn about the Designs of development sheets.
CO-6	Knowledge about the specification sheets.

BSFD504-18-Advanced Computer Aided Design	
After study the course, students will be able to:	
CO-1	Knowledge about software and patterns.
CO-2	Get Knowledge about basic bodice block.
CO-3	Learn about shirt\jacket patterns.
CO-4	Gain practical Knowledge about grading of skirt, trouser.
CO-5	Get Knowledge of laying planning.
CO-6	Knowledge about marking bodice.

BSFD505-18-Creative Pattern Making	
After study the course, students will be able to:	
CO-1	To determine the introduction of seamless patterns.
CO-2	To determine about content of dart control.
CO-3	To determine the opening an old jacket.

CO-4	To determine about darts and seams.
CO-5	To determine the type of bodice blocks and skirts.
CO-6	To exhibit about sleeves and creating 2d/3d garments.

BSFD506-18-Trend Forecast After study the course, students will be able to:	
CO-1	Introduction to trend forecasting.
CO-2	Knowledge about the various tools, sources and agencies.
CO-3	Knowledge about the trend forecast agencies & its interpretation.
CO-4	Students will be aware about visual presentation.
CO-5	Students will be familiarizing past, SS20& SS21ramp shows.
CO-6	Knowledge about street fashion and market research.

BSFD507-18-Fashion Research and Design Documentation After study the course, students will be able to:	
CO-1	Introduction to fashion research
CO-2	Knowledge about the overview of the industries
CO-3	Knowledge about the brands
CO-4	Students will be aware about channels
CO-5	Students will be familiarizing global trends
CO-6	Knowledge about export scenario

Semester-6th

BSFD601-18-Art Portfolio After study the course, students will be able to:	
CO-1	Students get knowledge about different uniform format
CO-2	Students get knowledge about bio data profile
CO-3	Learn about different types of theme
CO-4	Understand about different stylized poses and illustration
CO-5	Students get knowledge about craft techniques
CO-6	Students get knowledge about graphic and creative work

BSFD602-18-Intellectual Property Rights After study the course, students will be able to:	
CO-1	Students will get knowledge about Intellectual Property Rights, Property Law and Patent Law.
CO-2	Students will able to learn drafting of patent specification, copyright law.
CO-3	Students will get knowledge to trade mark and design right.
CO-4	Knowledge about International background of Intellectual property and copyright objectives.
CO-5	Students will get aware about patent objectives, Trade mark objectives.
CO-6	Students will learn about design objectives, assignment, licensing benefits and important clauses.

BSFD603-18-Design Collection After study the course, students will be able to:	
CO-1	Students will get knowledge about design collection.
CO-2	Students will develop understanding regarding theme board and color board.
CO-3	Students will able to different types of doodling.
CO-4	Students will familiarize with rendering.
CO-5	Knowledge will be given to students regarding measurements.
CO-6	Students will give aware with muslin fits.

Department of Bachelors of Computer Applications (BCA)

	POs	Graduate Attributes
PO1	An ability to apply knowledge of basic mathematics, science and domain knowledge to solve the computational problems.	Basic knowledge
PO2	An ability to apply discipline –specific knowledge to solve core and/or applied computational problems.	Discipline knowledge
PO3	An ability to plan and perform experiments and practices and to use the results to solve computational problems.	Experiments and practice
PO4	Apply appropriate technologies and tools with an understanding of limitations.	Tools Usage
PO5	Demonstrate knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional practice.	Profession and society
PO6	Understand the impact of the computational solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.	Environment and sustainability
PO7	Apply ethical principles and commit to professional ethics and responsibilities and norms of the professional practice.	Ethics
PO8	Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.	Individual and team work
PO9	An ability to communicate effectively	Communication
PO10	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.	Life-long learning

	Programme Specific Outcomes (PSOs)
PSO 1	Develop programming skills, networking skills, learn applications, packages, programming languages and modern techniques of IT
PSO 2	Impart knowledge required for planning, designing and building Complex Application Software Systems
PSO 3	Explore technical comprehension in varied areas of Computer Applications and experience a conducive environment in cultivating skills for thriving career and higher studies.

1st Semester

Course Code: UGCA1901
Course Name: Mathematics

Course Outcomes: Students will be able to:

CO#	Course outcomes
CO1	Define various mathematical notions.
CO2	Explain different terms used in basic mathematics.
CO3	Illustrate various operations and formulas used to solve mathematical problems.
CO4	Organize data in various models.
CO5	Prepare solutions for various real life problems.
CO6	Understand that the ratio of two successive terms of a geometric sequence is constant

Course Code: UGCA1902
Course Name: Fundamentals of Computer and IT

Course Outcomes: Students will be able to:

CO#	Course outcomes
CO1	Identify of input and output devices of Computers
CO2	Utilize the functioning of various components of computer system.
CO3	Explain the different levels of languages, Operating system and features of Word processing
CO4	Prepare documents using Spreadsheet and Presentation Graphics Software's.
CO5	Illustrate the various e-payment systems.
CO6	Highlight the various computing techniques

Course Code: UGCA1903
Course Name: Problem Solving using C

Course Outcomes: Students will be able to:

CO#	Course outcomes
CO1	Design algorithms and choose the right data type and statementsfor programs.
CO2	Learn the implementation of simple 'C' program, operators and Console I/O function.
CO3	Learning concepts of control statements by writing programscontrol the sequence of the program and give logical outputs.
CO4	Understand the declaration and implementation of arrays and functions.
CO5	Learn the structures declaration, initialization and implementation.
CO6	Understand the file operations, file pointers and importance of pre-processor directives

Course Code: UGCA1904
Course Name: Workshop on Desktop Publishing

Course Outcomes: Students will be able to:

CO#	Course outcomes
CO1	Outline the characteristics of desktop publishing tools.
CO2	Identify the right components for designing.
CO3	Apply knowledge in designing various documents.
CO4	Prepare different types of graphic related documents.
CO5	Express the messages through graphical content
CO6	Publish different types of content using various techniques.

Course Code: UGCA1905
Course Name: Problem Solving using C Laboratory

Course Outcomes: Students will be able to:

CO#	Course outcomes
CO1	Understand basic Structure of the c programming, declaration and usage of variable.
CO2	Experiment with different input values.
CO3	Distinguish between various control statements and data types.
CO4	Learning concepts of pointers by Write C programs using pointers to access arrays, strings and functions.
CO5	Learn structures and unions through which derived data types can be formed.
CO6	Understand and use file handling in the C programming language

Course Code: UGCA1906
Course Name: Fundamentals of Computer and IT Laboratory

Course Outcomes: Students will be able to:

CO#	Course outcomes
CO1	Highlight the features of word processing,
CO2	Prepare documents and apply formatting using word.
CO3	MS-Excel as a tool for organizing data.
CO4	Use of PowerPoint as a graphic tool.
CO5	Apply Various operations using PowerPoint.
CO6	Understand the concept of Internet and its Applications.

Course Code: BTHU103-18
Course Name: English

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Understand the fundamentals and tools of communication.
CO2	Develop vital communication skills which are integral to their personal, social and professional communication.
CO3	Generate the specific and comprehensive understanding of difficult texts.
CO4	Analyze and interpret the text and enhance their reading skills.
CO5	Understand the format of Report and Letter Writing.
CO6	Generate proficiency in writing skills.

Course Code: BTHU104-18
Course Name: English Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Evaluate their listening skills effectively.
CO2	Understand the fundamentals and tools of communication.
CO3	Develop positive attitude and enhance their speaking skills.
CO4	Prepare for their forthcoming interviews.
CO5	Develop confidence and become independent users of English Language.
CO6	Generate creative ideas confidently.

Course Code: HVPE101-18
Course Name: Human Values, De-addiction and Traffic Rules

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Understand need and process of value education.
CO2	Identify and analyse basic human aspirations .
CO3	Understand co-existence of self and body.
CO4	Understand and analyse harmony in body and family
CO5	Identify comprehensive human goal and existence as co-existence.
CO6	Implement Right Understanding for holistic development.

2nd Semester

Course Code: UGCA1907
Course Name: Fundamentals of Statistics

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Highlight the need of studying & analyzing numbers.
CO2	Identify visualization tools for representing data.
CO3	Describe various statistical formulas.
CO4	Compute various statistical measures.
CO5	Calculate range, inter-quartile range, and standard deviation
CO6	Calculate the variation and deviation of statistical data.

Course Code: UGCA1908
Course Name: Computer System Architecture

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Introduction of basics of digital circuits and logic gates.
CO2	Knowledge of boolean expression minimization with boolean algebra and k - map techniques
CO3	To be able to design combinational circuits.
CO4	Understanding the working of sequential circuits such as various types of flip - flops.
CO5	Identify the various internal and peripheral components of computer system.
CO6	To understand register transfer, micro - operations and common bus system in computer system

Course Code: UGCA1909
Course Name: Object Oriented Programming using C++

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Outline the role of programming for solving real world problems.
CO2	Able to Understand and Apply the concepts of Classes &Objects.
CO3	Understand dynamic memory management techniques usingconstructors and destructors.
CO4	To learn how containment and inheritance promote code reuse in C++.
CO5	To learn how to overload functions and operators in C++.
CO6	Understand polymorphism, virtual functions and I/O statements.

Course Code: UGCA1910
Course Name: Object Oriented Programming using C++ Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Design the classes.
CO2	Illustrate the concept of memory representation for objects
CO3	Demonstrate the significance of constructors and destructor.
CO4	Implement function and operator overloading using C++.
CO5	Select the right data types to represent class properties.
CO6	Implement file handling in C++

Course Code: UGCA1911
Course Name: Fundamentals of Statistics Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Sort data to easily identify groups or trends.
CO2	Create Frequency table and Graphs for data representation.
CO3	Apply various statistical operations using statistical tool like excel.
CO4	Compute various statistical measures using statistical tool like excel.
CO5	Analyse real life data using statistical tool
CO6	Prepare data in different formats and styles

Course Code: UGCA1912
Course Name: Computer System Architecture Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Introduction of basics of various logic gates and its verification.
CO2	Verification of all logic gates implementation using universal gates.
CO3	To be able to design adder and subtractor combinational circuits.
CO4	Able to design encoder and decoder combinational circuits.

CO5	Implementation of multiplexer and demultiplexer combinational circuits.
CO6	Able to implement various types of sequential circuits.

Course Code: EVS102-18
Course Name: Environmental Studies

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Attribute the knowledge of multidisciplinary nature of environmental studies.
CO2	Identify the role of natural resource on the basis of their utilization and recognize overexploitation of natural resources.
CO3	Evaluate the interlink between biotic and abiotic components of ecosystem.
CO4	Differentiate the terms of biodiversity and understanding the role of biodiversity in society.
CO5	Apply the knowledge to understand the problems and remedies of environmental sciences.
CO6	Relate the importance of environment sciences for sustainable development of the society.

3rd Semester

Course Code: UGCA1913
Course Name: Computer Networks

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Identify Hardware and software components for designing network.
CO2	Define different network technologies and their application.
CO3	Describe the role of network reference models.
CO4	Describe the different services that data link layer offer to network layer.
CO5	Explain the different transport layer functions.
CO6	Identify different applications in presentation layer and application layer.

Course Code: UGCA1914
Course Name: Programming in Python

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Compare Python with other programming languages.
CO2	Explain environment, data types, operators used in Python.
CO3	Outline the use of control structures and numerous native data types with their methods.
CO4	Knowledge to learn how to write user define function and modules and packages.
CO5	Illustrate files and exception handling methods.
CO6	Write solutions for Object Oriented Programming Concepts.

Course Code: UGCA1915

Course Name: Data Structures

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Differentiate between various types of data structure.
CO2	Apply appropriate constructs of Programming language, coding standards for application development.
CO3	Select appropriate data structures for problem solving and programming
CO4	Illustrate the outcome of various operations on data structures.
CO5	Illustrate concept of Graphs, Directed Graph & Weighted Graph.
CO6	Identify appropriate searching and/or sorting techniques for wide range of problems and data types.

Course Code: UGCA1916
Course Name: Computer Networks Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Familiarization with networking components and devices and implement resource sharing
CO2	Implement network configuration settings for an operating system
CO3	Prepare different types of cables for networking.
CO4	Design network model using network simulation tool
CO5	Implement various setting on FTP, Proxy and other servers.
CO6	Implement various troubleshooting commands

Course Code: UGCA1917
Course Name: Programming in Python Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Outline various programming constructs with data types of Python.
CO2	Outline control structures programming constructs of Python.
CO3	Implement different data structures.
CO4	Implement modules and functions.
CO5	Illustrate concept of object oriented programming.
CO6	Implement file handling.

Course Code: UGCA1918
Course Name: Data Structures Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Implement Dynamic memory allocation.
CO2	Create different data structures in C/ C++
CO3	Implement various operations of all data structures
CO4	Illustrate the outcome of various operations with the help of examples.
CO5	Write programs to implement various types of searching and sorting algorithms

CO6	Illustrate the outcome of Graph Traversing with help of examples.

Course Code: UGCA1919
Course Name: PC Assembly & Troubleshooting

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Identify various components of computer systems.
CO2	Differentiate between types of processors required fordifferent computer systems.
CO3	Explain the steps to install, connect and configure various peripheral devices
CO4	Execute the troubleshooting issues in Computer Systems
CO5	Explain how resources can be shared over network
CO6	Identify various components of mothboard

Course Code: UGCA1920
Course Name: PC Assembly & Troubleshooting Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Identify key component of computer system while assembling a system.
CO2	Implement installation and configuration of computer system
CO3	Perform installation, configuration and sharing of peripheral devices. Printers, Webcams, Scanners
CO4	Solve troubleshooting issues in Computer Systems
CO5	Execute dual booting.
CO6	Installation and configuration of Digital Camera, USB Wi-fi, USB BT, USB Storages, Projectors

4th Semester

Course Code: UGCA1921
Course Name: Software Engineering

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Highlight the need of software engineering
CO2	Outline the phases and activities involved in the conventional software life cycle models
CO3	Design documents for various phases of software life cycle.
CO4	Compute the complexity of the software based on multiple metrics.
CO5	Identify the tools needed for different types of documents required in software testing.
CO6	Identify the tools needed for different types of documents required in software metrics.

Course Code: UGCA1922
Course Name: Database Management Systems

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Define the basic concepts of DBMS.

CO2	Design SQL queries.
CO3	Design PL/SQL queries
CO4	Illustrate the concept of data normalization with the help of real life examples.
CO5	Explain the concept of transaction management.
CO6	Outline features of advanced database management systems.

Course Code: UGCA1923
Course Name: Operating Systems

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Discuss the evaluation of operating systems.
CO2	Explain different resource managements performed under CPU process and Thread.
CO3	Describe various CPU scheduling algorithm.
CO4	Describe the architecture in terms of functions performed by different types ofoperating systems.
CO5	Analyze the performance of different algorithms used in design of operating system components.
CO6	Compare the key properties of different types of Operating Systems.

Course Code: UGCA1924
Course Name: Software Engineering Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Identify the scope and objective of different domains that have impact on society
CO2	UML Based Software Requirement Specification
CO3	Create data flow diagrams
CO4	Computer software complexity using latest tools
CO5	Design a software engineering process life cycle.
CO6	Implement specification, design, implementation, and testing process using latest tools

Course Code: UGCA1925
Course Name: Database Management Systems Laboratory
Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Differentiate between DDL, DML and DCL commands
CO2	Implement DDL, DML and DCL commands
CO3	Write integrity constraints on a database
CO4	Design Databases and Tables in relational model for some project related to society welfare
CO5	Implement PL/SQL.
CO6	Implement PL/SQL.(Cursor and Trigger)

Course Code: UGCA1926
Course Name: Operating Systems Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Implement the installation and configuration of different operating systems.
CO2	Write programs for different scheduling algorithms.
CO3	Execute various commands in Vi editor
CO4	Implement the dual boot installation
CO5	Execute commands in shell programming
CO6	Implement commands in shell programming with various control statement.

Course Code: UGCA1927
Course Name: Web Designing

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Understand the basics of Internet
CO2	Create pages with simple tags in HTML
CO3	Design webpages with multiple sections or frames & Explain how to link webpages through hypertext
CO4	Organise data in tabular form using HTML tables & Design forms with special controls using HTML
CO5	Understand basic concepts of javascript
CO6	Outline the key web designing concepts using java script

Course Code: UGCA1928
Course Name: Web Designing Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Design pages with simple tags in HTML
CO2	Create web pages with Audio and Video content in it.
CO3	Depict the movement from one web page to another
CO4	Illustrate the data in tabular form using tables
CO5	Design webpages with multiple sections or frames
CO6	Implement web designing concepts using java script & execute a small web-based project for the benefit of society

5th Semester

Course Code: UGCA1929
Course Name: Programming in PHP

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Outline the importance and benefits of PHP
CO2	Explain the use of control structures used in PHP.
CO3	Explain the use of Function, String and Array used in PHP.
CO4	Compare Client Side Script & Server Side Script.
CO5	Outline the working of files and Directories used in PHP

CO6	Develop Dynamic Website that can interact with different kinds of Database Languages.

Course Code: UGCA1930
Course Name: Programming in PHP Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Write scripts for basic web page designs
CO2	Design the work flow of web page with the help of various control statements
CO3	Differentiate between client side and server side scripting
CO4	Illustrate the concept of static and dynamic websites
CO5	Implement the database concepts in PHP
CO6	Illustrate the concept of File handling

Course Code: UGCA1931
Course Name: Data Warehouse and Mining

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Highlight the need of Data Warehousing & Mining
CO2	Differentiate between the Transactional and Analytical data models.
CO3	Identify the real life applications where data mining can be applied.
CO4	Apply different data mining algorithms on wide range of data sets.
CO5	Explain the role of visualization in data representation and analysis.
CO6	Analyze the need of clustering and its various types.

Course Code: UGCA1937
Course Name: Data Warehouse and Mining Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Analyze installation process of various tools.
CO2	Identify different data mining tools used to analyze data.
CO3	Implement classification/ Clustering techniques in R/ Weka
CO4	Create visualization for representing data.
CO5	Execute various data preprocessing techniques
CO6	Analyze the data which has direct impact on the society

Course Code: UGCA1932
Course Name: Programming in Java

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Differentiate between java and procedural languages.
CO2	Define Basic concepts in Java Programming.
CO3	Outline various OOPs concepts in Java Programming..
CO4	Implement Array and strings in Java Programming.

CO5	Outline the importance of exception handling in programs.
CO6	Explain advanced concepts like multithreading, applet used in java.

Course Code: UGCA1938
Course Name: Programming in Java Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Illustrate the role of different data types and operators in java with the help of programs
CO2	Depict the role of different control statement in java.
CO3	Implement the concept of strings and Arrays in java.
CO4	Write programs to handle exceptions and Implement multithreading in java.
CO5	Execute interfaces and packages in java
CO6	Understand the concept of file handling in java.

Course Code: UGCA1933
Course Name: Internet of Things

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Define the concept of IoT
CO2	Understanding different techniques of IoT
CO3	Outline various domains of IoT
CO4	Explain M2M (machine to machine) applications with necessary protocols
CO5	Express the need of IoT system management.
CO6	Implement the basic Raspberry PI platform for creating IOT applications.

Course Code: UGCA1939
Course Name: Internet of Things Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Identify different types of IOT devices and sensors.
CO2	Analyze sensor generated data
CO3	Outline the use of Bluetooth
CO4	Implement connectivity of mobile application with IOT device
CO5	Designing small IoT applications
CO6	Building interface of application with various devices

Course Code: UGCA1934
Course Name: Computer Graphics

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Identify different types of Input devices.
CO2	Elaborate the various types of Output devices.
CO3	Outline the key characteristics of virtual reality.
CO4	Explain different algorithms to draw shapes like line, circle, point, etc.

CO5	Differentiate between 2-D and 3-D coordinate system
CO6	Define projection.

Course Code: UGCA1940
Course Name: Computer Graphics Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Implement algorithms for drawing basic shapes like circle, line and point.
CO2	Write programs to implement 2-D coordinate transformations.
CO3	Implement 3-D coordinate transformations.
CO4	Design basic shapes for logo's
CO5	Develop programs for basic animations using C or C++
CO6	Design a small gaming project.

Course Code: UGCA1935
Course Name: Linux Operating System

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Discuss the evolution of Open Source operating systems.
CO2	Prepare environment for working on open source operating system like Linux.
CO3	To understand and make effective use of Linux utilities and shellscripting language to solve problems
CO4	Use Linux commands to manage files and file systems.
CO5	Execute user level privileges
CO6	Ability to design and write application to manipulate internal kernel level Linux File System.

Course Code: UGCA1941
Course Name: Linux Operating System Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Prepare the environment for installation and use of Linux operating System.
CO2	Write Shell Scripts
CO3	Implement C programs using gcc compiler
CO4	Configure basic linux mail server, network services
CO5	Execute commands related to granting and revoking user priviledges.
CO6	Impelment virtualization

Course Code: UGCA1936
Course Name: Cloud Computing

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Define the concept of cloud computing.
CO2	Outline the benefits if migrating to a cloud solution for different applications. Compare different virtualization technologies.
CO3	Fundamental of capacity planning and analysis.
CO4	Identify various resources needed to build cloud
CO5	Explain various security threats to cloud.

CO6	Explore some important cloud computing driven commercial systems

Course Code: UGCA1942
Course Name: Cloud Computing Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Identify major commercial projects in the field of cloud computing
CO2	Design basic cloud applications
CO3	Execute basic functionalities of open source tools like Open Stack.
CO4	Implement virtualization
CO5	Define major services provided by cloud service provider.
CO6	Analyze private cloud using various tools.

6th Semester

Course Code: UGCA1943
Course Name: Android Programming
Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Prepare environment for working on Android OS.
CO2	Design innovative User Interface and develop activity for android app.
CO3	Deploy software to mobile devices using cloud services.
CO4	Highlight various security issues in Android platform.
CO5	Outline the steps for creating database applications.
CO6	Write programs for basic Android based applications.

Course Code: UGCA1944
Course Name: Android Programming Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Prepare environment for working on Android OS.
CO2	Program basic Android based applications.
CO3	Highlight various security issues in Android platform.
CO4	Implement database applications.
CO5	Design innovative User Interface and develop activity for android app.
CO6	Design application for Mobile using various sensors.

Course Code: UGCA1945
Course Name: Artificial Intelligence

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Highlight the significance and domains of Artificial Intelligence and knowledge Representation.
CO2	Outline the advantages and disadvantages of Uninformed search technique.
CO3	Examine the Informed (Heuristic) search technique.
CO4	Define the role of AI in different areas like NLP, Pattern Recognition etc.
CO5	Select the right AI tool for different AI based applications.
CO6	Identify various Expert Systems and AI applications.

Course Code: UGCA1951
Course Name: Artificial Intelligence Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Identify right tool for different AI based problems.
CO2	Develop basic applications using AI tools.
CO3	Represent various real life problem domains using logic based techniques and use this to perform inference or planning.
CO4	Outline the use of Bayesian approach to solve uncertain problems.
CO5	Implement basic Natural Language processing programs.
CO6	Identify the program using Expert System.

Course Code: UGCA1946
Course Name: R Programming

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Overview of R as a programming language and Understanding the concept of OOP's within R
CO2	Demonstrate understanding and application of control structures and Perform I/O operations
CO3	Differentiate between vectors and arrays.
CO4	Outline the usage of lists, data frames and string.
CO5	Knowledge of the basic concepts of factors and tables and Customization of Graphs.
CO6	Understanding the debugging tools and term simulation.

Course Code: UGCA1952
Course Name: R Programming Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Write programs for arrays and matrices.
CO2	Execute data frames and lists.
CO3	Differentiate between arrays from vectors.
CO4	Implement factors in R
CO5	Execute minor projects using R.
CO6	Solve for the resultant base on the direction of vector and using the different methods.

Course Code: UGCA1947
Course Name: Digital Marketing

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Highlight the key elements of a digital marketing strategy.
CO2	Choose the right platform for digital marketing.
CO3	Define Search Engine Optimizations and its types.
CO4	Understand the concept of web traffic and tools for managing the contents.
CO5	Design content for digital marketing.
CO6	Develop digital marketing strategy and plan.

Course Code: UGCA1953
Course Name: Digital Marketing Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Highlight the key elements of a digital marketing strategy.
CO2	Implement common digital marketing exercise using SEO, Social media and Blogs.
CO3	Identify the major digital marketing channels.
CO4	Understand the concept of web traffic and tools for managing the contents.
CO5	Design content for digital marketing.
CO6	Develop digital marketing strategy and plan.

Course Code: UGCA1948
Course Name: Information Security

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Identify issues involved in the field of information security.
CO2	Develop fundamental concepts of cryptography.
CO3	Categorize various types of viruses.
CO4	Develop an understanding of information assurance in operating system.
CO5	Provide basic understanding to manage database security on application level.
CO6	Outline information security risks across the Internet.

Course Code: UGCA1954
Course Name: Information Security Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Outline various types of attacks.
CO2	Categorize various types of viruses.
CO3	Preparae solutions to various threats
CO4	Review security policy
CO5	Implement Encyption Techniques
CO6	Analyze various network security fundamentals and hacking.

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes
CO1	Identify statutory, regulatory, constitutional, and organizational laws that affect the information technology professional.
CO2	Categorize case law and common law to current legal dilemmas in the technology field
CO3	Outline the primary forms of intellectual property rights.
CO4	Compare the different forms of intellectual property protection in terms of their key differences and similarities.
CO5	Illustrate the Importance of copyright and How it is different from related rights.
CO6	Depict the role of trademarks in various fields.

Course Code: UGCA1955
Course Name: Cyber Laws & IPR Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	Course outcomes

CO1	Identify statutory, regulatory, constitutional, and organizational laws that affect the information technology professional.
CO2	Categorize case law and common law to current legal dilemmas in the technology field
CO3	Outline the primary forms of intellectual property rights.
CO4	Compare the different forms of intellectual property protection in terms of their key differences and similarities.
CO5	Illustrate the Importance of copyright and How it is different from related rights.
CO6	Depict the role of trademarks in various fields.

Course Code: UGCA1950
Course Name: Machine Learning

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Analyze the basics of Machine Learning.
CO2	Classification and understanding supervise learning and its various techniques
CO3	Understanding Naïve Bayes techniques and methods
CO4	Understand the Basics of SVM
CO5	Implement clustering techniques and evaluate their effectiveness
CO6	Explain the concept of reinforcement learning

Course Code: UGCA1956
Course Name: Machine Learning Laboratory

Course Outcomes: After studying the course, students will be able to:

CO#	**Course outcomes**
CO1	Differentiate between various data types.
CO2	Implement programs for various Learning algorithms.
CO3	Compare different machine learning algorithms.
CO4	Choose the right algorithm for different problems.
CO5	Apply Machine Learning algorithms to solve real world problems.
CO6	Implement various clustering techniques.

Department of Master of Computer Applications (MCA)

	Pos	Graduate Attributes
PO 1	Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.	Computational Knowledge:
PO 2.	Identify, formulate, research literature, and solve complex computing problem searching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.	Problem analysis
PO 3.	Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.	Design/development of solutions
PO 4	User search-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	Conduct investigations of complex Computing problems:
PO 5	Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations.	Modern Tool Usage:
PO 6	Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.	Professional Ethics:
PO 7	Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.	Life-long Learning:
PO 8	Demonstrate knowledge and understanding of the computing 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.	Project management and finance:
PO 9	Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.	Communication Efficacy:
PO 10	Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.	Societal and Environmental Concern:
PO 11	Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary environments.	Individual and Team Work:

PO 12	Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.	Innovation and Entrepreneurship:

	Programme Specific Outcomes (PSOs)
PSO 1	Design, develop and implement application software projects to meet the demands of industry requirements using modern tools and technologies.
PSO 2	Apply the knowledge of computer applications to find solutions for real-life application.
PSO 3	Ability to work with latest computing technologies and pursue career in IT industry consultancy, research and development, teaching and allied areas.

1ST Semester

Course Code: PGCA1917
Course Name: Discrete Structures &Optimization

After studying the course, students will able to:

CO#	**Course outcomes**
CO1	Apply the operations of sets and use Venn diagrams to solve applied problems; solve problems using the principle of inclusion-exclusion
CO2	Understand the Concept of relations and functions. Determine the Domain and Range of functions
CO3	Solve counting problems by applying elementary counting techniques using the product and sum rules, permutations, combinations, the pigeon-hole principle, Understanding of Recurrence relations and generating functions
CO4	To introduce about Group Theory, Distinction between various types of groups,
CO5	Apply rules of inference, proof by contradiction, proof by cases, and write proofs using symbolic logic and Boolean Algebra, Introduce the concept of Rings and Boolean Rings
CO6	Determine if a given graph is simple or a multigraph, directed or undirected, cyclic or acyclic, and determine the connectivity of a graph.

Course Code: PGCA1951
Course Name: Programming in Python

After studying the course, students will able to:

CO#	**Course outcomes**
CO1	Compare Python with other programming languages.
CO2	Explain environment, data types, operators used in Python.
CO3	Outline the use of control structures and numerous native data types with their methods.
CO4	Knowledge to learn how to write user define function and modules and packages.
CO5	Illustrate files and exception handling methods.
CO6	Write solutions for Object Oriented Programming Concepts.

Course Code: PGCA1952
Course Name: Advanced Data Structures

After studying the course, students will able to:

CO#	**Course outcomes**
CO1	Choose appropriate data structures to design a solution
CO2	Construct best algorithms and use it to design solution for a specific problem.
CO3	Execute the operations of hashing to retrieve data from data structure.
CO4	Design and analyze programming problem statements
CO5	Come up with analysis of efficiency and proofs of correctness
CO6	Comprehend and select algorithm design approaches in a problem specific manner.

Course Code: PGCA 1953
Course Name: Advanced Database Management System

After studying the course, students will able to:

CO#	Course outcomes
CO1	Express the basic concepts of DBMS and RDBMS.
CO2	Apply normalization theory to the normalization of a database
CO3	Apply the concept of Transaction Management & Recovery techniques in RDBMS.
CO4	Analyze various advanced databases prevailing in market, , TemporalDatabases, Parallel and Distributed Databases
CO5	Demonstrate No SQL databases (Open Source), Big Data
CO6	XML Database and multidimensional Databases

Course Code: PGCA1905
Course Name: Technical Communication

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand fundamental and basic knowledge of communication
CO2	Implement communication skills easily
CO3	Create thoughts and become proficient in writing skills
CO4	Plan and enhance Writing and Research skills
CO5	Generate innovative ideas and develop positive attitude
CO6	Understand the Basic computer skills and Artificial Intelligence

Course Code: PGCA1954
Course Name: Data Structures using Python Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand the concept of data structures, python and apply algorithm for solving problems like insertion and deletion of data.
CO2	Write programs to implement various types of searching and sorting algorithms.
CO3	Implement linked list data structures for processing of ordered data.
CO4	Analyze various algorithms based on the binary tree.
CO5	Implement the outcome of Graph traversing with the help of examples.
CO6	Implement non-linear data structures like AVL Tree for processing of unordered the data.

Course Code: PGCA1955
Course Name: Advanced Database Management System Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Implement query a database using SQL DML/DDL commands.
CO2	Analyze integrity constraints on a database
CO3	Develop PL/SQL programs including stored procedures, stored functions, cursors
CO4	Implementation of Embedded SQL.
CO5	Design new database and modify existing ones for new applications and reason about the efficiency of the result.
CO6	Implement various DBA roles/techniques

Course Code: PGCA1908
Course Name: Technical Communication Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Enhance their listening skills and able to interpret message
CO2	Develop confidence and leadership qualities

CO3	Analyze employee's experience, skills and professional Background
CO4	Develop positive attitude and confidence
CO5	Build a strong communicative network
CO6	Execute their ideas and become independent user of English language

2nd Semester

Course Code: PGCA1909
Course Name: Web Technologies

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand the basics of Internet
CO2	Create pages with simple tags in HTML
CO3	Organise data in tabular form using HTML tables & Design forms with special controls using HTML
CO4	Design webpages with multiple sections or frames & explain how to link webpages through hypertext
CO5	Understand basic concepts of javascript
CO6	Outline the key web designing concepts using Database Connectivity.

Course Code: PGCA1920
Course Name: Design & Analysis of Algorithms

After studying the course, students will able to:

CO#	Course outcomes
CO1	Define algorithm and its complexity
CO2	Ability to design algorithms using standard paradigms like: Greedy, Divide and Conquer, Dynamic Programming
CO3	Develop Algorithms using iterative/Backtracking approach
CO4	Design algorithm using sorting and searching for solving a given problem
CO5	Ability to design algorithms using standard paradigms like: Merge sort, Quick sort, Heap Sort, and Radix sort
CO6	Categorize problems as Graphs, P, NP or NP Complete

Course Code: PGCA1918
Course Name: Advanced Java

After studying the course, students will able to:

CO#	Course outcomes
CO1	Learn the advanced features of Java and write the programs.
CO2	Explain the role of servlets.
CO3	Select the right technology/ tool for problem based solutions.
CO4	Implement web concepts using java server pages
CO5	Concept of database connectivity
CO6	Illustrate invocation of remote methods

Course Code: PGCA1956
Course Name: Linux Administration

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand the technical details of Linux operating system
CO2	Work with various Linux command
CO3	understand file hierarchical structuring
CO4	Administrate user, manage and configure packages in Linux

CO5	Know and configure the various internet services (DNS,Web Server)
CO6	Know and configure the various internet services (E-Mail Server,Samba Server)

Course Code: PGCA1932
Course Name: Information Security and Cyber Law

After studying the course, students will able to:

CO#	Course outcomes
CO1	Explain the key security requirements of Confidentiality, Integrity &Availability
CO2	Describe User authentication and Access control
CO3	Explain database security and malicious software
CO4	Demonstrate the concept of Intrusion Detection & Intrusion Prevention.
CO5	Describe cryptographic algorithms and internet security protocols and standards
CO6	Describe the concept of security policies and cyber law

Course Code: PGCA1914
Course Name: Web Technologies Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand Static and Dynamic concepts of web designing.
CO2	Depict the movement from one web page to another.
CO3	Illustrate the data in tabular form using tables.
CO4	Develop ability to retrieve data from a database and present it online.
CO5	Design web pages that apply various dynamic effects on the web site.
CO6	Solve complex and large problems using Scripting Language & Markup Language

Course Code: PGCA1922
Course Name: Advanced Java Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Learn the advanced features of Java and write the programs.
CO2	Explain the role of servlets.
CO3	Select the right technology/ tool for problem based solutions.
CO4	Implement web concepts using java server pages
CO5	Concept of database connectivity
CO6	Illustrate invocation of remote methods

Course Code: PGCA1957
Course Name: Linux System Administration Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Install Linux desktop and Linux server operating system.
CO2	Use various commands for performing different operations
CO3	Work with various Linux administration commands
CO4	Install and configure DNS servers in Linux environment
CO5	Install and configure Mail servers and Apache Server in Linux environment
CO6	Install and configure Samba Server in Linux environment

3rd Semester

Course Code: PGCA1925

Course Name: Advanced Computer Networking

After studying the course, students will able to:

CO#	Course outcomes
CO1	Familiar with different computer network models
CO2	Understand different protocols working at Medium Access Sub layer.
CO3	Understand different protocols working at Data Link layer.
CO4	Learn the concept of network routing through algorithms.
CO5	Highlight the benefits of Adhoc Network
CO6	Explain the protocols used in wireless communication systems.

Course Code: PGCA1926
Course Name: Artificial Intelligence & Soft Computing

After studying the course, students will able to:

CO#	Course outcomes
CO1	Highlight the significance of Artificial Intelligence in knowledge representation.
CO2	Examine the useful search techniques; learn their advantages, disadvantages and comparison
CO3	Highlight the significance of Natural Language Processing and Soft Computing
CO4	Apply artificial neural networks for various problems.
CO5	Apply and fuzzy logic theory for various problems.
CO6	Determine the use of Genetic algorithm to obtain optimized solutions to problem

Course Code: PGCA1927
Course Name: Theory of Computation

After studying the course, students will able to:

CO#	Course outcomes
CO1	Use basic concepts of formal languages of finite automata techniques.
CO2	Design Finite Automata's for different Regular Expressions and Languages.
CO3	Construct context free grammar for various languages.
CO4	**S**olve various problems of applying normal form techniques, push down automata.
CO5	Turing Machines and its variants- Programming Techniques for TM UNDECIDABILITY.
CO6	**S**olve computational problems regarding their computability and complexity and prove the basic results of the theory of computation.

Course Code: PGCA1928
Course Name: Advanced Computer Networking Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Demonstrate Networking components devices and LAN topologies
CO2	Demonstrate sharing of resources of network.
CO3	Prepare different types of network cables.
CO4	Write programs for simulating routing algorithms
CO5	Implement the configuration of Adhoc networks
CO6	Execute configuration of wireless access points

Course Code: PGCA1929
Course Name: Artificial Intelligence & Soft Computing Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Develop the skills to gain a basic understanding of neural network.
CO2	Examine the useful search techniques; Learn their advntages disadvantages and comparison.

CO3	Discuss the various statistical reasoning techniques to solve AI problem.
CO4	Determine the use of Genetic algorithm to obtain optimized solutions to problems.
CO5	Identify and apply Artificial Intellegence concepts to solve real world problems.
CO6	Describe fuzzy logic theory for various problems.

Course Code: PGCA1972
Course Name: Data Mining and Business Intelligence

After studying the course, students will able to:

CO#	Course outcomes
CO1	Highlight the need of Data Warehousing & Mining
CO2	Differentiate between the Transactional and Analytical data models
CO3	Identify the real life applications where data mining can be applied.
CO4	Apply different data mining algorithms on wide range of data sets.
CO5	Identifying Data Mining for Business Intelligence Applications
CO6	Comment on latest tools for data mining and big data analysis

Course Code: PGCA1921
Course Name: E-Commerce & Digital Marketing

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand various applications and scope of ecommerce.
CO2	Acquire knowledge of various payment modes used in ecommerce today.
CO3	Learn the usage of Electronic Data Interchange in detail .
CO4	Describe how and why to use digital marketing for multiple goals within a larger marketing and/or media strategy, Developing effective digital and social media Strategies
CO5	Understand the major digital marketing channels - online advertising: Search Engine Optimization (SEO) and Social Engine Marketing (SEM and social media
CO6	Learn to develop strategy and plan of website

Course Code: PGCA 1974
Course Name: e-Commerce and Digital Marketing Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand of implementation of ecommerce applications.
CO2	Learn to develop and implement digital marketing strategy and plan
CO3	Implement and developing effective digital and social media strategies
CO4	Implementation and working on the social, and security issues concerning the digital marketing and e-commerce.
CO5	Learn about how increase sale, attract new customer and enhance brand perception
CO6	Learn to develop blogs

Course Code: PGCA1930
Course Name: Software Project Management

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand and practice the process of project management
CO2	Develop the scope of work, provide accurate cost estimates and to plan the various activities.
CO3	Elaborate various types Project Planning and Project Evaluation
CO4	Process to Evaluate and managing a project
CO5	Understand Project Monitoring and Controlling Processes

CO6	Identify the Quality Management and People Management

Course Code: PGCA1973
Course Name: Enterprise Resource Planning

After studying the course, students will able to:

CO#	Course outcomes
CO1	Analyze a business process of different functional areas
CO2	Understand ERP & Related Technologies
CO3	ERP Functional Module
CO4	ERP Implementation Strategies
CO5	Understanding of ERP Post Implementation
CO6	Emerging Trends on ERP & Case studies applications.

Course Code: PGCA1933
Course Name: Mobile Application Development

After studying the course, students will able to:

CO#	Course outcomes
CO1	**Understanding Mobile Application Characteristics and Benefits:**
CO2	**Understanding User Interface Designing:**
CO3	Demonstrate the testing and debugging process
CO4	Develop useful mobile applications
CO5	Understanding Android Toolkit and Components
CO6	Development Environment for iOS

Course Code: PGCA1934
Course Name: Mobile Application Development Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand how to work with various mobile application development frameworks.
CO2	Mastering Layout Management and Event Handling
CO3	Develop mobile applications using GUI and Layouts
CO4	Implementing Authentication and Browser Integration
CO5	Testing Mobile Applications
CO6	Managing Data in iOS Applications

Course Code: PGCA1935
Course Name: Simulation & Modelling

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand the various types of simulation, techniques and methods.
CO2	Effectively collect and analyze data for input modeling.
CO3	Apply the concepts of computer simulation for types of inputs.
CO4	Interpret the output data of simulation models.
CO5	Demonstrate the ability to apply queuing theory.
CO6	Test the goodness of a simulation by analyzing the simulated.

Course Code: PGCA1936
Course Name: Simulation & Modelling Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand the use of software tools for modelling and analysis of mathematical Concepts for engineering application.

CO2	Know how to simulate any discrete system using queuing systems.
CO3	Model and analyze simple engineering concepts and its importance in engineering Applications.
CO4	Develop skills to apply simulation software to construct and execute goal-driven System models.
CO5	Develop the proficiency in MATLAB programming by writing code.
CO6	Effectively apply statistical tests.

Course Code: PGCA1931
Course Name: Software Testing & Quality Assurance

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand various approaches of software testing and quality assurance for Software development.
CO2	Create test strategies, design test cases, prioritize and execute them.
CO3	Types of Object Oriented Testing Methods
CO4	Plan and execute testing process and specialized systems testing
CO5	Software Quality Assurance Concepts and Standards
CO6	Identify various risks involved with software projects and build risk management

Course Code: PGCA1975
Course Name: Software Testing & Quality Assurance Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand various approaches of software testing and quality assurance for software development.
CO2	Create test strategies, design test cases, prioritize and execute them.
CO3	Taking scenario of different functionality in ecommerce website.
CO4	Practicing the data flow testing
CO5	Identify various risks involved with software projects and build risk management
CO6	Plan and execute software management and configuration activities.

Course Code: PGCA1971
Course Name: Optimization Techniques

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understanding of Operations Research.
CO2	Formulate and solve linear programming.
CO3	Describe the fundamentals principle of integer programming
CO4	Comprehensive understanding of the principles behind the transportation and assignment problems
CO5	Elaborate the Project Management problems using CPM
CO6	Find solution to two-person zero-sum games

4th Semester

Course Code: PGCA1976
Course Name: Machine Learning and Data Analytics using Python

After studying the course, students will able to:

CO#	Course outcomes
CO1	Learn Machine Learning concepts
CO2	Understand the difference between supervised and unsupervised learning using Regression.
CO3	Learn clustering and classification algorithms

CO4	Familiar with Python environment, data types, operators used in Python
CO5	Analyse data using Python Numpy, Panda Libraries
CO6	Visualize data using matplotlib library of Python

Course Code: PGCA 1958
Course Name: Advanced Web Technologies

After studying the course, students will able to:

CO#	Course outcomes
CO1	Explain client-side and server-side programming.
CO2	Develop a dynamic webpage by the use of java PHP and MySQL.
CO3	Discuss basic web services and their development.
CO4	Describe the role of AJAX and React
CO5	Discuss web data and XML document handling.
CO6	Apply basic CRUD database operations in a Dynamic Website.

Course Code: PGCA-1977
Course Name: Machine Learning and Data Analytics using Python Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Develop knowledge of various learning models of data.
CO2	Implement a wide variety of learning algorithms.
CO3	Understand how to evaluate models generated from data.
CO4	Apply the algorithms to a real-world problems.
CO5	Optimize the models learned and report on the expected accuracy that can be achieved by applying the models.
CO6	Analyse data using Python mataplotlib.

Course Code: PGCA 1960
Course Name: Advanced Web Technologies Laboratory

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand the advance concepts of website development.
CO2	Provide skills to design and develop dynamic web sites.
CO3	Work independently for database programming for web applications
CO4	Understand concepts of jQuery methods, AJAX, Bootstrap and REACT
CO5	Connect Website with an Database Server and perform basic CRUD operations.
CO6	Develop market ready website, to be used by clients.

Course Code: PGCA1937
Course Name: Cloud Computing

After studying the course, students will able to:

CO#	Course outcomes
CO1	Discuss the basic concept and importance of cloud computing.
CO2	Explain the process of migrating to a cloud solution for different applications.
CO3	Compare and evaluate the virtualization technologies.
CO4	Monitor and manage the capacity planning and SLA management in cloud computing.
CO5	Discuss security concerns to cloud services and cloud storage
CO6	Use cloud solutions offered by industry leaders for various applications.

Course Code: PGCA 1938
Course Name: Cloud Computing Laboratory

After studying the course, students will able to:

CO#	Course outcomes

CO1	Create applications for SaaS.
CO2	Develop cloud applications using popular cloud platforms.
CO3	Create virtual machines on the cloud.
CO4	Implement cloud storage management tasks.
CO5	Develop private cloud
CO6	Discuss various cloud service provide companies

Course Code: PGCA1963
Course Name: Digital Image Processing

After studying the course, students will able to:

CO#	**Course outcomes**
CO1	Understand the need for various image transforms along with properties
CO2	Learn different techniques employed for the enhancement of images
CO3	Understand the image enhancement in frequency domain and restortion
CO4	Analyze images in multiresolution environment
CO5	Learn image compression techniques
CO6	Implementation of image segmentation

Course Code: PGCA1964
Course Name: Digital Image Processing Laboratory

After studying the course, students will able to:

CO#	**Course outcomes**
CO1	Installation of image processing software
CO2	Implement the various operations which can be performed on images.
CO3	Apply filters on images as per the requirement
CO4	Implement different techniques employed for the enhancement of images
CO5	Develop an Image Processing Application
CO6	Implement image Compression technique

Course Code: PGCA1965
Course Name: NLP and Speech Recognition

After studying the course, students will able to:

CO#	**Course outcomes**
CO1	Learn basics of natural language processing
CO2	Learn Naive Bayes and Sentiment Classification
CO3	Learn Logistic Regression algorithms
CO4	Familiarize with chatbots and & Dialogue Systems
CO5	Highlight the term phonetics
CO6	Learn the concept of speech recognition and text to speech conversion.

Course Code: PGCA1966
Course Name: NLP and Speech Recognition Laboratory

After studying the course, students will able to:

CO#	**Course outcomes**
CO1	Learn basics of natural language processing
CO2	Learn Naive Bayes and Sentiment Classification
CO3	Learn Logistic Regression algorithms
CO4	Familiarize with chatbots and & Dialogue Systems
CO5	Highlight the term phonetics
CO6	Evaluate Linear and Logistic Regression.

Course Code: PGCA1967
Course Name: IOT & Blockchain Technology

After studying the course, students will able to:

CO#	Course outcomes
CO1	Understand the terminology and enabling technologies of IoT .
CO2	Analyse security challenges in IoT.
CO3	Enumerate the steps involved in IoT system design methodology
CO4	Understanding the concept of Blockchain technology.
CO5	Gain Knowledge about the working of bit coin crypto currency
CO6	Describe domain specific applications of IoT and Blockchain

Course Code: PGCA1967
Course Name: IOT & Blockchain Technology

After studying the course, students will able to:

CO#	Course outcomes
CO1	Learn and Use IoT sensors and remotely monitor data and control devices.
CO2	Develop real life IoT based projects.
CO3	Understand blockchain technology and develop blockchain based solutions.
CO4	Build and deploy IoT based blockchain applications for on-premise and cloud based architecture.
CO5	Design and prototype and IoT blockcain solution.
CO6	Address ethical, privacy and legal issues.

Department of Management studies

Semester 1st

MBA 101-18 FOUNDATIONS OF MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand basic concepts, principles, and practice of management and develop analytical abilities to face the business situations
CO2	Explain the role and responsibilities of managers and adapt to the various styles of management across organizations.
CO3	Develop strategic planning and decision-making approaches in an organization.
CO4	Enunciate peer-based learning and work in groups and teams.
CO5	Familiarize the students with an understanding of staffing, authority, and coordination in an organization.
CO6	To comprehend the application of various controlling and modern management techniques in management.

MBA 102-18 MANAGERIAL ECONOMICS	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the basic concepts of economics and relate it with other disciplines and identify the importance of economics in managerial decision-making.
CO2	Apply the knowledge of the mechanics of the demand and indifference curve
CO3	Analyze and explain the relationships between production, costs, and revenue
CO4	Define key characteristics and consequences of different forms of markets
CO5	Comprehend the basic concepts of supply and supply curves, factor pricing, and collective bargaining.
CO6	Enunciate the fundamental concept of Product market and Consumption function and also able to measure national income

MBA 103-18 QUANTITATIVE TECHNIQUES	
Course Outcomes: After studying the course, students will be able to:	
CO1	To have a deeper and rigorous understanding of fundamental concepts in business decision-making under subjective conditions and also apply the concepts of central tendency and variation in managerial decision-making.
CO2	To understand the concept of correlation regression analysis and its applications.
CO3	To enhance knowledge in probability theory and normality and its distribution concepts.
CO4	To comprehend the techniques of the operation in reality to market scenario and apply the methods of linear programming for decision making.
CO5	To apply the learnt techniques to build the best-fit route of transportation and apply the methods of game theory to solve business problems.
CO6	Analyse assignment problems of business and apply the techniques of network analysis to schedule business/project activities.

MBA 104-18 ACCOUNTING FOR MANAGEMENT AND REPORTING	
Course Outcomes: After studying the course, students will be able to:	
CO1	To familiarize the students with the basic concepts, principles, and process of accounting and to make them aware of the formats of financial statements of public limited, banking, and insurance companies.
CO2	To explain the students the concepts of cost and various intricacies for preparing the cost sheet.

CO3	To acquaint students with decision-making techniques using the concepts of marginal costing, standard costing, and budgetary control.
CO4	To enable the students to analyze financial statements using various tools for financial analysis and interpret the financial position of a business organization.
CO5	To enunciate the students with the contemporary developments in accounting.
CO6	To make students aware of the recent developments in financial reporting and regulations so that they may understand and appreciate the concept and process of harmonization of financial reporting practices.

MBA 105-18 BUSINESS ENVIRONMENT AND INDIAN ECONOMY	
Course Outcomes: After studying the course, students will be able to:	
CO1	To systematically learn the basic concepts and components of the Business Environment
CO2	To comprehend the political, economic, legal, and ecological environment and the trends prevailing in the environment.
CO3	To familiarize the students with the components of the public sector in India and consumerism.
CO4	To describe the technological and international environment and its impact on the business.
CO5	To understand the Indian Economy and the various issues having a direct or indirect impact on the business environment.
CO6	To explain the nature of unemployment and various development strategies in India.

MBA 106-18 BUSINESS ETHICS AND CORPORATE SOCIAL RESPONSIBILITY	
Course Outcomes: After studying the course, students will be able to:	
CO1	To integrate and apply contemporary Ethics & Governance issues in a business context.
CO2	To analyze key perspectives on corporate social responsibility and their application.
CO3	To understand ethical decision-making, ethical reasoning, and the dilemma- resolution process.
CO4	To evaluate different corporate ownership structures and their key governance features.
CO5	To analyze the importance of corporate sustainability and study of reporting frameworks.
CO6	To analyze CSR on various platforms like environment, society and nation, apply corporate governance perspectives to contemporary business practices.

MBA 107-18 BUSINESS COMMUNICATION FOR MANAGERIAL EFFECTIVENESS	
Course Outcomes: After studying the course, students will be able to:	
CO1	To understand the basics of communication.
CO2	To learn various skills like collaborative writing, listening skills, and non-verbal communication and comprehend the value of business etiquette.
CO3	To learn the skills of writing effective business messages, Emails, and reports.
CO4	To develop presentation skills and learn to organize and structure a Presentation using visual aids
CO5	To study important concepts of Glossophobia and Group discussion resulting in effective speaking.
CO6	To prepare the students for the interview, employment messages, and resume writing skills

Semester 2nd

MBA 201-18 BUSINESS ANALYTICS FOR DECISION MAKING	
Course Outcomes: After studying the course, students will be able to:	
CO1	Comprehend the fundamental concepts in business decision-making and also identify the various sources of data
CO2	Familiarize the students with the concept of data organization and business forecasting
CO3	Understand the basic concepts of sampling and sampling distributions.
CO4	Recall the knowledge of hypothesis testing for large and small samples
CO5	To conduct research surveys through multiple regression and multiple correlations
CO6	Enable the students with the index number and time series methods.

MBA 202-18 LEGAL ENVIRONMENT FOR BUSINESS	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the legal and regulatory framework of business environment.
CO2	Identify the fundamental legal principles behind contractual agreements.
CO3	Understand the legal provisions of sales of goods legal rules governing admission, retirement and death of partner and dissolution of partnership firm.
CO4	Describe the concept of negotiable instruments as well as rules pertaining to crossing, transferring and dishonoring of negotiable instruments.
CO5	Enunciate the legal provisions of formation and incorporation of Company.
CO6	Comprehend the legal framework relating to the process of incorporation of Joint Stock Company.

MBA 203-21 MARKETING MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	To learn the basics of marketing, selling, marketing mix and its core concepts.
CO2	To understand the intricacies of the marketing environment, marketing information systems and consumer behaviour for effective marketing planning and strategies.
CO3	To equip the students with necessary skills for effective market segmentation, targeting and positioning and taking product decisions.
CO4	To prepare the students for understanding the various pricing decisions, personal selling and managing salesforce.
CO5	To develop an understanding of promotion mix components and supply chain decisions.
CO6	To gain knowledge about the emerging trends in marketing and pyramid marketing.

MBA 204-18 HUMAN RESOURCE MANAGEMENT	
CO1	To explain the basics of Human Resource Management and to comprehend the environment of HRM.
CO2	To appraise various functions of HRM that facilitate employee hiring viz. human resource planning, job analysis recruitment and selection.
CO3	To understand the role of training, development, career planning and internal mobility functions in human resource development.
CO4	To examine the performance appraisal and compensation management functions and provisions of employee health, safety and welfare.
CO5	To analyse the concerns of government, employees and employers in establishing Industrial relations.
CO6	To illustrate mechanisms adopted by the organizations for settlement of disputes and grievances

MBA 205-18 PRODUCTIONS & OPERASTIONS MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the classification of Operations management and factors of facility location and basic types of facility layout.
CO2	Gain an in-depth understanding about techniques and types of product design and process selection.
CO3	Analyze the methods of production planning and Capacity Planning Decisions.
CO4	Understand the principles for Quality management and types of Acceptance Sampling
CO5	To understand the approaches of JIT and factors affecting Inventory control policy.
CO6	Understand the purchasing management and controlling system of value analysis.

MBA 206-21 CORPORATE FINANACE AND POLICY	
Course Outcomes: After studying the course, students will be able to:	
CO1	To explain the evolution, objectives and functions of corporate finance and interface of corporate finance with other functional areas.
CO2	To illustrate the concept of time values of money and valuation of securities and to analyze different sources of funding.
CO3	To calculate the cost of capital and comprehend the significance of capital structure theories in capital structure decisions.
CO4	To facilitate sound investment decisions based on capital budgeting techniques and leverage

	methods.
CO5	To Assess dividend policy's impacts on share prices and to understand the implications of dividend decisions in financial decision making.
CO6	To understand the applications of approaches of working capital management.

MBA 207-18 ENTREPRENEURSHIP DEVELOPMENT AND PROJECT MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	To explain the characteristics, functions and traits of an entrepreneur.
CO2	To illustrate the concept of corporate entrepreneurship, women entrepreneurship, rural and social entrepreneurship and development of the same in the organizations.
CO3	To comprehend the significance of entrepreneurial motivation and to examine entrepreneurial strategies to explore new entry opportunities, methods of enhancing creativity and generation of ideas.
CO4	To understand the significance of Legal issues for the entrepreneur
CO5	To be able to develop an effective business plan.
CO6	To explain the basic concepts of project management and analyse different phases of project management viz. generation and screening of project ideas, project analysis, selection, financing, implantation and review.

MBAGE 201-18 COMPUTER APPLICATIONS FOR BUSINESS	
Course Outcomes: After studying the course, students will be able to:	
CO1	Develop understanding of computer fundamentals, functions and their classifications
CO2	Develop a clear understanding and knowledge about the functioning of a Computer Components.
CO3	To understand the working of operating system and windows.
CO4	Demonstrate proficiency in Microsoft word. Apply formatting and editing features to enhance worksheets.
CO5	Demonstrate proficiency in MS-Power Point. Apply formatting and editing features to enhance worksheets.
CO6	Apply the concepts of MS-Excel and data base and Access for editing Data; managing reports and labels, Managing Multiple Tables.

Semester 3rd

MBA 301-1 ORGANIZATIONAL BEHAVIOUR & DESIGN	
Course Outcomes: After studying the course, students will be able to:	
CO1	To explain the basics of Organizational behavior and various challenges for OB in the national and global environment, foundations of Individual Behavior, and analyze the influence of individual level
CO2	To illustrate foundations of learning, emotions & moods, and personality on behavior in organizations.
CO3	To assess the factors and process of perception, sources and type of attitude, theories of motivation, and significant role of leadership styles in the effectiveness of the team.
CO4	To examine the dynamics of group development, group properties, formation of organizational culture and stress management.
CO5	To demonstrate dimensions of organizational design and types of organizational structure and analyze the environment's influence on organizational design.
CO6	To interpret the political climate's effect (conflict, power, and politics) on human behavior and understand the concept of learning organizations.

MBA 302-18 MARKETING RESEARCH	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the process of marketing research and its application in managerial decision making

CO2	Comprehend the basic concepts and mechanics of various research design
CO3	Identify various sources of data for marketing research, and develop a research proposal.
CO4	Design an effective questionnaire to enable the survey and also enunciate observation research.
CO5	Apply different methods of reliability and validity of the scales.
CO6	Acquire practical knowledge about data preparation and data analysis using SPSS.

MBA911-18 INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	To familiarize the students about the basic concepts of Investment and various investment avenues.
CO2	To enable students to understand the operation of primary as well as secondary markets in India.
CO3	To familiarize the students with the concepts and process of fundamental analysis so that they may understand the impact of various environmental factors on investment valuation.
CO4	To explain the concepts and process of technical analysis and enable the students to understand the role of daily price movements in portfolio management.
CO5	To enunciate the concepts, process, and techniques for portfolio construction, evaluation and revision.
CO6	To familiarize the students with the Portfolio Theory and the concept of financial derivatives.

MBA 912-18 MANAGEMENT OF FINANCIAL SERVICES	
Course Outcomes: After studying the course, students will be able to:	
CO1	To acquire knowledge about different financial services and their importance.
CO2	To understand the role of depositary system in India
CO3	To know the structure and system of credit rating, leasing, merchant banking and venture capital.
CO4	To comprehend the process and importance of factoring and Securitization.
CO5	To enunciate the students with the knowledge of different types of plastic money and its credit process.
CO6	To explain the process of asset liability management and risk management in banks.

MBA 921-18 CONSUMER BEHAVIOUR	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the fundamental concept of consumer behaviour and also explain the intricacies of market segmentation.
CO2	Analyse the emerging trends in consumer behaviour and consumer motivation.
CO3	Acquire knowledge about the personality of the consumers and understand the consumer learning concept.
CO4	To learn and understand the impact of social and cultural settings on consumer behaviour.
CO5	Understand the role of opinion leaders and the process of diffusion of innovation.
CO6	To have an understanding of the consumer decision-making models.

MBA 922-18 SERVICES MARKETING	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the fundamental concepts of service marketing and its functions.
CO2	Comprehend the behavior of customers in services**,** Identify the role and significance of various elements of the service marketing mix.
CO3	Know how to manage relationships in Services, Analyze Challenges of service design, types of new services, Physical evidence, and its effects on consumer behavior.
CO4	To learn the concept of Delivering and performing service through employees and

	customers and types of intermediaries.
CO5	Analyze integrated services marketing communications and services marketing triangle.
CO6	Examine various pricing strategies and pricing approaches in service sectors, and also understand service marketing applications in different service sectors.

MBA 931-18 ORGANIZATIONAL CHANGE AND DEVELOPMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	Develop understanding of organization change and Define, explain and illustrate theories of planned change, their relevant foundations, strengths and weaknesses
CO2	Recognize and comment on issues and problems arising out of organizational change initiatives.
CO3	To Understand concepts related to Action Research Models and apply diagnostic models and concepts to change issues at the organizational, group and individual levels.
CO4	Understand the role of various intervention strategies in organizational development.
CO5	Analyze impact of power and politics on organization.
CO6	Examine various issues in the relationship between client and consultant relationship.

MBA 932-18 EMPLOYEE RELATIONS	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand establishing & maintaining a sound relationship between the worker & the employer.
CO2	Comprehend the significance & functioning of Trade Unions and factories Act.1947.
CO3	Identify the simmering issues in the workplace and various provisions laid down by laws to settle disputes in the organizations
CO4	Assess the importance of various Acts in Industrial Relations.
CO5	To enunciate the provisions of Maternity Benefit Act, 1961 and provisions of Provident Fund and Miscellaneous Provisions Act, 1951.
CO6	Comprehend the concept and classification of labour welfare.

Semester 4th

MBA 401-18 CORPORATE STRATEGY	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concepts of strategic management process and defining Strategic Intent.
CO2	Discuss various techniques of external environmental analysis of business and concept of industry analysis.
CO3	Explain internal environment analysis and business level strategies with their implications.
CO4	Illustrate the corporate level strategies and Strategic Analysis and choice.
CO5	Understand the issues involved in strategy implementation and Leadership and corporate culture.
CO6	Understand the techniques of strategic evaluation and control.

MBA 403-18 WORKSHOP ON INDIAN ETHOS	
Course Outcomes: After studying the course, students will be able to:	
CO1	Comprehend the practice of Indian Ethos.
CO2	Apprise management principles from Vedas and other holy books and explain the application of Indian heritage in business.
CO3	Applying ethical practices and value-based management in business.
CO4	Enunciate the various stress management techniques and their applications in organizations.
CO5	Describe salient features and advantages of the ancient Indian system of learning.
CO6	Explain various laws of Karma and explain the concept of corporate karma.

MBA 915-18 INTERNATIONAL FINANCE AND FINANCIAL DERIVATIVES	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the framework of international finance including the concept of BOP
CO2	Comprehend the international monetary system and various types of risks/exposures in foreign exchange management.

CO3	Describe various theories underlying the concepts of international finance and international sources of finance.
CO4	Discuss the regulatory framework of derivatives contracts in India, and the basics of derivative and forward and futures contracts.
CO5	Understand trading strategies using options contracts, trading strategies, and swaps and swaptions.
CO6	Enunciate the basic concepts of credit derivatives and foreign exchange risk management

MBA 916-18 TAXATION AND PERSONAL FINANCIAL PLANNING	
Course Outcomes: After studying the course, students will be able to:	
CO1	The students will be familiarised with the concepts of tax management, tax avoidance and tax evasion and the methods of ways of tax planning.
CO2	To acquaint students with the provision of the current finance act with regard to various head of income.
CO3	To enable students to compute the tax liability of individuals after considering their residential status, various exempted incomes, permissible deduction, clubbing of income and setting off of losses.
CO4	To familiarise students with the concept, objectives and importance of personal financial planning and enable the students to understand the implications of environmental factors and time value of money on the personal financial statements.
CO5	To enable students to identify various types of risks any individual is exposed to and how they can hedge diversifiable risk also to know about the aspects of Investment Planning.
CO6	To familiarise students with various instruments available for investment by an individual for achieving their personal financial goals.

MBA 923-18 Integrated Marketing Communication & Sales Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Apply the key terms, definitions, and concepts used in integrated marketing communications
CO2	Conduct and evaluate marketing research and apply these findings to develop competitive IMC Programme.
CO3	Examine the role of various promotional strategies such as direct marketing, sales promotion and PR in effectiveness of marketing communication.
CO4	Understand and apply the concepts of sales management and organization.
CO5	Develop sales related marketing policies such as product policies, distribution policies & pricing policies.
CO6	Explain various sales operations such as sales budget, sales territories, sales Quota's, control of sales, sales meeting and sales contest, organizing display, showroom and exhibition.

MBA 925-18 INTERNATIONAL AND SOCIAL MEDIA MARKETING	
Course Outcomes: After studying the course, students will be able to:	
CO1	Assess the challenges in international marketing and understand various international market entry strategies.
CO2	Evaluate international marketing environment and identify various international trade barriers and regional blocks.
CO3	Develop international product, pricing and communication policy and examine international distribution system.
CO4	Discuss the evolution of social media marketing and identify various benefits and applications of social media.
CO5	Explain how to develop effective social media marketing strategies for various types of industries and businesses.
CO6	Describe the major social media marketing portals that can be used to promote a company, brand, product, service or person.

MBA 933-18 INTERNATIONAL HUMAN RESOURCE MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand issues, opportunities and challenges pertaining to international HRM.
CO2	Develop competency in dealing with cross cultural situations.
CO3	Understand the strategic and functional roles of HRM in various international contexts,

	especially in areas such as recruitment and selection, performance management, training, learning and development, career management, compensation, motivation and repatriation;
CO4	Identify the role of cross cultural leadership in managing multicultural teams and also to know about performance and compensation management at international level.
CO5	Develop generic and transferable skills-especially in diagnosing international HRM issues critically and analytically.
CO6	To acquaint students with key aspects in International Industrial Relations.

MBA 936-18 PERFORMANCE AND COMPENSATION MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	Increase the awareness of the process and principles of performance Management / appraisal.
CO2	Identify the negative aspects of appraisal systems and consider how these might be overcome.
CO3	Discuss performance with regard to pay awards, and whether these should, or should not be automatically related to each other.
CO4	Demonstrate a familiarity with the appeal process relating specifically to the performance review.
CO5	Illustrate different ways to strengthen the pay-for-performance link and also learn the concepts of Payment and employee benefits issues for contingent workers.
CO6	Develop appropriate reward and compensation policies.

Department of Bachelor of Commerce (Hons.)

Programme Outcomes (POs)	
PO1	Having an ability to apply theories and practices of commerce trade.
PO 2	Entire the skills of marketing, selling, Accounts, Finance and journal Administration of Business entity.
PO 3	Having an ability to start their business micro and small business.
PO 4	Evaluate and describe having an ability to lead and achieve business goals by creating team environment.
PO 5	Recognize and use various qualitative, technical methods in solving problems.
PO 6	Apply the entrepreneurial skills for effective business management.

	Program Educational Objectives (PEOs)
PEO1	Give experiential learning and prepare Students for advance study and lifelong learning.
PEO2	To develops comprehensive knowledge of Accounting, Finance & Taxation and other related subjects.
PEO3	To foster competencies and development towards innovation, entrepreneurial, presentation and writing skills.
PEO4	Inculcate human value, ethics, teamwork skills, leadership skills, communication skills and sensitivity towards societal needs & values.

Semester – 1st

BCOM 101-18 BUSINESS ORGANIZATION AND MANAGEMENT	
Course Outcomes: After studying the course, students will be able to:	
CO1	Describe the evolution of management thoughts, the concept of management, and various forms of business organizations.

CO2	To learn about the functions of management including planning and its concepts, Different approaches of management such as MBO and decision making..
CO3	To understand concepts of social responsibility of business and issues regarding business ethics and ethical dilemmas.
CO4	To analyze various organization structures and understanding the concept of Departmentalization in the organization.
CO5	Explain about authority and responsibility, the concept of Centralization vs decentralization and coordination in an organization.
CO6	To understand the importance of motivation, concept of staffing, recruitment and Span of control in an organization.

BCOM 102-18 FINANCIAL ACCOUNTING	
Course Outcomes: After studying the course, students will be able to:	
CO1	Comprehend the Basics of Accounting and learn to prepare a Profit and Loss Account and Balance Sheet for the Sole Proprietor and Partnership Firm
CO2	Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP
CO3	Understand the concept and develop practical knowledge of Joint Venture, and Consignment Accounts
CO4	Illustrate the preparation of Voyage Accounts in case of a complete voyage & incomplete voyage
CO5	Develop analytical skills related to Departmental Accounts
CO6	Familiarize the concept of Royalty and Branch Accounts

BCOMGE 101-18 MANAGERIAL ECONOMICS	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the basic concepts of managerial economics and apply the economic way of thinking to individual decisions and business decisions.
CO2	Apply the knowledge of the mechanics of the demand and indifference curve
CO3	Understand and estimate production function and Law of Diminishing Marginal Utility.
CO4	Analyze and explain the relationship between production & theory of cost and revenue.
CO5	Define key characteristics and consequences of different forms of markets
CO6	Comprehend the basic concepts of supply and supply curves and pricing.

BTHU 103/18 ENGLISH-I	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the fundamental and tools of communication.
CO2	Develop in them the vital communication skills which are integral to their personal, social and professional communication.
CO3	Generate the specific and comprehensive understanding of difficult texts.
CO4	Analyze and interpret the text and enhance their reading skills.
CO5	Understand the format of Report and Letter Writing.
CO6	Generate proficiency in writing skills.

BTHU 104/18 ENGLISH-II	
Course Outcomes: After studying the course, students will be able to:	
CO1	Evaluate their listening skills effectively.

CO2	Understand the fundamentals and tools of communication.
CO3	Develop positive attitude and enhance their speaking skills.
CO4	Prepare for their forthcoming interviews.
CO5	Develop confidence and become independent users of Enlish Language.
CO6	Generate creative ideas confidently.

HVPE 101-18 Human Values,De-Addiction and Traffic Rules	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand need and process of value education.
CO-2	Identify and analyse basic human aspirations.
CO-3	Understand co-existence of self and body.
CO-4	Understand and analyse harmony in body and family
CO-5	Identify comprehensive human goal and existence as co-existence.
CO-6	Implement Right Understanding for holistic development.

HVPE 102-18 Human Values,De-Addiction and Traffic Rules (Lab/seminar)
One each seminar will be organized on Drug De-addiction and Traffic Rules. Eminent scholar and experts of the subject will be called for the Seminar atleast once during the semester. It will be binding for all the students to attend the seminar.

BMPD102-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester – 2nd

BCOM 201-18 Cost Accounting	
Course Outcomes: After studying the course, students will be able to:	
CO1	Enunciate to the students with the basic concepts, objectives, nature, and scope of cost Accounting
CO2	Comprehend the various intricacies of cost concepts and preparation of the cost sheet.
CO3	Understand and estimate material, labour, overheads, and sales variances for comparing Planned with actual results.
CO4	Apprise about the concept of reconciliation of cost and financial accounts and explain Process and contract costing
CO5	Acquaint students with the decision-making techniques using the concepts of marginal costing and budgetary control.
CO6	Familiarize the students with the concepts of contemporary developments in the Cost Accounting.

BCOM 202-18 Business Environment	
Course Outcomes: After studying the course, students will be able to:	
CO1	To provide knowledge of the environment in which businesses operate, the economic Operational and financial framework.
CO2	Analyze the relationships between Government and business.
CO3	To give students an understanding of the various constituents of the local and global business environments.
CO4	To enable students identify and reveal the structural components of the socio-cultural environment.
CO5	Demonstrate critical thinking and communication skills as applied to the public and private sectors.
CO6	To provide knowledge about the operation of different institutions in international Business environment.

BCOM GE201-18 Business Statistics	
Course Outcomes: After studying the course, students will be able to:	
CO1	Comprehend the fundamental concepts of statistics and also identify the various sources of data
CO2	Understand the basic concepts of sampling and Population.
CO3	Familiarize the students with the calculation of arithmetic mean, median, and mode.
CO4	Enable the students with the basics of variation and sampling distribution.
CO5	Recall the concept of correlation, regression analysis, and its applications.
CO6	Acquaint with the prerequisite knowledge required to understand the Probability and applications of probability theory.

EVS102-18 Environmental sciences	
Course Outcomes (CO):Students will be able to :	
CO1	Attribute the knowledge of multidisciplinary nature of environmental studies.
CO2	Understand the natural resources on the basis of their utilization and recognize their overexploitation
CO3	Evaluate the interlink between biotic and abiotic components of ecosystem.
CO4	Differentiate the terms of biodiversity and understand its role in society.
CO5	Apply the knowledge to understand the problems of pollution and its remedies by citing the case studies.
CO6	Relate the importance of environment sciences for sustainable approach.

BMPD202-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills

5	Presentations Skills

Semester – 3rd

BCOM 301-18 Management Accounting	
Course Outcomes: After studying the course, students will be able to:	
CO1	To familiarize the students with the concept of management accounting and analysis of financial statements.
CO2	To enable the students to understand, and apply the different ratios and interpretation thereof.
CO3	To make the students develop competence with the usage of budgetary control incorporates
CO4	To apprise about the Cash Flow Statements per AS-3
CO5	To comprehend the concept of Funds Flow statement in planning for intermediate and long-term finances
CO6	To identify the different responsibility centres and determine its objectives.

BCOM 302-18 Mercantile Law	
Course Outcomes: After studying the course, students will be able to:	
CO1	Define the concept, approaches and application of Contract Act and essentials of a valid acceptance in business decision making.
CO2	Understand the concept, discharge of contract, remedies for breach of contract and Law of Indemnity and Guarantee, Law of Bailment and pledge.
CO3	Understand and apply the provisions of Partnership Act in business decision making.
CO4	Describe the provisions of The Sale of Goods Act 1930 and Formalities of the contract of sale.
CO5	Apply the provisions of Consumer Protection Act and Negotiable Instrument Act in business decision making.
CO6	To identify the Essential elements of promissory Note and Bill of Exchange, Acceptor, Acceptance for honour, Holder in Due Course of in business decision making.

BCOM 303-18 Human Resource Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	To explain the basics of Human Resource Management
CO2	To explicate the new trends in HRM and HRM practices in India.
CO3	To appraise various functions of HRM that facilitate employee hiring viz. human resource planning, job analysis recruitment and selection.
CO4	To understand the role of training, development and career planning functions in human resource development.
CO5	To analyze the functions of performance appraisal and compensation management namely, wages and salary administration, incentives and fringe benefits.
CO6	To comprehend the concept of Industrial relations

B.COMGE 301-18 Indian Economy	
Course Outcomes: After studying the course, students will be able to:	
CO1	To familiarize the students with various aspects of Indian economy like Demographic Features of Indian Population, Hurdles in Economic Development.
CO2	To be acquainted the Policies of the economy & various issues in agricultural sector of India.
CO3	To understand the concept of Unemployment and MSMEs, cottage industries of India.
CO4	To analyze the concept of monetary and fiscal policy.

CO5	To know the impact of Liberalization, Privatization and Globalization.
CO6	To understand the India's Foreign Trade, role of export promotion and WTO.

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BCOM SEC 301-18 Workshop on IT tools for Business and E-Commerce	
Course Outcomes: After studying the course, students will be able to:	
CO1	Develop understanding of computer fundamentals, functions and their classifications and gain knowledge about computer software.
CO2	Develop a clear understanding and knowledge about the functioning of a window operating system.
CO3	Demonstrate proficiency in Microsoft word and its various Components
CO4	Apply formatting and editing features to enhance Skills of Power-Point.
CO5	Application of Formulas, Tables, Graphs and charts in MS-Excel.
CO6	To develop skills to design a website for E-Commerce and trend of internet advertising.

BMPD302-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 4th

BCOM 401-18 Corporate Accounting	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the basic of Accounting for Share Capital and Debentures.
CO2	To acquaint the students with the preparation of Final Accounts of Company.
CO3	To enable the students to the valuation of Goodwill and Shares
CO4	Enunciate the students with the methods of Banking Companies.
CO5	To Familiarize the students about the key concept of AS-14 (ICAI) Amalgamation of Companies.
CO6	Comprehend and apply the concepts of Insurance Companies for understanding.

B.COM 402-18 Company Law	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the various clauses of Indian Companies Act-2013
CO2	Know the procedure of formation of a company
CO3	Develop the understanding about the MOA, AOA & Prospectus
CO4	Know about the concept of Share capital
CO5	Develop an understanding of appointment and removal of directors.
CO6	Understand the procedure of Audit &winding up of a company and distribution of dividends

BCOM 403-18 Income Tax Law & Practice

Course Outcomes: After studying the course, students will be able to:	
CO1	Students would identify the technical terms related to Income Tax and also compute the residential status of an individual and scope of total income.
CO2	Students would compute income from salaries, house property and business/profession.
CO3	Students would compute and discuss the Capital Gains, Income from Other Sources, Clubbing/Aggregation of Income for better opportunities for individual.
CO4	Students would identify the technical terms related to Set-off and Carry-Forward of Losses and Deductions from Total Income. Taxation of Individuals, Hindu Undivided Family, Firms and Association of Persons.
CO5	Students would compute and discuss the Tax and Other Special Provisions Relating to Companies. Collection and Recovery of Tax, Tax Deduction at Source, Tax Collection at Source, Recovery and Refund of Tax
CO6	To enable the students to assess the tax of individual and how the cases would be settled and discuss the procedure for e -filling and application of penalties and prosecutions .

BCOMGE 401-18 Entrepreneurship Development	
Course Outcomes: After studying the course, students will be able to:	
CO1	Describe the concept and theories of entrepreneurship and its role in economic development of nation
CO2	Develop business plan and identify the reasons of failure of business plans.
CO3	Illustrate the steps in starting MSME.
CO4	Comprehend government policies and regulatory framework available in India to facilitate the process of entrepreneurial development.
CO5	Identify different sources of finance for new enterprises
CO6	Assess the role of financial institutions and various government schemes in entrepreneurial development.

BCOM SEC 401-18 Workshop on Computerised Accounting	
Course Outcomes: After studying the course, students will be able to:	
CO1	Apply accounting procedures using specialized computer accounting software
CO2	Develop knowledge of a basic accounting vocabulary
CO3	Apply basic knowledge of computers and computerized accounting software
CO4	Evaluate basic skills in entering accounting information into a computerized accounting system
CO5	Develop an understanding of the need for quality of data entry in accounting.
CO6	With the complete understanding of accounting and business records and reports students can manage accounts independently.

BMPD402-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)

3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 5th

BCOM 501-18 Financial Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concept of financial management and time value of money.
CO2	Evaluate return for ascertain the price of invested capital and determinants of cost of capital
CO3	Develop the knowledge in the concept of capital structure and leverages.
CO4	Apply capital budgeting projects using traditional method and modern method.
CO5	Develop understanding of how dividend decision taken by firm and how it may affect company in long run.
CO6	To familiarize the students with the concept of working capital the organization performance improved.

BCOM 502-18 Goods and Service Tax	
Course Outcomes: After studying the course, students will be able to:	
CO1	To enable students to understand the background and the Administration of Indirect Taxes
CO2	To understand the Needs, Benefits and Constitutional Framework of GST and its GST model.
CO3	Acquire knowledge about the concept of supply and Reverse Charge.
CO4	To Know the Basic Exemptions under Goods and Services Tax, Concept of Time, Value & Place of Taxable Supply of Goods/Services.
CO5	To understand the Input Tax Credit & Computation of GST Liability and with its Provisions related to Refund.
CO6	To Know the Procedural Compliance under GST: Registration and also Provisions regarding filing of Return.

BCOP 521-18 Banking Services Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Develop understanding of Banking system and structure in India and what services provided by bank to the public.
CO2	In detail we study about the role of banking system and RBI .
CO3	Develop understanding regarding the reforms in Indian banking.
CO4	Develop a clear understanding and knowledge about the trends in Banking such as Electronic banking and core banking.
CO5	Student understand about the concept of Interest Rate Risk Management in Banks and Liquidity management.
CO6	To study about the Universal and Narrow Banking, Off-shore Banking and do the Analysis of Bank Statements.

BCOP 522-18 Insurance Service Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	To familiar the students with concept of insurance with various documents required.
CO2	To learn the role and functions played by insurance agents
CO3	To understand the concept of various insurance with its claims, distribution channels and processes.
CO4	To understand the powers and functions of IRDA Act.
CO5	To analyze concept of credit and deposit insurance.
CO6	To analyze the Tax benefits under Life Insurance Policies and issues related to human resource management in insurance sector

BMPD 502-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 6th

BCOM 601-18 Industrial Relations and Labor Laws	
Course Outcomes: After studying the course, students will be able to:	
CO1	Describe fundamental concepts and nature of Industrial Relations.
CO2	To understand the nature and role of trade unions for workers and industries.
CO3	To study the relevance of collective bargaining and its impact on employee-management relations.
CO4	To understand industrial disputes and ways to resolve them
CO5	To apply various industrial legislations in business.
CO6	To understand the provisions of various Payment Act.

BCOM 602-18 Operation Research	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concept, approaches, and applications of operations research and analyse the transportation problem and linear programming program.
CO2	Illustrate the methods of assignment problems and probabilistic models of business.
CO3	Explain the methods of game theory and dynamic programming to solve business problems.
CO4	Enunciate the techniques of queuing theory and network analysis to schedule business/project activities.
CO5	Understand the techniques of replacement theory.
CO6	Describe the concept of Inventory control to solve business problems.

BCOP 621-18 Banking Laws & Services

Course Outcomes: After studying the course, students will be able to:	
CO1	To understand the growth of Indian Banking Systems and acquire knowledge about different types of banks and banking system in India
CO2	To understand the basic concepts of banking and its functions and the banking scenario in India.
CO3	To know about the Reserve Bank of India Act and Banking Regulation Act.
CO4	To enable students to understand the various aspects of banker customer relationship and non-performing assets.
CO5	To equip the students with the knowledge of duties and responsibilities of banker.
CO6	To understand the various types of financial services and security creations.

BCOP 622-18Risk Management and Insurance	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the types and risk management techniques.
CO2	Know the process of risk management and the cost of risk.
CO3	Describe the concept of identification, evaluation and techniques of risk.
CO4	Know about the requirements and principles of insurance.
CO5	Discuss the legal aspects of insurance contract and various types of insurance.
CO6	To understand the powers and functions of IRDA Act

BMPD 602-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

	Programme Outcomes (POs)
PO1	Evaluate and describe contextual forces (macro and micro both) in business environment and identify their impact on business operations.
PO 2	Recognise and apply various qualitative, technical and analytical methods in solving business problems.
PO 3	Communicate effectively in various business settings both in written and oral formats.
PO 4	Explain the responsibility of business towards development of society. Students will also be able to distinguish between ethical and unethical behaviours.
PO 5	Develop strategies for effective functioning of functional areas such as marketing, strategy, finance and operations.
PO 6	Apply the entrepreneurial and managerial skills for effective business management.

Department of Bachelor of Business Administration(BBA)

	Program Educational Objectives (PEOs)
PEO1	Graduates will develop expertise in the area of accounts, marketing, interpersonal skills, human resource management and entrepreneurship.
PEO2	Graduates will develop competencies in qualitative and quantitative techniques to analyse the business data.
PEO3	Graduates will develop an understanding of economic, legal and social environment of Indian business.
PEO4	Graduates will develop responsiveness to social issues and will be able to identify business solutions to address the same. They will also be able to understand the issues of business ethics.

Semester 1st

BBA 101 Principles and Practices of Management
Course Outcomes: After studying the course, students will be able to:

CO1	Describe Evolution and fundamental concepts of management. Role and responsibilities of managers and various styles of management across organizations.
CO2	Apply various tools that would facilitate the decision making process in the business.
CO3	Develop analytical abilities to face the business situations with strategic planning.
CO4	To analyze various organizational structures.
CO5	Develop peer based learning, staffing and motivating of groups and teams.
CO6	To comprehend the application of various authority and controlling techniques in management.

BBA 102 BASIC ACCOUNTING	
Course Outcomes: After studying the course, students will be able to:	
CO1	o comprehend the basic underlying concepts, principles, and conventions of accounting.
CO2	o get an overview of the regulatory framework of accounting in India.
CO3	o identify the rules of debit and credit in accounting and understand the accounting process.
CO4	o prepare a firm's Trading, Profit & Loss, and Balance Sheet and reconciliation of Books of Cash and Bank.
CO5	o be familiar with the concept of depreciation and different methods to treat depreciation in accounting.
CO6	o analyze the final accounts of Companies and also describe the fundamental concept of Computerized Accounting.

BBAGE 101-18 Managerial Economics- I	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the basic concepts of managerial economics and apply the economic way of thinking to individual decisions and business decisions.
CO2	Measure price elasticity of demand, understand the determinants of elasticity and apply the concepts of price, cross and income elasticity of demand.
CO3	Understand and estimate of production function and Costs of Production and how they affect short and long run decisions.
CO4	Understand the different concepts of Revenue and relationship between TR, AR and MR.
CO5	Understand and explain four basic market models of perfect competition, monopoly, monopolistic competition, and oligopoly, and how price and quantity are determined in each model.
CO6	Understand the different Pricing Practices and Factor Pricing – Concepts of Rent, Profit, Interest-Rate of Return and Interest Rates.

BTHU 103/18 English	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the fundamentals and tools of communication.
CO2	Develop in them the vital communication skills which are integral to their personal,social and professional communication.
CO3	Generate the specific and comprehensive understanding of difficult texts.
CO4	Analyze and interpret the text and enhance their reading skills.
CO5	Understand the format of Report and Letter Writing.
CO6	Generate proficiency in writing skills.

BTHU 104-18 English Practical/Laboratory	
Course Outcomes: After studying the course, students will be able to:	
CO1	Evaluate their listening skills effectively.
CO2	Understand the fundamentals and tools of communication.

CO3	Develop positive attitude and enhance their speaking skills.
CO4	Prepare for their forthcoming interviews.
CO5	Develop confidence and become independent users of English Language.
CO6	Generate creative ideas confidently.

HVPE-101-18 Human Values,De-Addiction and Traffic Rules	
Course Outcomes: After studying the course, students will be able to:	
CO-1	Understand need and process of value education.
CO-2	Identify and analyse basic human aspirations .
CO-3	Understand co-existence of self and body.
CO-4	Understand and analyse harmony in body and family
CO-5	Identify comprehensive human goal and existence as co-existence.
CO-6	Implement Right Understanding for holistic development.

HVPE 102-18 Human Values, De-addiction and Traffic Rules (Lab/Seminar)
Course content: - One each seminar will be organized on Drug De-addiction and Traffic Rules. Eminent scholar and experts of the subject will be called for the Seminar atleast once during the semester. It will be binding for all the students to attend the seminar.

BMPD102-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 2nd

BBA 201-18 Business Statistics	
Course Outcomes: After studying the course, students will be able to:	
CO1	Comprehend the fundamental concepts of statistics and also identify the various sources of data
CO2	Understand the basic concepts of sampling and Population.
CO3	Familiarize the students with the calculation of arithmetic mean, median, and mode.
CO4	Enable the students with the basics of variation and sampling distribution.
CO5	Recall the concept of correlation, regression analysis, and its applications.
CO6	Acquaint with the prerequisite knowledge required to understand the Probability and applications of probability theory.

BBA202-18 Business Environment	
Course Outcomes: After studying the course, students will be able to:	
CO1	To provide knowledge of the environment in which businesses operate, and discuss about the economic conditions of business.
CO2	Analyze the relationships between Government and political policies.
CO3	To give students an understanding of the various constituents of the local and legal business environments.

CO4	To enable students identify and reveal the structural components of the socio-cultura environment
CO5	Demonstrate critical thinking and communication skills as applied to the public and private sectors.
CO6	To provide knowledge about the operation of different institutions in international Business environment.

BBAGE 201-18 Managerial Economics-II	
Course Outcomes: After studying the course, students will be able to:	
CO1	Explain the concept of national income and its measurement using different approaches.
CO2	Describe the underlying theories of demand and supply of money in an economy.
CO3	Interpret macroeconomic issues like inflation and unemployment.
CO4	Identify the phases of the business cycle and the problems caused by cyclical fluctuations in the market economy.
CO5	To enunciate the students with the Concept of Multiplier.
CO6	Make use of employment and national income statistics students will be able to describe and analyze the economy in quantitative terms.

EVS102-18 Environment Studies	
Course Outcomes: After studying the course, students will be able to:	
CO1	Attribute the knowledge of multidisciplinary nature of environmental studies.
CO2	Understand the natural resources on the basis of their utilization and recognize their overexploitation.
CO3	Evaluate the interlink between biotic and abiotic components of ecosystem.
CO4	Differentiate the terms of biodiversity and understand its role in society.
CO5	Apply the knowledge to understand the problems of pollution and its remedies by citing the case studies.
CO6	Relate the importance of environment sciences for sustainable approach.

BMPD202-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 3rd

BBA 301- Organizational Behaviour	
Course Outcomes: After studying the course, students will be able to:	
CO1	To explain the basics of Orgnaizational behavior and various challenges for OB
CO2	To illustrate the foundations of Individual Behaviour and various factors influencing Individual behaviour viz.
CO3	To Explain or illustrate the foundations of learning, personality, perception, attitude and motivation.
CO4	To examine the dynamics of group development and group properties.
CO5	To understand various dimensions of organisational culture.
CO6	To analyse the process of conflict management and approaches to stress management.

BBA 302- 18 Marketing Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Explain the basics of marketing, selling and its core concepts.
CO2	Describe the intricacies of the marketing environment and marketing information systems for Effective marketing planning and strategies.
CO3	Develop necessary skills for effective market segmentation, targeting and positioning. Analyzing the marketing mix and its components.
CO4	Illustrate various components of product mix, product life cycle and comprehend the new product development process.
CO5	To gain knowledge about the emerging trends in marketing about Pricing mix and its strategies.
CO6	Develop an understanding of promotion mix and strategies for successful promotion, Designing and Managing Marketing Channel, Managing Retailing, physical distribution system and its components.

BBA 303-18 Cost and Management Accounting	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concept of Cost accounting and Management accounting.
CO2	To Familiarize the students about the key concept of Ratio Analysis.
CO3	To enable the students to analyze financial statements using various tools for financial analysis and interpret the financial position of a business organization.
CO4	Enunciate the students with the methods of Standard Costing.
CO5	Comprehend and apply the concepts of budgetary control for better decision-making.
CO6	To acquaint the students with the decision making techniques using the concepts of marginal costing.

BBAGE- 301-18 Production and Operations Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand ever growing importance of Product Operation management in business environment.
CO2	Gain an in-depth understanding of resource utilization of an organization.
CO3	Gain in dept understanding the way to prepare a plant in numerous way and also discuss the term production planning control.
CO4	Appreciate the unique challenges faced by firms in services and manufacturing.
CO5	Understand the subject as a crucial part to learn the modern techniques to production and identify the error to control.
CO6	Discuss the various concept of Value analysis. Stock control systems. Virtual factory concept. It also include the TQM and control charts.

BBA- SEC 301 IT Tools for Business	
Course Outcomes: After studying the course, students will be able to:	
CO1	Develop understanding of computer fundamentals, functions and their classifications.
CO2	Develop a clear understanding and knowledge about the functioning of a Computer software and window operating system.
CO3	Demonstrate proficiency in Microsoft word and its various Components.
CO4	Apply formatting and editing features to enhance Skills of Power-Point.
CO5	Use styles, themes, and conditional formats to customize worksheets.
CO6	Application of Formulas, Tables, Graphs and Charts on Worksheets.

BMPD302-18 MENTORING AND PROFESSIONAL DEVELOPMENT

The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 4th

BBA 401 Business Research Method	
Course Outcomes: After studying the course, students will be able to:	
CO1	To understand the objectives, process and types of research design.
CO2	Analyze the advantages and types of sampling.
CO3	Understand various techniques of sampling and probability sampling techniques methods of data Collection.
CO4	Identify the levels of measurements and scaling techniques.
CO5	Guidelines and types for developing a good questionnaire.
CO6	Apply different methods of data preparation and report writing.

BBA 402 Human Resource Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	To explain the basics of Human Resource Management and analyse the evolution of HRM.
CO2	To appraise various functions of HRM that facilitate employee hiring viz. humanresource planning.
CO3	To appraise the basics and depth study of job analysis , recruitment and selection.
CO4	To understand the role of training, development, career planning and performanceappraisal functions in human resource development.
CO5	To analyse the functions of compensation management namely, wages and salaryadministration, incentives and fringe benefits.
CO6	To comprehend the meaning and concept of Industrial relations.

BBA 403 Financial Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concept of financial management and time value of money.
CO2	Evaluate return for ascertain the price of invested capital and determinants of cost of capital
CO3	develop the knowledge in the concept of capital structure and leverages
CO4	Apply capital budgeting projects using traditional method and modern method.
CO5	With the concept of working capital the organization performance improved.
CO6	Develop understanding of How dividend decision taken by firm and how it may affect company in long run

BBA GE- 401 Entrepreneurship Development
Course Outcomes: After studying the course, students will be able to:

CO1	Describe the concept and theories of entrepreneurship and its role in economicdevelopment of nation.
CO2	To understand the different types, barriers and ED cycle. Illustrate the steps in starting MSME.
CO3	Develop business plan and identify the reasons of failure of business plans.
CO4	Comprehend government policies and regulatory framework available in India tofacilitate the process of entrepreneurial development.
CO5	Identify different sources of finance for new enterprises and assess the role of financialinstitutions.
CO6	Discuss the various government schemes in entrepreneurial development and financing options.

BBA SEC- 401 Business Ethics & Corporate Social Responsibility	
Course Outcomes: After studying the course, students will be able to:	
CO1	**E**xplore the relationship between ethics and business across different cultural traditions.
CO2	To understand about the Ancient Indian Educational System; Science and Human Values and also Understand the information regarding Indian ethos.
CO3	Understand the holistic approach for managers and professional ethics of human values.
CO4	Discuss the moral and social responsibility dimensions of corporate governance.
CO5	Describe models of CSR in India and international framework for CSR.
CO6	Relationship between CSR and MDGs and UN guiding principles on business and human rights.

BMPD402-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 5th

BBA 501-18-Operation Research	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concept, approaches and applications of operations research.
CO2	Illustrate the methods of linear programming for decision making.
CO3	Analyses the transportation and assignment problems of business.
CO4	Explain the methods of game theory to solve business problems.
CO5	Enuciate the techniques of network analysis to schedule business / project activities.
CO6	Describe the techniques of Inventory control to solve business problems.

BBA 502-18 Mercantile Law	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concept, approaches and application of Contract Act and essentials of a valid acceptance in business decision making
CO2	Comprehend. the concept, discharge of contract, remedies for breach of contract and Law of Indemnity and Guarantee, Law of Bailment and pledge
CO3	The Sale of Goods Act 1930, Formalities of the contract of sale and rights of Unpaid Seller.
CO4	Understand the Essential elements of promissory Note and Bill of Exchange of in business decision making.

CO5	Understand and apply the provisions of Partnership Act in business decision making
CO6	To Gain knowledge about the applicability of different rights and protective laws for consumers.

BBA 511-18 Consumer Behaviour	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the concept of consumer behavior.
CO2	To analyze the emerging trends in consumer behavior and consumer motivation.
CO3	Acquire knowledge on personality and perception of the consumers.
CO4	Learn and understand the impact of social and cultural settings on consumer behaviour.
CO5	To understand role of opinion leaders and process of diffusion of innovation.
CO6	Understand the consumer decision making models.

BBA 512-18 Advertising and Sales Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand advertising and its role in Marketing
CO2	Apply knowledge of advertising components in designing effective campaign for products and services
CO3	Design effective Media strategy for its product /Service awareness
CO4	Apply its knowledge in recruiting and selecting right set of Sales force for sellingproducts and services in market
CO5	Design sound sales strategy for its products and services.
CO6	Measure performance of sales force and sales territories.

BBA 521-18 Corporate Accounting	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand and apply the basic concepts of accounting for share capital
CO2	Develop the practical knowledge of the process of Book-Building, Right, and Bonus Issue
CO3	Acquire the basics of accounting for preference share and debentures
CO4	Apprise about the preparation of financial statements and their provisions
CO5	Comprehend the fundamentals of consolidation of accounts and apply them.
CO6	Familiarize the students with the concept of Financial Reporting

BBA 522-18 Financial Market and Service	
Course Outcomes: After studying the course, students will be able to:	
CO1	lentify the prevailing financial system and financial markets in India.
CO2	escribe the various financial instruments available in India
CO3	Apprise about the roles of intermediaries and regulating bodies in Indian Financial System.
CO4	Acquire knowledge about different financial services
CO5	omprehend the basics of the structure and schemes of mutual funds
CO6	nderstand the process of Debt Securitization and know the concept of Venture Capital.

BBA 531-18 Industrial Relations and Labour Laws	
Course Outcomes: After studying the course, students will be able to:	
CO1	Describe fundamental concepts and nature of Industrial Relations.
CO2	To understand the role of trade unions and Quality circles for workers and industries.
CO3	To study the relevance of collective bargaining, grievance management and its impact on employee-management relations.
CO4	To understand industrial disputes and ways to resolve them and the role of Workers participation in Management.

CO5	To acquire knowledge about emergence and objectives of various labour laws.
CO6	To study various industrial legislations in business.

BBA 532-18 Organization Change and Development	
Course Outcomes: After studying the course, students will be able to:	
CO1	Develop understanding of organization change and illustrate theories of planned change.
CO2	Analyze the issues and problems arising out of organizational change initiatives.
CO3	Understand the concept of Resistance and Methods of minimizing resistance and able to study The Strategies of change.
CO4	Explain the meaning, objectives and process of organizational development.
CO5	Understand the role of various intervention strategies in organizational development.
CO6	Explain the issues in the consultant client relationship

BMPD 502-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

Semester 6th

BBA 601-18-Strategy Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Gain familiarity with the basics of strategy planning and corporate strategies.
CO2	Understand the complete process of strategic management and various models of Business Environment.
CO3	Understand the segmentation process and environmental scanning.
CO4	Identify and understand different types of Diversification strategy and its applicability in corporate world
CO5	Familiarity with the basics of Strategic Choice and its concepts and also know about Strategic Implementation.
CO6	Understand the concept of Strategic evaluation and control and also know the concept of Strategic Leadership

BBA 602-18 Company Law	
Course Outcomes: After studying the course, students will be able to:	
CO1	nderstand the various clauses of Indian Companies Act-2013.
CO2	now the procedure of formation of company and the concept of prospectus.
CO3	To understand about the Memorandum of association and Articles of association.
CO4	Describe the share capital and borrowing powers of a company
CO5	Develop an understanding of conducting of board and other meetings and winding of company law.
CO6	Understand about the administration of company law, Dividends, Accounts and Audit.

BBA 611-18 Services Marketing	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the different types of Services, its characteristics and services marketing mix.
CO2	Explore how to manage consumer behaviour, customer expectations and perceptions in the service marketing.
CO3	Comprehend the customer centric approach of building relations with customers and set customer defined standards.
CO4	Know about various concepts of marketing and its integration with services.
CO5	Learn to manage demand and capacity of services.
CO6	Infer about delivery of the services with customer centric approach.

BBA 612-18 -Retailing and Logistics Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the significance of retailing and various retail formats available
CO2	To understand the importance of buying behaviour retailing and Social factors affecting buying behaviour
CO3	Gain knowledge of retailing strategy and financial and human resource management in Retailing
CO4	Comprehend merchandise and store management strategy
CO5	evelop an understanding of Supply Chain Management and Logistics.
CO6	o understand the the Logistics Structure and its functioning.

BBA 621-18 -Personal financial planning	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the importance of personal financial planning and the time value of money which is fundamental in achieving their financial goals.
CO2	Comprehend the students with the concept of financial statements and ratio analysis.
CO3	Describe the concept of risk return, risk management, and insurance.
CO4	Enunciated the ability to reach their financial objectives by explaining investment fundamentals, and taxation policy.
CO5	Acquire knowledge about building and maintenance of a good credit system
CO6	Apprise about the comprehensive financial planning related to retirement and estate planning.

BBA 622-18 Direct and Indirect Tax Laws	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand the history of direct and indirect tax laws and the concept of income assessment.
CO2	You able to know about the different types of incomes heads and their taxability and expenses with computation of Gross Total Income.
CO3	Learn about the procedure of set off and carry forward of losses in Clubbing of income and there deductions.
CO4	Learn about how to file ITR forms and PAN card.
CO5	Working knowledge of principles and provisions of GST.
CO6	Learn how to register new user on GST portal.

BBA- 631-18 Training and Development

Course Outcomes: After studying the course, students will be able to:	
CO1	nderstand the concepts and principles of Learning.
CO2	evelop understanding about training and development into practice personally, locally and globally. ble to assess training needs and select optimal method for employee Training.
CO3	evelop acumen to evaluate training effectiveness.
CO4	xplain the composition, formation and role of teams in dynamic of team management and decision making.
CO5	evelop acumen to evaluate training effectiveness that enable the organization to achieve Its goals.
CO6	omprehend the emerging issues for T& D in Indian industries.

BBA 632-18 Cross Cultural Human Resource Management	
Course Outcomes: After studying the course, students will be able to:	
CO1	Understand issues, opportunities and challenges pertaining to Cross Cultural HRM.
CO2	evelop competency in dealing with cross cultural situations in context with culture.
CO3	lentify the different models for comparing cultural differences at international level.
CO4	nderstand external forces (e.g. globalisation, sociocultural changes, political and economic changes) that have the potential to shape Cross Cultural HRM along with staffing and training functions undertaken at global level.
CO5	To familiarize students with different Global Staffing choices
CO6	o acquaint the students with emerging models of strategic management in international context and ethical values across cultures.

BMPD 602-18 MENTORING AND PROFESSIONAL DEVELOPMENT	
The objective of mentoring will be development of:	
1	Overall Personality
2	Aptitude (Technical and General)
3	General Awareness (Current Affairs and GK)
4	Communication Skills
5	Presentations Skills

	Programme Outcomes (POs)	Graduate Attributes
PO 1	How to Apply the knowledge of hotel, hospitality and tourism, and core area specialization to the solution of complex hotel management problems faced on a day to day base in the industry	Hotel and Hospitality Knowledge
PO 2.	To be able to Identify, formulate, research, and analyze complex hospitality problems reaching conclusions using principles of management.	Problem analysis
PO 3.	To be able to understand the impact of the hotel, hospitality tourism in societal and environmental contexts, and demonstrate the knowledge for sustainable development keeping the goals of the organization in site.	Environment and Sustainability
PO 4	To have the ability to design solutions for complex hospitality related problems and design system components or processes that meet the standards of the industry with appropriate consideration for the public health and safety, and the cultural societal. and environmental considerations	Designing /developing solutions
PO 5	Create, select, and apply appropriate techniques, resource, management and IT tools with an understanding of the limitations that the industry may face.	Modern Tool Usage
PO 6	To have the ability to reason with situations informed by knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional practices	Hospitality and Society
PO 7	To understand and apply the ethical principles and commit to professional ethics and responsibilities and norms of the industries practices.	Ethics
PO 8	Communicate effectively on hospitality activities with the professional community and with the society at large. Being able to comprehend and write effective reports and design documentation, make effective presentations, and to be able give and receive clear instructions.	Communication
PO 9	Recognize the need for, and to be prepared and have the ability to engage in independent and lifelong learning in the broadest context of technological change. To be able to adapt to the changing trends of the industry while applying the same to the organizations growth.	Lifelong learning
PO 10	Develop management skills and learn culinary skills for a successful career as a hospitality management professional.	Management & Culinary Skills
PO 11	Develop critical thinking skills and apply them to complex problems.	Critical Thinking
PO 12	Demonstrate the attitude favorable to the field of Hospitality Tourism and elicit views of others, mediate disagreements and help to reach conclusions in large Hospitality Group Settings.	Social Interaction

Department of Hotel Management

	Programme Specific Outcomes (PSOs)

PSO 1	To Learn and apply Hospitality studies theory and employ appropriate methodologies to help an individual or organization achieve its goals and objectives.
PSO 2	Acquire the necessary departmental skills to be able to perform on the shop floor.
PSO 3	Keeping the students updated with the latest trends of the hospitality industry
PSO 4	Specialization in the 4 core departments such as Food Production & Pâtés sire, Food & Beverage Service, Hotel front Office and Hotel Housekeeping.

Semester – 1st

BHMCT-101-18 - Food Production Foundation-I After studying the course, students will be able to:	
CO1	To understand about the introduction of cookery and their history.To know about the hierarchy of the department.
CO2	To understand about culinary terms of cooking, aims and objectives of cooking and HACCP procedure.
CO3	To know about fuels used in catering industry, fire prevention and firefighting system and methods of cooking food.
CO4	To understand about vegetable and fruit cookery, Stocks, Soups, Sauces and egg cookery.
CO5	To understand about salad, sandwich and commodities.
CO6	To know about Kitchen organization and kitchen layout.

BHMCT-102-18 - Food Production Foundation-I (Practical) After studying the course, students will be able to:	
CO1	To be able to list and relate to kitchen equipment's and their handling
CO2	To develop the ability to classify different vegetables along with the cuts and basic methods of cooking food.
CO3	To learn and compare various methods of cooking of basic mother sauces used in Food Production.
CO4	To understand about basic soup, potato and sandwich preparations.
CO5	Students will able to practice the production of basic bakery & confectionary products such as breads, pastries & Cakes
CO6	To know about simple cookies, hot and cold desserts.

BHMCT-103-18 - Food & Beverage Service Foundation-I After studying the course, students will be able to:	
CO1	To understand the origin of the food and beverage industry.
CO2	Students will be able to enhance knowledge by learning about various types of catering operations
CO3	To know about the different types of food service areas (F&B Outlets) and ancillary departments (back of the house areas)
CO4	Students will be able to undergo the departmental organization
CO5	To gain expertise about staffing procedure.

CO6	To gain knowledge about the use of service equipments and preparation of service

BHMCT-104-18 - Food & Beverage Service Foundation-I (Practical)	
After studying the course, students will be able to:	
CO1	Students will be able to familiarization of F&B Service equipment.
CO2	To gain knowledge of various types of crockery and cutlery used in restaurant.
CO3	Students will be confident by learning technical skills used for Restaurants Service.
CO4	To understand about preparation for service
CO5	To know the opening and closing duties of restaurant.
CO6	Students will be practically able to serve tea and coffee service.
BHMCT-105-18 - Front Office Foundation-I	
After studying the course, students will be able to:	
CO1	To understand the work ethics towards customer care and satisfaction and its basic skills & knowledge of front office. Evolution of Tourism and Hotel Industry, Introduction of World's leading Hotel Operators and their brands,
CO2	Students will be able to outline and explain hospitality industry and its importance as well as tourism industry. Role of Tourism industry in Indian economy with a special emphasis on Hotel Industry.
CO3	Students will be able to endorse classification of hotels & describe the most distinctive feature of each, Star Classification of hotels, Types of hotels
CO4	Student will be able to analyze, evaluate & discuss front office organization.
CO5	To understand Vacation Ownership/Timeshare, Condominium.
CO6	To be able to understand Front Office Equipment: - automated, semi-automated, non-automated bell desk: - Functions Procedures and Formats.

BHMCT-106-18 - Front Office Foundation-I (Practical)	
After studying the course, students will be able to:	
CO1	Students will be able to acquire the knowledge of basic front office operations.
CO2	Students will be able to analyze, evaluate & learn working of subsections of front office
CO3	Students will be able to demonstrate reservation practices and luggage handling
CO4	They will gain knowledge about functioning of various equipment's of Front Office.
CO5	To understand the how to Reserve room: FIT, Corporate guest and group.
CO6	Students will be able to understand how to do Luggage Handling: FIT, Walk-in, Scanty Baggage, regular, crew and group

BHMCT-107-18 – Accommodation Operations-I	
After studying the course, students will be able to:	
CO1	Will explain the fundamental principles of housekeeping in the context of hospitality operations, including cleanliness standards, room maintenance, and guest satisfaction.
CO2	Will recognize and explain the different hierarchical levels present in a typical housekeeping department
CO3	Will describe the roles, responsibilities, and duties associated with key positions within the housekeeping department

CO4	Will explain the role of guest room cleaning in ensuring guest satisfaction, health, safety, and the overall reputation of a hospitality establishment.
CO5	Will explain the critical role of pest control in maintaining hygiene, guest comfort and health.
CO6	Will explain the significance of effective inter-departmental relationships in achieving organizational goals and enhancing communication

BHMCT-108-18 – Accommodation Operations-I (Practical)	
After studying the course, students will be able to:	
CO1	Students will be able to gain knowledge about How to familiarize with Cleaning Equipment- (manual and mechanical)
CO2	Students will have insight on Different Types of Cleaning Agents
CO3	Students will acquire knowledge on how to work on Maid's trolley
CO4	Students will acquire knowledge about different samples layouts of Guest Rooms
CO5	Students will be able to know different types of Guests Room Supplies and positions
CO6	Students will be able to gain knowledge about Public Area cleaning procedure and metal cleaning

BTHU103-18 – English	
After studying the course, students will be able to:	
CO1	Understand the fundamentals and tools of communication.
CO2	Develop in them the vital communication skills which are integral to their personal, social and professional communication.
CO3	Generate the specific and comprehensive understanding of difficult texts.
CO4	Analyze and interpret the text and enhance their reading skills.
CO5	Understand the format of Report and Letter Writing.
CO6	Generate proficiency in writing skills.

BTHU104-18 – English Practical	
After studying the course, students will be able to:	
CO1	Evaluate their listening skills effectively.
CO2	Understand the fundamentals and tools of communication
CO3	Develop positive attitude and enhance their speaking skills.
CO4	Prepare for their forthcoming interviews
CO5	Develop confidence and become independent users of English Language
CO6	Generate creative ideas confidently.

HVPE101-18 – Human Values, De-addiction and Traffic Rules	
After studying the course, students will be able to:	
CO1	To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations fall human beings. Understanding the need, basic guidelines, content and process for Value Education.

CO2	To facilitate the development of a Holistic perspective among students towards life, profession and happiness, based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Value based living in a natural way. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer). Understanding the needs of Self ('I') and 'Body' - Sukhand Suvidha
CO3	To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually satisfying human behavior and mutually enriching interaction with Nature
CO4	This course is intended to provide a much needed orientational input in Value Education to the young enquiring minds.
CO5	To implications of the above Holistic Understanding of Harmony on Professional Ethics.
CO6	To highlight strategy for transition from the present state to Universal Human Order.

HVPE102-18 – Human Values, De-addiction and Traffic Rules Practical	
After studying the course, students will be able to:	
CO1	To help the students appreciate the essential complementarily between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.
CO2	To facilitate the development of a Holistic perspective among students towards life, profession and happiness, based on a correct understanding of the Human reality and the rest of Existence. Such a holistic perspective forms the basis of Value based living in a natural way
CO3	To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually satisfying human behavior and mutually enriching interaction with Nature.
CO4	this course is intended to provide a much needed orientational input in Value Education to the young enquiring minds
CO5	To understand Quiz (General/Technical) Presentations by the students, Team building Exercises
CO6	To discuss about Group Discussion.

Semester – 2nd

BHMCT-201-18 - Food Production Foundation-II	
After studying the course, students will be able to:	
CO1	To understand the Concept of Menu Planning, Indian cookery basics.
CO2	To understand Commodities in Indian cuisine and also about Rice, Cereals and Pulses, meat and fish cookery
CO3	To know about types of pastries, methods of preparation, Structure, types, uses, processing and cooking of wheat, Flour.
CO4	To understand about bread making, Basic pastry creams, Uses in confectionery, Preparation and care in production
CO5	To understand about Milk Introduction, Processing, Pasteurization, Types of Milk, cream, cheese Nutritive Value, Cream, Cheese.

CO6	To know about Butter, sugar and their Introduction, Processing, Types.

BHMCT-202-18 - Food Production Foundation-II (Practical)	
After studying the course, students will be able to:	
CO1	Understand the basics of menu planning in Food Production.
CO2	Understand the concept, to develop product identification in production.
CO3	Create professional skills to handle non-veg.
CO4	Understand the basics of bakery.
CO5	Remember about various commodities use in daily need.
CO6	Remember about precautions in commercial kitchens.

BHMCT-203-18 - Food & Beverage Service Foundation-II	
After studying the course, students will be able to:	
CO1	Students will be able to learn about various types of food service techniques.
CO2	To gain expertise about the basics of Menu Planning.
CO3	Students will know about the types of meals and their setups.
CO4	Students will be able to develop knowledge of the process of In Room Dining
CO5	Student will learn about different billing system of restaurant.
CO6	To gain knowledge about the use and objective of Tobacco in Restaurant sector.

BHMCT-204-18 - Food & Beverage Service Foundation-II (Practical)	
After studying the course, students will be able to:	
CO1	To gain expertise in various types of food service techniques.
CO2	Students will be able to enhance knowledge by learning the basics of menu planning.
CO3	To gain knowledge about to evaluate types of meals.
CO4	To gain expertise in handling room service operations.
CO5	To gain expertise Students will be able to undergo the importance of sale abd billing system
CO6	To gain knowledge about the use and objective of Tobacco in Restaurant sector

BHMCT-205-18 - Front Office Foundation-II	
After studying the course, students will be able to:	
CO1	Students will be able to understand the usage of Room tariff structure, fixation and various types of plan.
CO2	Student will know the process of guest cycle and reservation procedure & systems.
CO3	Student will learn about different Modes of Payment while reservation
CO4	To Understand Registration, its importance, Types – Bound book register, loose leaf register & Guest Registration Card & formats
CO5	Student will be able to develop knowledge of registration process and execute guest handling.
CO6	Students will acquire to know how on various tasks in front desk function.

BHMCT-206-18 - Front Office Foundation-II (Practical)
After studying the course, students will be able to:

CO1	To perform Welcoming/Greeting of guest, To Familiarizing the students with various functions of front office and to develop work ethics towards customer care and satisfaction. Special efforts will be made to inculcate practical skills, Providing Information to the Guest.
CO2	To Know about the Telephone handling, how to handle enquiries, Suggestive selling, Reservation's process.
CO3	To be able to learn, filling up of various Forms and Formats used in front office.
CO4	To Understand Registrations: FIT, VIP, Corporate, Groups/Crew Security Deposit Box Handling.
CO5	To familiarize Credit Card Handling Procedure Foreign Currency Exchange Procedure, Introduction to PMS
CO6	To be able to understand Check in a reserved guest, Check in a walk- in guest, Printing registration cards, Make an Add-on reservation, Create and update guest profiles, Verify a key, Cancel a key, Amend a reservation.

BHMCT-207-18 – Accommodation Operations-II After studying the course, students will be able to:	
CO1	Understand functioning of housekeeping in hotel.
CO2	Remember role of each employee of housekeeping.
CO3	Understand organization ofhousekeeping department.
CO4	Understand various types of room.
CO5	Define cleaning agents and equipment's used for cleaning along with care and selection criteria.
CO6	Understand various types of Equipment.

BHMCT-208-18 – Accommodation Operations-II (Practical) After studying the course, students will be able to:	
CO1	To gain knowledge of cleaning occupied guest rooms and vacant guest rooms.
CO2	Students will be practically able to know to replenish guest supplies in a room.
CO3	To give practical knowledge to make bedding in guestrooms & giving necessary supplies.
CO4	Students will be able to know about the records to be maintain in the housekeeping department
CO5	To gain knowledge on various issues of handling guest supplies as required
CO6	Students will be practically able to handle the guest requests and give solution.

EVS102-18 – Environmental Science After studying the course, students will be able to:	
CO1	Attribute the knowledge of multidisciplinary nature of environmental studies
CO2	Identify the role of natural resources on the basis of their utilization and recognize overexploitation of natural resources
CO3	Evaluate the interlink between biotic and abiotic components of ecosystem
CO4	Differentiate the terms of biodiversity and understanding the role of biodiversity in Society
CO5	Apply the knowledge to understand the problems and remedies of environmental Sciences

CO6	Relate the importance of environment sciences for sustainable development of the society

Semester – 4th

BHMCT-401-18 - Introduction to Indian Cookery After studying the course, students will be able to:	
CO1	Students will be able to gain knowledge about the history & heritage of Indian Regional Cuisine
CO2	Students will have insight on various North and East region Indian Cuisines
CO3	Students will acquire knowledge on various cuisines of West, South and Central Indian Regions.
CO4	Students will acquire knowledge on Dum cooking.
CO5	Students will be able to know the History and Preparations for Tandoor cooking.
CO6	Students will be able to know the History, Equipment used while preparing and cooking of Indian sweets.

BHMCT-402-18 - Introduction to Indian Cookery (Practical) After studying the course, students will be able to:	
CO1	Understand the knowledge about history & culinary terms of Indian cuisines.
CO2	Gain the different types of meals all over India (state wise).
CO3	Perform the origin of dum cooking and classical dishes.
CO4	Understand the history and types of tandoor.
CO5	Understand marinades and Indian breads.
CO6	Remember Indian sweets equipment's used in it.

BHMCT-403-18 - Food & Beverage Service Operations-II After studying the course, students will be able to:	
CO1	Students will be able to acquire knowledge and learn about the alcoholic beverages.
CO2	Students will be able to classify various Wines along with its production methods.
CO3	Students will be able to analyses the various types of alcoholic beverages used in Food & Beverage Service Industry.
CO4	Students will get to know about Beer, its types, production and Storage.
CO5	Students will learn about grapes which is use for make wine.
CO6	Students will acquaint themselves with various types of Cheese, its production, Brands and their Services.

BHMCT-404-18 - Food & Beverage Service Operations-II (Practical) After studying the course, students will be able to:	
CO1	Students will be able to gain knowledge about the Dispense Bar – Organizing Mise-en-place
CO2	Students will have insight on bar stock - alcoholic & non-alcoholic beverages
CO3	Students will acquire knowledge on various Service of Wines
CO4	Students will acquire knowledge about service of Sparkling Wines
CO5	Students will be able to know the Wine & Drinks List.

CO6	Students will be able to know the Service of Beer.

BHMCT-405-18 - Front Office Operations-II After studying the course, students will be able to:	
CO1	Students will be able to develop knowledge on work ethics towards computer application and software used in front office.
CO2	Students will be able to outline and explain Front Office Accounting System.
CO3	Students will be able to endorse classify different mode of guest account settlement
CO4	Students will be to learn about check out procedures.
CO5	To learn night Auditor Duties & Responsibilities and Reconcile Transactions.
CO6	Student will be able to analyse, evaluate & discuss night auditing in front office.

BHMCT-406-18 - Front Office Operations-II (Practical) After studying the course, students will be able to:	
CO1	Understand the various methodologies of budgets.
CO2	Remember the various types of hotels based upon the ownership
CO3	Understanding key points of airline industry.
CO4	Remember about the various policies used for fixed the room tariffs
CO5	Understand about the concept of deed and ownership.
CO6	Enhancing the various skills for revenue maximization.

BHMCT-407-18 – Accommodation Operations-III After studying the course, students will be able to:	
CO1	Students will be able to understand the importance of Inspection and function of supervisors as well they aware about self-supervision techniques for cleaning staff.
CO2	Students will be able to learn about the layouts LINEN / UNIFORM / TAILOR ROOM and the process of storage, selection of linen or par stock.
CO3	Students will be able to learn about the Discard Management, importance of uniform designing and different Function perform in this topic.
CO4	Students will be able to acquire knowledge and learn about the special cleaning program in which they learn about Daily, Weekly, Fortnightly and Monthly Cleaning Routine cleaning, Spring cleaning, deep Cleaning.
CO5	Student will Understand About the Cleaning of different types of floor Surfaces, Special Service, Care and Cleaning of Metal
CO6	Students will be able to learn about the Textiles Terminology, classification and Characteristic of Textile Fibers Fabric Construction, Use of Textile in Hotels or about Blends and Unions of fabric textiles.

BHMCT-408-18 – Accommodation Operations-III (Practical) After studying the course, students will be able to:	
CO1	Students will be able to gain knowledge about How to remove stains from different surface or fabrics using all relevant cleaning agents in a practical real-life environment
CO2	Students will have insight on Different Types Laundry Equipment
CO3	Students will acquire knowledge on various cleaning methods like Daily, Weekly, Monthly and Deep Cleaning

CO4	Students will acquire knowledge about how to taking Inventories
CO5	Students will be able to know how to repair uniform – different types of stitching.
CO6	Students will be able to know Embroidery practice

BHMCT-409-18 – Accounting Skills for Hospitality After studying the course, students will be able to:	
CO1	Acquaint the basic principles of accounting and their application in the hospitality industry responsibility and environmental issues.
CO2	Demonstrate the generally accepted accounting principles of accounting and their applications.
CO3	Enlighten the financial organizational structure and its role in the planning of hotel business.
CO4	Provide to prepare, plan, execute and evaluate financial statements for a hospitality department.
CO5	Examine revenue and expense accounting through analysis of income statements and balance sheets.
CO6	Evaluate the various budget streams and the impact each has on a finance department.

Semester – 5th

BHMCT-501-18 - Larder & Kitchen practices After studying the course, students will be able to:	
CO1	Students will learn about various aspects of larder Section of the Kitchen And its Functions.
CO2	Students will be able to enhance their knowledge by learning about the processing of Charcuterie.
CO3	To know about the Preparation of Forcemeats and Galantines.
CO4	Students will Learn about Pate, Mousse and Mousseline.
CO5	To acknowledge Aspic & Gelee and Various Non-Edible Displays.
CO6	They will be able to Differentiate between various kinds of appetizers along with its Garnishes.

BHMCT-502-18 - Larder & Kitchen practices (Practical) After studying the course, students will be able to:	
CO1	Understand the knowledge about larder its definition and layout.
CO2	Gain the different Duties & Responsibilities of a larder chef
CO3	Learn the charcuterie, SAUSAGES and its Types & Varieties of CASINGS
CO4	Understand various Types of mousse & Preparation of mousse
CO5	Understand Classification of Appetizers
CO6	Remember various Parts of Sandwiches, Types of Bread and Types of filling

BHMCT-503-18 - Bar operations & Management After studying the course, students will be able to:	
CO1	Students will get insight about various spirits and their method of production.

CO2	Students will also learn about Various Ingredients, Types, Brands of different spirits.
CO3	They will learn about varieties of Aperitifs & Liqueurs along with their uses.
CO4	Students will be able to explain the History & Present scenario of Bar & Beverage Industry in India.
CO5	Students will also learn about Bar Planning & Layout.
CO6	Students will analyse and execute the bar operations and Selling techniques.

BHMCT-504-18 - Bar operations & Management (Practical)	
After studying the course, students will be able to:	
CO1	Students will learn about the service of various spirits; ie. Whisky, vodka, Rum, Gin.
CO2	Students will also learn about various Equipments & Styles of Beverage Service.
CO3	Students will also learn about varieties of Aperitifs & Liqueurs along with their uses.
CO4	Students will also learn about Service Accessories Used In Beverage Service.
CO5	Students will also learn to set bar for daily operations.
CO6	Students will also be able to mix beverages.

BHMCT-505-18 - Front Office Operations & Management	
After studying the course, students will be able to:	
CO1	To understand the outcome of bell desk & concierge operations.
CO2	Students will be able to enhance knowledge by learning forecasting types and forms
CO3	To gain knowledge about to evaluate forecast data.
CO4	Students will be able to undergo the importance of security systems.
CO5	To gain expertise in handling emergency situations.
CO6	To gain knowledge about the use of sales techniques for hotel rooms.

BHMCT-506-18 - Front Office Operations & Management (Practical)	
After studying the course, students will be able to:	
CO1	To gain knowledge of Handling Bell desk & Concierge operations
CO2	To evaluate reports for Room Availability
CO3	To analyse Room availability for Group Check-in & Group Checkout.
CO4	To Compare Room Tariffs of Hotels
CO5	To Check & use of Meta Search Hotel Website
CO6	Handling of keys-situations related to loss of keys

BHMCT-507-18 - Accommodation Operations & Management	
After studying the course, students will be able to:	
CO1	Students will be able to acquire knowledge and learn about the Planning and organizing the housekeeping department.
CO2	Students will be able to enhance their knowledge by learning about housekeeping tasks and what practices have to be made for energy and water Conservation.
CO3	To know about Budget and how it is Practiced.

CO4	Students will Learn how Purchasing and Stock record is maintained in Housekeeping.
CO5	To acknowledge housekeeping practices in Institutes other than Hotels.
CO6	They will be able to know about the Contract services and what Safety & Security procedures are followed in hotel.

BHMCT-508-18 - Accommodation Operations & Management (Practical) After studying the course, students will be able to:	
CO1	Students will learn about the layout of guest room: to the scale, earmark pillars.
CO2	Students will have insight on various Specification of Colors, Furniture, Fixture, Fitting, Soft Furnishing and Accessories
CO3	Students will acquire knowledge on standard operating procedure skill-oriented task
CO4	Students will acquire knowledge on cleaning and polishing glass, brass etc.
CO5	Students will be able to know the First Aid Kit, Dealing with Emergency Situation.
CO6	Students will be able to know the Maintaining Records Reporting Maintenance and Follow Ups.

BHMCT-509-18 - Food & Beverage controls and Management After studying the course, students will be able to:	
CO1	To understand the outcome of cost control & receiving operations.
CO2	Students will able to enhance knowledge in fraud receiving and food purchase
CO3	To gain knowledge about to evaluate the yield and methods of purchasing
CO4	Students will be able to learn the methods of storing & issuing control
CO5	To gain expertise in handling inventory control
CO6	To gain knowledge about the objectives & methods of production and sales control

Semester – 6th

BHMCT-601-18 - International cuisine- An Exploration After studying the course, students will be able to:	
CO1	Students will learn about various aspects of International Cuisines.
CO2	Students will be able to enhance their knowledge by learning about the Oriental and Chinese Cuisine.
CO3	To know about the Role of Production Management.
CO4	Students will Learn about the importance of Product and Research on it for its Development.
CO5	To acknowledge the necessity of Food Presentation.
CO6	They will be able to Differentiate between normal cooking methods and Cooking with Molecular gastronomy.

BHMCT-602-18 - International cuisine- An Exploration (Practical) After studying the course, students will be able to:	
CO1	Understand about the international; cuisines and their geographical locations.
CO2	Gain the knowledge about Chinese cuisine and its history, equipment and dishes.

CO3	Perform the daily operations of Kitchen Department through proper management system.
CO4	Understand the theoretical as well as the practical concepts of food presentation.
CO5	Understand about the molecular gastronomy.
CO6	Remember to do hands on practices of various molecular techniques.

BHMCT-603-18 - Banquet and restaurant operations & Management After studying the course, students will be able to:	
CO1	Students will be able to acquire knowledge about Planning and operations of various F&B outlets.
CO2	Students will be able to Plan and execute Function catering.
CO3	To gain knowledge about to evaluate banquet in detail.
CO4	Students will get practical experience in organizing and Executing Event Management
CO5	To gain expertise in handling MICE.
CO6	Students will know about the role of Kitchen Stewarding.

BHMCT-604-18 - Banquet and restaurant operations & Management (Practical) After studying the course, students will be able to:	
CO1	To gain expertise in various types of food service techniques.
CO2	Students will able to enhance knowledge by learning the basics of men planning.
CO3	To gain knowledge about to evaluate types of meals.
CO4	To gain expertise in handling room service operations.
CO5	To gain expertise Students will be able to undergo the importance of sale abd billing system.
CO6	To gain knowledge about the use and objective of Tobacco in Restaurant sector.

BHMCT-605-18 - Front Office Management After studying the course, students will be able to:	
CO1	Students will be able to outline and explain of budget & budget cycle, Factors affecting budget planning, budgetary control and Forecasting room revenue in front office management.
CO2	Students will be able to explain timeshare options and vacation ownership.
CO3	To know how to improve the timeshare / referral/condominium concept in India Government’s role/industry role.
CO4	To know Effective use of SOP’s in front office department. Establishing standards, monitoring performance, Tariff decisions, Cost & pricing-Hubbart formula, Rule of the Thumb.
CO5	To understand Occupancy & Revenue reports, Equipment-management & maintenance.
CO6	Students will be able to acquire knowledge and learn about the, Structure of the Airline Industry.

BHMCT-606-18 - Front Office Management (Practical) After studying the course, students will be able to:	
CO1	To understand Preparation of sales letters, brochure, tariff cards & other sales documents Assignment on GD.
CO2	To know the Calculation of staff requirement & making of duty rotas for front office department of small, large & medium sized hotels with different levels of occupancy.

CO3	To know Preparation of operating budget for front office.
CO4	To understand Computer proficiency in all hotel computer applications-actual computer lab Hours.
CO5	To understand Pre arrival, On Arrival & Post Arrival procedures, Handling reserved guests, Procedure for Handling guest.
CO6	To prepare SOP's for guest Check-in, Check out, complaint handling.

BHMCT-607-18 - Accommodation Management After studying the course, students will be able to:	
CO1	Students will be able to acquire knowledge and learn about the Elements of Design, Color, windows and Lightening and Lighting Fixtures in Housekeeping department.
CO2	Students will be able to acquire knowledge and learn about the floors, carpets, furniture with its fitting and Accessories.
CO3	Students will be able to perform various 3R's of waste management, Garbage segregation and Energy Generation.
CO4	Students will be able to learn and explain about Eco- friendly Practices and System of certifying Ecotel.
CO5	Students will be able to learn about the how to start new property with all the planning.
CO6	Students will be able to identify the energy and water conservation housekeeping operations.

BHMCT-608-18 - Accommodation Management (Practical) After studying the course, students will be able to:	
CO1	Students will be able to understand about how housekeeping works with different departments.
CO2	Students will be able to understand and can explain about how different types of decoration, colour schemes used while planning special decoration.
CO3	Students will be able to understand the importance of team cleaning.
CO4	Students will be able to understands the standards required in hotels.
CO5	Students will be able to understands different types of designing required in new property management.
CO6	Students will be able understand the overall interior decoration and new property management.

BHMCT-609-18 - Principles of Management After studying the course, students will be able to:	
CO1	Students will be learning about the Management, its features, classifications
CO2	Students will get to know the planning and organizing in Management
CO3	Students will be able to acquire knowledge in Time Management & its Objectives
CO4	Students will learn about controlling and directing
CO5	To know about the concept of Leadership
CO6	Students will also learn about Group dynamics

Semester – 7th

BHMCT-701A-18 – Food Production Management After studying the course, students will be able to:	
CO1	Understand the latest trends in food industry
CO2	Gain the knowledge about anthropology of food.
CO3	Perform the daily operations of cloud kitchen & HACCP standards.
CO4	Understand about the usage, theoretical & medicinal properties of different commodities.
CO5	Understand theoretical as well as the practical concepts of preservation & dehydration.
CO6	Remember practices of various display works

BHMCT-702A-18 – Food Production Management (Practical) After studying the course, students will be able to:	
CO1	Understand the latest trends in food industry.
CO2	Gain the knowledge about anthropology of food.
CO3	Perform the daily operations of cloud kitchen & HACCP standards
CO4	Understand about the usage, theoretical & medicinal properties of different commodities.
CO5	Understand theoretical as well as the practical concepts of preservation & dehydration.
CO6	Remember practices of various display works.

BHMCT-703A-18 – Tandoor-Principle, concept and application After studying the course, students will be able to:	
CO1	Gain the knowledge tandoor & tandoori cookery influence of Mughals till modern era.
CO2	Learn the different types of various fuels, herbs related to tandoor.
CO3	Acquire the preparing of tandoor, finishing and curing.
CO4	Understanding the basic commodities, Marinade, Accompaniments for Tandoor dishes.
CO5	Remembering techniques of controlling temperature.
CO6	Define Hygiene and safety standards, Protective clothing and use of fire extinguishers near tandoor.

BHMCT-704A-18 – Tandoor-Principle, concept and application (Practical) After studying the course, students will be able to:	
CO1	Gain the knowledge tandoor & tandoori cookery influence of Mughals till modern era.
CO2	Learn the different types of various fuels, herbs related to tandoor.
CO3	Acquire the preparing of tandoor, finishing and curing.
CO4	Understanding the basic commodities, Marinade, Accompaniments for Tandoor dishes.
CO5	Remembering techniques of controlling temperature.
CO6	Define Hygiene and safety standards, Protective clothing and use of fire extinguishers near tandoor.

BHMCT-701B-18 – Food& Beverage Service Management After studying the course, students will be able to:	
CO1	Students will be able to learn Supervisory Functions.
CO2	To gain knowledge of various types Customer Relationship Management.
CO3	Students will be confident by learning technical skills used for Specialized form of service
CO4	To understand about Food and Beverage Management in Fast Food and Popular catering
CO5	To know the Merchandising techniques.
CO6	Students will be familiar with Visual Merchandising

BHMCT-702B-18 – Food& Beverage Service Management (Practical) After studying the course, students will be able to:	
CO1	Students will be able to gain knowledge about the Supervisory Skill SOP
CO2	Students will have insight on F&B Staff Organization
CO3	Students will acquire knowledge on Staff Organization
CO4	Students will acquire knowledge about Gueridon and Flame cooking and carving at table
CO5	Students will be able to know the Developing Hypothetical Business model of food and beverage outlets.
CO6	Students will be able to know the Case study of Food and Beverage outlets.

BHMCT-703B-18 – Event Management After studying the course, students will be able to:	
CO1	To understand the different types of Event.
CO2	Students will be able to enhance knowledge C”s of events and also skills required for event planner.
CO3	To know about the different types key elements of Events, Event Infrastructure and media.
CO4	Students will be able to undergo the Marketing & Promotion of Events
CO5	To gain expertise about in Sponsorship & Promotion
CO6	To gain knowledge about the Managing Events

BHMCT-704B-18 – Event Management (Practical) After studying the course, students will be able to:	
CO1	Students will be able to gain knowledge about various types of events, preparing requirement forms.
CO2	Students will have insight on making schedules of various events. prepare function sheet.
CO3	Students will acquire knowledge on arranging staff for the event, and legal compliances for an event.
CO4	Students will acquire knowledge on Reimbursement & Honorarium, Travel arrangement worksheet and recordkeeping system in the event
CO5	Students will be able to know about planning birthday party and food festival.
CO6	Students will be able to know planning corporate event and promotion for an event

BHMCT-701C-18 – Front Office Management After studying the course, students will be able to:	
CO1	To understand Cash Control: Introduction, frauds & internal control, cash receipt control, physical control measures
CO2	To know the services provided by hotel front office, certification in relation to quality, relationship with other divisions
CO3	To know types, advantage and disadvantages of budgeting
CO4	To understand controlling expenses – income statement, Purchasing systems.
CO5	To understand Concept and applications, Measuring yield, elements of revenue management.
CO6	To learn Reception as a sales department Purpose of selling/the hotel product selling methods.

BHMCT-702C-18 – Front Office Management (Practical) After studying the course, students will be able to:	
CO1	To perform Welcoming/Greeting of guest, Handling Guest Complaints Handling various modes of payment: Cash, Foreign currency
CO2	To Know about the Travellers Cheques, Travel vouchers, Credit/Debit Cards, Bill to company, etc.
CO3	To be able to learn Front Office Management Jargons.
CO4	To Understand Registrations: Customer relationship management via effective Communication
CO5	To familiarize Latest Trends in Front Office (Assignment as PPT Presentation)
CO6	To be able to understand A week as a front office manager-mock session.

BHMCT-703C-18 – Tour & Travel Management After studying the course, students will be able to:	
CO1	To prepare different Itineraries & Prepare different tour packages
CO2	To know the services provided by hotel front office Develop Tour Marketing plans
CO3	To know Travel Agency Marketing and How to prepare Tour Package
CO4	To understand Travel Agency Marketing, Component of a Standard Package Tour
CO5	To understand Inbound, outbound, domestic and international tourist
CO6	To learn Tour Marketing Plan, Tour Designing Process.

BHMCT-704C-18 – Tour & Travel Management (Practical) After studying the course, students will be able to:	
CO1	To Organized Travel Defining Tourist & Tourism viz: inbound, outbound, domestic, maintenance of tourism products, Alternative tourism, Mass tourism.
CO2	To Know about the Itinerary Development Introduction, meaning and definition, types of itineraries
CO3	To be able to learn Tour Packaging Management Concept, Origin and development of Tour Packaging.
CO4	To Understand Travel Agency Marketing, Marketing Concept, unique features of Travel Marketing, Significance of Travel Agency Marketing.
CO5	To learn about the Marketing Strategy of Inbound & Outbound tours.

CO6	To be able to understand Role and Contribution of UNWTO, IATA, PATA, IATO and TAAI.

BHMCT-701D-18 – Accommodation Management	
After studying the course, students will be able to:	
CO1	To gain the knowledge of flower arrangements in hotels.
CO2	To understand about the horticultural & Landscaping.
CO3	Students will learn about the new trends in housekeeping
CO4	To understand the basic Amenities and techniques & Technology use in housekeeping
CO5	To learn about Crisis Management & security aspects
CO6	To gain the knowledge about how to handle guest at the desk

BHMCT-702D-18 – Accommodation Management (Practical)	
After studying the course, students will be able to:	
CO1	To gain the knowledge of different flowers & different Plants.
CO2	learn about First Aid and maintenance records.
CO3	Gain knowledge about safety & fire fighting procedures
CO4	Student learn about special decoration and cost planning
CO5	students done situation handling at deak in housekeeping
CO6	knowledge about different trends and eco- friendly concepts

BHMCT-703D-18 – Interior Decoration	
After studying the course, students will be able to:	
CO1	Understand various color schemes use for interior decoration.
CO2	Remember about the directions to place different things.
CO3	Understand about the dimensions of walls and floors
CO4	Understand various functions of Horticulture department.
CO5	Define the functioning of color combinations
CO6	Understand the various emerging and upgraded trends of interior decorations.

BHMCT-704D-18 – Interior Decoration (Practical)	
After studying the course, students will be able to:	
CO1	Students gain knowledge about making plans & elevation of walls
CO2	Understand about special decorations
CO3	Practical knowledge about carpentry & furniture layout
CO4	Students gain knowledge about paints, Distemper & false system
CO5	Knowledge about different concepts of classroom and more
CO6	Students get practically knowledge about layout of areas

BHMCT-705-18 – Principles of Marketing	
After studying the course, students will be able to:	
CO1	To know about the concept of Marketing, selling.
CO2	To know about the concept of Market segmentation
CO3	Students will be able to understand about marketing mix and its core concepts.
CO4	To learn the intricacies of the marketing environment and marketing information systems for effective marketing planning and strategies.

CO5	To develop necessary skills for effective market segmentation, targeting and positioning
CO6	To Illustrate various components of product mix, product life cycle and comprehend the new product development process.

BHMCT-706-18 – Financial Management After studying the course, students will be able to:	
CO1	To apply financial data for use in decision making by applying financial theory to problems faced by business enterprises.
CO2	Students will be able to understand about time value of money to various pricing and money value.
CO3	To know about the concept of Cost of Capital
CO4	To learn modern techniques in capital budgeting analysis
CO5	To identify different cash flow and funds flow analysis
CO6	To know about the assess dividend policy's impacts on share prices

BHMCT-707-18 – Entrepreneurship After studying the course, students will be able to:	
CO1	To know about the concept and theories of entrepreneurship and its role
CO2	Students will be able to understand about business plan and identify the reasons of failure of business plans.
CO3	To know about the steps in starting MSME.
CO4	To facilitate the process of entrepreneurial development.
CO5	To know about government policies and regulatory framework
CO6	To identify different sources of finance for new enterprises and assess the role of financial institutions and various

BHMCT-709-18 – Facility Planning After studying the course, students will be able to:	
CO1	Students will be able to gain knowledge about star classification of hotels, heritage hotels and hotel design
CO2	Students will be able to enhance knowledge facilities planning
CO3	To know about architectural consideration
CO4	Students will be able to understand about Kitchen Equipment layout, Stewarding and Store Layout.
CO5	Students will be able to know about energy conservation and car parking.
CO6	To gain knowledge about planning for physically challenged project management.