	Course Outcomes for First Year Engineering (All Subjects)
	NEP(2020) w.e.f A.Y. 2024-25
	Theory COs
	SEM-I
	After the completion of the course, learner will be able to,
BSC101	**Applied Mathematics-I**
BSC101.1	Determine powers of complex numbers and roots of equations using D'Moivres Theorem.
BSC101.2	Use hyperbolic functions and logarithm of complex numbers to separate into real and imaginary parts.
BSC101.3	Compute the partial differentiation of functions of two & three variables.
BSC101.4	Determine nth order derivative and extreme values of a given function.
BSC101.5	Apply the concept of matrices to solve system of linear simultaneous equations.
BSC101.6	Solve the system of Linear Algebraic and transcendental equations numerically.
BSC102	**Applied Physics**
BSC102.1	Illustrate the use of laser in LiDAR and Barcode reading.
BSC102.2	Apply the foundation of fiber optics in the development of modern communication technology.
BSC102.3	Determine the wavelength of light and refractive index of liquid using the interference phenomenon.
BSC102.4	Illustrate the significance of Maxwell's equations in the field of modern technology.
BSC102.5	Apply the foundations of quantum mechanics for the development of modern technology.
BSC102.6	Explain the types of semiconductors based on variations in fermi level with temperature and doping concentration.
BSC103	**Applied Chemistry**
BSC103.1	Determine the quality of coal and quantify the oxygen required for combustion of coal.
BSC103.2	Explain anodic & cathodic protection method for prevention of corrosion.
BSC103.3	Apply Gibb's phase rule to calculate number of phases, component & degree of freedom of two component systems.
BSC103.4	Use the polymers for specific engineering applications on the basis of the properties.
BSC103.5	Discuss different types of composite materials for engineering applications.
BSC103.6	Illustrate the concept of supercritical fluid and green solvents.
ESC101	**Engineering Mechanics**
ESC101.1	Determine the equivalent force-couple system for a given system of forces.
ESC101.2	Determine the position of centroid with respect to a given reference axis.
ESC101.3	Determine support reactions, frictional forces in various engineering applications using conditions of equilibrium.
ESC101.4	Determine position, velocity and acceleration of particle and rigid body using principles of kinematics.
ESC101.5	Apply the D'Alembert's and Impulse Momentum principle to develop the relation between various forces and motion of a particle.
ESC101.6	Show the kinematic relation for robot joints and parameters
ESC102	**Basic Electrical & Electronics Engineering**
ESC102.1	Apply various network theorem to determine the circuit response/Behaviour
ESC102.2	Determine the circuit parameters for single phase and three phase AC circuits.
ESC102.3	Illustrate the construction,operation & application of single phase Transformer
ESC102.4	Illustrate the working principle of single phase and three phaseInduction motor & DC Motor
ESC102.5	Explain construction,operation & application of some special [purpose Diodes
ESC102.6	Describe construction,operation & application of some Transistors.
AEC101	**Professional Communication and Ethics**
AEC101.1	Apply communication theories and techniques to strategically navigate diverse professional discourses.
AEC101.2	Demonstrate active listening skills by comprehending and analyzing speech acts in different communicative contexts.
AEC101.3	Analyze different communication barriers, audience and purpose to speak competently
AEC101.4	Apply effective reading strategies to comprehend, summarize and evaluate technical and non-technical texts.
AEC101.5	Classify and write purposeful technical documents tailored for professional transactions.
AEC101.6	Apply ethical standards and principles to deliver synergistic solutions for varied professional contexts.
CC101	**Induction cum Universal Human Values**
CC101.1	Identify basic human aspirations and programme for its fulfilment.
CC101.2	Identify existing reality of Human being
CC101.3	Explain the values in human-human relationship and program for its fulfilment to ensure mutual happiness
CC101.4	Express harmony in surroundings family and society.
CC101.5	Explain harmony in nature, existence as coexistence and become more responsible in life, in handling problems with sustainable solutions.
CC101.6	Utilize the professional competence for augmenting universal human order, develop holistic technologies, management models and production systems

		SEM-II
BSC201	**Applied Mathematics-II**	
BSC201.1	Solve First Order First Degree Differential Equations	
BSC201.2	Solve Higher Order Linear Differential Equations	
BSC201.3	Apply concepts of Beta and Gamma function to solve improper integrals.	
BSC201.4	Apply concepts of Double integral of different coordinate systems to the engineering problems	
BSC201.5	Apply concepts of triple integral of different coordinate systems to the engineering problems and its applications.	
BSC201.6	Solve Differential Equations and Definite Integrals using Numerical Methods and Scilab.	
BSC202X	**Elective Physics (Semiconductor Physics BSC 2022)**	
BSC2022.1	Determine Hall voltage using the basic concepts of semiconductor physics.	
BSC2022.2	Explain the I-V characteristics of P-N junction diode using the concept of barrier potential.	
BSC2022.3	Explain the I-V characteristics of some special diodes with their applications.	
BSC2022.4	Explain the concept of CB and CE configurations of bipolar junction transistor.	
BSC2022.5	Illustrate the concept of JFET and MOSFET in the field of semiconductor technology.	
BSC2022.6	Apply the concepts of nanotechnology towards the emerging areas of technology.	
BSC202X	**Elective Physics (Physics of Measurements and Sensors BSC 2023)**	
BSC2023.1	Demonstrate their ability earned here to examine the erroneous results of measurement systems.	
BSC2023.2	Apply the concept of flatness test using light waves.	
BSC2023.3	Examine the use of appropriate transducers for application.	
BSC2023.4	Illustrate the use of appropriate sensors for application.	
BSC2023.5	Classify various temperature measurement techniques and their ranges.	
BSC2023.6	Explain the significance of nano materials in technology.	
BSC203X	**Elective Chemistry**	
BSC2032.1	Illustrate mechanism of global effects of air pollution.	
BSC2032.2	Identify water pollutants of different sources and determine hardness of water.	
BSC2032.3	explain methods for solid and hazardous waste treatment to protect the health and environment.	
BSC2032.4	Compare the availability and efficiency of performance and environmental impact of non- conventional energy sources.	
BSC2032.5	Illustrate the sources and applications of biomass to save the environment	
BSC2032.6	Illustrate the knowledge of sustainable practices in different parts of world to protect the environment.	
ESC201	**Engineering Graphics**	
ESC201.1	Apply basic concepts of geometrical constructions to create engineering curves.	
ESC201.2	Apply the principles of projections in Projection of Lines and Planes	
ESC201.3	Apply the principles of projections in Projection of Solids	
ESC201.4	Apply the principles of sectional view in section of solids	
ESC201.5	Apply the principles of projections in converting pictorial views into orthographic views	
ESC201.6	Apply the principles of projections in converting orthographic views to isometric views	
PCC201X	**Programme Course Code**	
PCC2011	**Data Strucutre**	
PCC2011.1	To understand Concepts of Linear and Nonlinear abstract data types.	
PCC2011.2	Apply stack operations to solve problems in various domains.	
PCC2011.3	Apply queue operations for problems in different domains.	
PCC2011.4	Use Linked Lists to solve problems in diverse applications.	
PCC2011.5	Apply tree concepts to solve real-world problems.	
PCC2011.6	Apply appropriate data structures to solve real-world challenges.	
PCC2012	**Elements of Civil Engineering**	
PCC2012.1	Describe the infrastructure development these days and illustrate historical and modern construction advancements and career opportunities across various civil engineering disciplines	
PCC2012.2	Illustrate materials like Stone, Cement, Sand & Aggregate used in Civil Engineering construction and interpret the properties of these materials with reference to the application	
PCC2012.3	Illustrate different classes of Buildings, loads exerted on it and also interpret elements of Building drawing and its types.	
PCC2012.4	Illustrate the principles of surveying and calculate the bearings and levelling parameters used in surveying.	
PCC2012.5	Illustrate the water quality standards, demands and describe the fundamentals of sanitary engineering and air pollution.	
PCC2012.6	Describe the transportation infrastructure in India and development of transportation systems.	
PCC2016	**Elements of Telecommunication**	
PCC2016.1	Understand basics of analog communication system	

PCC2016.2	Explain basics of digital communication system
PCC2016.3	Learn the fundamental key concepts of computer networks
PCC2016.4	Know the various elements of mobile communication systems.
PCC2016.5	Understand the fundamentals of Fiber Optical Communication System.
PCC2016.6	Describe the fundamentals of the satellite communication system
PCC2018	**Elements of Mechanical Engineering**
PCC2018.1	Understand the role of mechanical engineering in industry, society and concept of thermodynamics.
PCC2018.2	Illustrate working of gas power cycles and components used in I.C.Engines.
PCC2018.3	Compare and evaluate various types of coupling, clutches, brakes and belt and gear drives.
PCC2018.4	Comprehend various types of Refrigerants and concept of Air conditioning along with modern manufacturing processes
PCC2018.5	Identify and describe various advancements in Mobility domain.
PCC2018.6	Compare and classify various Engineering Materials and their properties.
PCC2014	**Digital Electronics**
PCC2014.1	Apply different minimization Techniques to Implement Logic functions.
PCC2014.2	Compare TTL and CMOS families w.r.t. their characteristic parameters
PCC2014.3	Construct combinational circuits using given MSI devices.
PCC2014.4	Students will be able to apply the knowledge of flip-flops and MSI devices to design sequential circuits.
PCC2014.5	Students will be able to analyze the given sequential circuits to identify the state transitions and race conditions.
PCC2014.6	Students will be able to Implement the given logic function using programmable logic devices.