

1st Semester

S. No.	Course Code	Paper/COs
1	BS-103	APPLIED CHEMISTRY
	BS-103.1	Ability to use fuels and perform energy conversion calculations.
	BS-103.2	Understand the phase rule and its applications. Also, to understand the properties and industrial applications of polymers.
	BS-103.3	Ability to analyse water and use technologies to purify it.
	BS-103.4	Understand the chemical aspects of corrosion and its prevention. Also, to understand the basics of Green Chemistry and Nano-chemistry.
2	BS-105	APPLIED PHYSICS-I
	BS-105.1	Ability to apply thermodynamic principles to solution of engineering problems.
	BS-105.2	Ability to understand and model oscillations and waves.
	BS-105.3	Ability to understand and model interference, diffraction and polarization phenomenon.
	BS-105.4	Ability to understand and appreciate relativistic systems and Lasers.
3	ES-107	ELECTRICAL SCIENCE
	ES-107.1	Ability to understand and use Kirchoff's Laws to solve resistive circuit problems.
	ES-107.2	Ability to analyse resistive, inductive and capacitive circuits for transient and steady state sinusoidal solutions.
	ES-107.3	Understand the first order filters and magnetic circuits.
	ES-107.4	Understand the design of electrical machines.
4	BS-111	APPLIED MATHEMATICS-I
	BS-111.1	Ability to use series, differential and integral methods to solve formulated engineering problems.
	BS-111.2	Ability to use Ordinary Differential Equations to solve formulated engineering problems.
	BS-111.3	Ability to use linear algebra to solve formulated engineering problems.
	BS-111.4	Ability to use vector calculus to solve formulated engineering problems.
5	HS-115	INDIAN CONSTITUTION
	HS-115.1	To understand institutional mechanism and fundamental values enshrined in the Constitution of India.
	HS-115.2	To understand the inter-relation between Centre and State Government.
	HS-115.3	To understand Fundamental Rights and Duties.
	HS-115.4	To understand the structure and functions of judicial systems in the country.

6	HS-117	HUMAN VALUES AND ETHICS
	HS-117.1	Realize the importance of human values.
	HS-117.2	Understand that excessive desires of the mind make a person unethical and restless, while fewer desires lead to peace and professional progress
	HS-117.3	Assess different types of risks involved in unethical practices. Know various means of protesting against unethical practices.
	HS-117.4	Assess the benefits of restraining from unethical practices like bribery, extortion, nepotism, nexus between politicians and industrialists.
7	ES-119	MANUFACTURING PROCESS
	ES-119.1	Understand casting process.
	ES-119.2	Understand joining process.
	ES-119.3	Understand forging and sheet metal work.
	ES-119.4	Basic understanding of powder metallurgy and manufacturing of plastic components.
8	BS-151	APPLIED PHYSICS-I LAB
	BS-151.1	Ability to apply thermodynamic principles to solution of engineering problems.
	BS-151.2	Ability to understand and model oscillations and waves.
	BS-151.3	Ability to understand and model interference, diffraction and polarization phenomenon.
	BS-151.4	Ability to understand and appreciate relativistic systems and Lasers.
9	BS-155	APPLIED CHEMISTRY LAB
	BS-155.1	Ability to use fuels and perform energy conversion calculations.
	BS-155.2	Understand the phase rule and its applications. Also, to understand the properties and industrial applications of polymers.
	BS-155.3	Ability to analyse water and use technologies to purify it.
	BS-155.4	Understand the chemical aspects of corrosion and its prevention. Also, to understand the basics of Green Chemistry and Nano-chemistry.
10	ES-157	ENGINEERING GRAPHICS-I
	ES-157.1	To understand the theory of projections and projection of points.
	ES-157.2	Ability to do line projections.
	ES-157.3	Ability to do plane projections.
	ES-157.4	Ability to do solid projections and development of surfaces.
11	ES-159	ELECTRICAL SCIENCE LAB
	ES-159.1	Ability to understand and use Kirchoff's Laws to solve resistive circuit problems.
	ES-159.2	Ability to analyse resistive, inductive and capacitive circuits for transient and steady state sinusoidal solutions.
	ES-159.3	Understand the first order filters and magnetic circuits.
	ES-159.4	Understand the design of electrical machines.

2nd Semester

12	ES-102	PROGRAMMING IN 'C'
	ES-102.1	Ability to develop simple algorithms for arithmetic and logical problems and implement them in 'C'.
	ES-102.2	Ability to implement conditional branching, iteration and recursion and functions in 'C'.
	ES-102.3	Ability to use arrays, pointers, union and structures to develop algorithms and programs in 'C'.
	ES-102.4	Ability to decompose a problem into functions and synthesize a complete program using divide and conquer approach in 'C'.
13	BS-106	APPLIED PHYSICS-II
	BS-106.1	Understand and appreciate the quantum nature of reality.
	BS-106.2	Understand quantum statistics and its significance.
	BS-106.3	Understand Crystalline Structure.
	BS-106.4	Understand the band theory of solids and properties and characteristics of diodes.
14	BS-110	ENVIRONMENTAL STUDIES
	BS-110.1	Environmental Studies course will provide necessary information and knowledge about the various aspects of environment, ecosystems and related biodiversity.
	BS-110.2	Students will be able to learn and understand about the availability and sustainable use of resources, environmental problems and their short term and long term impacts to humans.
	BS-110.3	Course will help them to learn about environmental policies and protocols, social issues and role of human in conservation and protection of environment.
	BS-110.4	Overall, course will help students to develop skills and ability of understanding environment- human relationship.
15	BS-112	APPLIED MATHEMATICS-II
	BS-112.1	Ability to use Complex series methods.
	BS-112.2	Ability to use Complex analysis to solve formulated engineering problems
	BS-112.3	Ability to use Fourier and Laplace methods to solve formulated engineering problems
	BS-112.4	Ability to solve specific formulated engineering problems using PDE methods.
16	HS-114	COMMUNICATION SKILLS
	HS-114.1	Ability to Communicate as an Individual and in a Group.
	HS-114.2	Ability to learn new words, differentiate between Indian, British and American English.
	HS-114.3	Ability to write business letters and make speeches.
	HS-114.4	Improved grammar and sentence structure.
17	ES-114	ENGINEERING MECHANICS
	ES-114.1	Ability to solve problems pertaining to force systems, equilibrium and distributed systems.
	ES-114.2	Ability to solve problems of friction and engineering trusses.
	ES-114.3	Ability to deal with the problems of kinematics and kinetics of particle.
	ES-114.4	Ability to deal with the problems of kinematics and kinetics of rigid bodies.

18	BS-152	APPLIED PHYSICS-II LAB
	BS-152.1	Understand and appreciate the quantum nature of reality.
	BS-152.2	Understand quantum statistics and its significance.
	BS-152.3	Understand Crystalline Structure.
	BS-152.4	Understand the band theory of solids and properties and characteristics of diodes.
19	ES-154	PRPGRAMMING IN 'C' LAB
	ES-154.1	Ability to develop simple algorithms for arithmetic and logical problems and implement them in 'C'.
	ES-154.2	Ability to implement conditional branching, iteration and recursion and functions in 'C'.
	ES-154.3	Ability to use arrays, pointers, union and structures to develop algorithms and programs in 'C'.
	ES-154.4	Ability to decompose a problem into functions and synthesize a complete program using divide and conquer approach in 'C'.
20	ES-158	ENGINEERING GRAPHICS-II
	ES-158.1	Ability to draw sectional diagrams of solids.
	ES-158.2	Ability to draw 3S projections (isometric and oblique).
	ES-158.3	Ability to draw perspective projections.
	ES-158.4	Understand and use a CAD tool (AutoCAD).
21	BS-162	ENVIRONMENTAL STUDIES LAB
	BS-162.1	Environmental Studies course will provide necessary information and knowledge about the various aspects of environment, ecosystems and related biodiversity.
	BS-162.2	Students will be able to learn and understand about the availability and sustainable use of resources, environmental problems and their short term and long term impacts to humans.
	BS-162.3	Course will help them to learn about environmental policies and protocols, social issues and role of human in conservation and protection of environment.
	BS-162.4	Overall, course will help students to develop skills and ability of understanding environment- human relationship.
22	ES-164	WORKSHOP PRACTICE LAB
	ES-164.1	Ability to safely work in a Lab./workshop.
	ES-164.2	Ability to use machines (lathe, mill, shaper, planer, grinder, drill).
	ES-164.3	Ability to weld.
	ES-164.4	Ability to use sheet metal tools and fitting shop tools.