Course Outcomes for First Year Engineering (All Subjects)

NEP(2020) w.e.f A.Y. 2024-25

LAB COs

SEM-I

BSL101	**Applied Physics Lab**
BSL101.1	Determine the wavelength of a laser source using a plane diffraction grating.
BSL101.2	Determine the numerical aperture of a given optical fiber cable.
BSL101.3	Perform experiments based on interference in thin film and determine radius of curvature of lens / diameter of wire / thickness of paper.
BSL101.4	Calculate the magnetic field of the coil by the variation with distance along the axis of a current carrying circular coil.
BSL101.5	Calculate basic parameters / constants using semiconductors.
BSL101.6	Determine energy band gap / resistivity of a semiconductor.
BSL102	**Applied Chemistry Lab**
BSL102.1	Determine moisture & ash content of coal.
BSL102.2	Determine Zn and Cu in Brass
BSL102.3	Demonstrate synthesis of biodiesel from edible oil and determine its flash point.
BSL102.4	Interpret effect of corrosion of metals in acidic medium
BSL102.5	Demonstrate Synthesis of biodegradable plastics.
BSL102.6	Determination of Flue gas analysis by Orsats Apparatus and nitrogen by Kjeldahl's method.
ESL101	**Engineering Mechanics Lab**
ESL101.1	Determine resultant of given force systems using analytical and graphical methods.
ESL101.2	Demonstrate the concept of centroid.
ESL101.3	Verify the conditions of equilibrium for concurrent, parallel and general force system.
ESL101.4	Determine position, velocity and acceleration of particle and rigid body using principles of kinematics.
ESL101.5	Verify the concepts of kinematics and kinetics using Virtual lab.
ESL101.6	Demonstrate degrees of freedom of Industrial Robotic arm.
ESL102	**Basic Electrical and Electronics Engineering Lab**
ESL102.1	Interpret and analyze the behavior of DC circuits using network theorems.
ESL102.2	Perform and infer experiments on single-phase and three-phase AC circuits
ESL102.3	Illustrate the performance of a single-phase transformer
ESL102.4	Illustrate the performance of Machines /Motors
ESL102.5	Demonstrate an experiment on Line & Load regulation characteristics of Special diode
ESL102.6	Demonstrate the working of Transistor as switch
VCEC101	**Engineering Workshop-I**
VSEC101.1	Develop the necessary skill to identify and use of the various hand tools and measuring instruments in fitting shop
VSEC101.2	Prepare various basic prototypes in the trade of fitting such as Square, Hexagonal and V Male Female joint.
VSEC101.3	Illustrate basic troubleshooting and install an operating system and system drivers.
VSEC101.4	Identify network components and perform basic networking and crimping.
VSEC101.5	Perform various basic domestic plumbing operations such as pipe cutting, threading, fitting etc.
VSEC102	**C Programming**
VSEC102.1	Illustrate the basic terminology used in computer programming.
VSEC102.2	Use different data types in a computer program.
VSEC102.3	Perform programs involving decision structures, loops and functions.
VSEC102.4	Implement Arrays, String, and Structure
VSEC102.5	Implement pointers to illustrate dynamics of memory.
VSEC102.6	Use different data structures and create/update basic data files.
AEL101	**Professional Communication and Ethics**
AEL101.1	Utilize communication frameworks and methods to effectively manage and engage in various professional conversations and settings.
AEL101.2	Illustrate active listening by analyzing and interpreting speech acts across various communication contexts.
AEL101.3	Speak proficiently and analyze various communication barriers, venues, audience and purpose.
AEL101.4	Examine technical and non technical texts to comprehend accurately
AEL101.5	Construct technical and non-technical texts for professional purpose
AEL101.6	Develop ethical attributes in professional situations

	SEM-II
BSL2012	**Elective Physics Lab (Semiconductor Physics Lab BSL 2012)**
BSL2012.1	Determine the concentration of charge carriers in a semiconductor material using Hall Effect Expt.
BSL2012.2	Perform the experiment to understand the I-V characteristics of a PN junction diode.
BSL2012.3	Perform the experiment to understand the I-V characteristics of a photodiode.
BSL2012.4	Study the input and output characteristics of a transistor in Common Emitter (CE) Mode.
BSL2012.5	Study the input and output characteristics of junction field effect transistor (JFET).
BSL2012.6	Perform experiments on nanotechnology using open source simulation software like Avogadro to draw different carbon structures.
BSL2013	**Elective Physics Lab (Physics of Measurements and Sensors Lab BSL 2013)**
BSL2013.1	Measure the uncertainty using statistical treatment of errors.
BSL2013.2	Determine the radius of curvature of a lens using Newton's ring set up.
BSL2013.3	Perform the experiment to understand the I-V characteristics of a photodiode.
BSL2013.4	Determine the concentration of charge carriers in a semiconductor material using Hall Effect expt.
BSL2013.5	Study the thermoelectric effect (seebeck-effect) using thermocouple (Virtual Lab expt.)
BSL2013.6	Perform experiments on nanotechnology using open source simulation software like Avogadro to draw different carbon structures.
BSL2022	**Elective Chemistry Lab**
BSL2022.1	Learn quantitative analytical techniques to determine hardness of water by EDTA method.
BSL2022.2	Find COD and Chloride content of water
BSL2022.3	Use pH meter for determination PH of water samples
BSL2022.4	Estimate Na,K & Ca in the given sample using flame photometer.
BSL2022.5	Develop skills to draft report on energy saving appliances.
BSL2022.6	Develop critical thinking skills to assess effectiveness of sustainable development practices
ESL201	**Engineering Graphics Lab**
ESL201.1	Apply the basic concepts of geometrical constructions to create engineering curves
ESL201.2	Apply the basic principles of Projection in Projection of Lines and Planes
ESL201.3	Apply the principles of projections in Projection of Solids.
ESL201.4	Apply the principles of sectional view in section of solids.
ESL201.5	Apply basic AutoCAD skills to draw orthographic views of a pictorial view
ESL201.6	Apply basic AutoCAD skills to draw the isometric view from the given two views.
PSL201X	**Program Core Lab**
PCL2011	**Data Strucutre Lab**
PCL2011.1	To Implement Linear Data Structure & handle insertion, deletion, traversal operations using array.
PCL2011.2	Apply stack operations to solve problems in various domains.
PCL2011.3	Apply queue operations for problems in different domains.
PCL2011.4	Use Linked Lists to solve problems in diverse applications.
PCL2011.5	Apply tree concepts to solve real-world problems.
PCL2011.6	Apply appropriate data structures to solve real-world challenges.
PCL2012	**Elements of Civil Engineering**
PCL2012.1	Determine Basic Properties of Cement.
PCL2012.2	Sketch Basic Symbols and Building Plan.
PCL2012.3	Determine Area Using Chaining, Ranging & Offsetting.
PCL2012.4	Determine Bearing and Reduced Level Using Surveying Instruments.
PCL2012.5	Prepare Chart on Various Modes of Transportation
PCL2012.6	Prepare Chart on Various Types of Hydraulic Structures
PCC2016	**Elements of Telecommunication**
PCL2016.1	Demonstrate the concepts of AM and FM
PCL2016.2	Compare digital modulation techniques PCM, ASK, FSK
PCL2016.3	Simulate a computer network using various network components
PCL2016.4	Use of AT Commands in mobile device

PCL2016.5	Setting up of optical fiber link
PCL2016.6	Simulate satellite communication scenarios
PCC2018	**Elements of Mechanical Engineering**
PCC2018.1	To study different parts of I. C. Engines and its working.
PCC2018.2	To study operation of Refrigeration and A/C Systems.
PCC2018.3	To study the concept of mechanical power transmission
PCC2018.4	To study working of CNC machine and its applications.
PCC2018.5	To study working of Hybrid electric and electric vehicle.
PCC2018.6	To understand the importance of Advanced Materials.
PCL2014	**Digital Electronics**
PCL2014.1	to apply different minimization Techniques to Implement Logic functions.
PCL2014.2	to analyze performance of various basic gates.
PCL2014.3	To analyze performance of universal gates
PCL2014.4	To design and analyze performance of various arithmetic circuits.
PCL2014.5	To design and analyze performance of various combinational circuits.
PCL2014.6	to design and analyze performance of various sequential circuits.
PCL2014.7	To write Verilog/ VHDL codes for Combinational and sequential circuits.
CC201	**Social Sciences and Community Services**
CC201.1	Communicate effectively verbally and in writing by selecting proper content, tone, and demeanor for the situation 2 Demonstration effective use of technology for personal and professional activities, including electronic communication and information resources
CC201.2	Demonstration effective use of technology for personal and professional activities, including electronic communication and information resources
CC201..3	Develop and actively pursue personal, academic and professional goals
CC201.4	Seek guidance and assistance as needed to achieve academic success, maintain good academic standing and progress toward a degree
CC201.5	Manage personal affairs by demonstrating empathy toward others, caring for one's self and seeking assistance as needed 6 Demonstrate professionalism toward peers, faculty, staff, employers and other members of the College community through social etiquette, effective communication and restraint
IKS201	**Indian Knowledge System**
IKS201.1	Interpret the ancient Bhartiya education system in comparison with the modern era.
IKS201.2	Develop the understanding of the evolution of scientific thoughts in Ancient India.
IKS201.3	Understand and appreciate the rich heritage that resides in Indian art and culture
IKS201.4	Select the principles of good governance in ancient India and its significance in the current scenario
IKS201.5	Examine the contributions of Indian Scientists and Nobel Laureates and their importance in modern society.
IKS201.6	Identify sustainable development in various fields like Science, Technology, agriculture, industry, architecture, performing arts, etc.
VSEC201	**Engineering Workshop-II**
VSEC201.1	Develop the necessary skill to identify and use different tools in carpentry shop.
VSEC201.2	Perform basic operations in carpentry shop.
VSEC201.3	Demonstrate the safe wiring practices for the connection of simple electrical load/equipment.
VSEC201.4	Demonstrate the skill to fabricate and assemble PCB.
VSEC201.5	Demonstrate the use of furnace and produce the simple forging job
VSEC202	**Python Programming**
VSEC202.1	Demonstrate the proficiency in basic python programming or Create and perform various operations on data structures like list, tuple dictionaries and
VSEC202.2	Apply Control Flow and Functions for efficient coding to solve problems.
VSEC202.3	Demonstrate proficiency in handling file operations, managing exceptions, and developing Python packages and executable files for modular progra
VSEC202.4	Illustrate the concept of Object-Oriented Programming used in python.
VSEC202.5	Design Graphical User Interface (GUI) applications, utilizing appropriate Python libraries to create user-friendly interfaces.
VSEC202.6	Investigate and apply popular python libraries to conduct efficient data handling tasks.