



Course Outcomes (CO)

(R 2017)

Branch: B.E, Electronics and communication engineering

Course Code: C102 Course Name: HS8151 Communicative English

C101.1	Read articles of a general kind in magazines and newspapers.
C101.2	Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.
C101.3	Comprehend conversations and short talks delivered in English.
C101.4	Write short essays of a general kind.
C101.5	Write personal letters and emails in English.

Course Code: C102 Course Name: MA6151 Mathematics – I

C102.1	Use both the limit definition and rules of differentiation to differentiate functions
C102.2	Apply differentiation to solve maxima and minima problems.
C102.3	Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.
	Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.
	Determine convergence/divergence of improper integrals and evaluate convergent improper integrals.
C102.4	Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.
C102.5	Apply various techniques in solving differential equations.

Course Code: C103 Course Name: PH8151 Engineering Physics

C103.1	The students will gain knowledge on the basics of properties of matter and its applications
C103.2	The students will acquire knowledge on the concepts of waves and optical devices and their applications in fibre optics
C103.3	The students will have adequate knowledge on the concepts of thermal properties of the materials and their applications in expansion joints and heat exchangers.
C103.4	The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunnelling microscopes,
C103.5	The students will understand the basics of crystals their structures and different crystal growth techniques.

Course Code: C104 Course Name: CY8151 Engineering Chemistry

C104.1	To make the students conversant with boiler feed water requirements, related problems and water treatment techniques.
C104.2	To develop an understanding of the basic concepts of phase rule and its applications to single and two component systems and appreciate the purpose and significance of phase diagrams.
C104.3	Preparation, properties and applications of engineering materials.
C104.4	Types of fuels, calorific value calculations, manufacture of solid, liquid and gaseous fuels.
C104.5	Principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells.

Course Code: C105 Course Name: GE8151 Problem Solving and Python Programming

C105.1	Develop algorithmic solutions to simple computational problems
C105.2	Read, write, execute by hand simple Python programs.
C105.3	Structure simple Python programs for solving problems.
C105.4	Decompose a Python program into functions.
C105.5	Represent compound data using Python lists, tuples, dictionaries. Read and write data from/to files in Python Programs.

Course Code: C106 Course Name: GE8152 Engineering Graphics

C106.1	Ability to familiarize with the fundamentals and standards of Engineering graphics
C106.2	Ability to perform freehand sketching of basic geometrical constructions and multiple views of objects
C106.3	Ability to Project orthographic projections of lines and plane surfaces
C106.4	Ability to draw projections of solids and development of surfaces
C106.5	Ability to visualize and to project isometric and perspective sections of simple solids

Course Code: C107 Course Name: GE8161 Problem Solving and Python Programming Lab

C107.1	Write, test, and debug simple Python programs.
C107.2	Implement Python programs with conditionals and loops.
C107.3	Develop Python programs step-wise by defining functions and calling them.
C107.4	Use Python lists, tuples, dictionaries for representing compound data.
C107.5	Read and write data from/to files in Python.

Course Code: C108 Course Name: BS8161 Physics & Chemistry Lab

C108.1	To provide the basic practical exposure to all the engineering and technological streams in the field of physics with properties of matter and liquids.
C108.2	To provide the basic practical exposure to all the engineering and technological streams in the field of optics.
C108.3	The students are able to know about the thermal physics .
C108.4	To gain the knowledge about crystalline materials.
C108.5	To develop the knowledge of fiber optics cables optics and its applications

Course Code:C109 Course Name:HS8251 Technical English

C109.1	Read technical texts
C109.2	Write area- specific texts effortlessly.
C109.3	Listen lectures in their area of specialization.
C109.4	Comprehend talks in their area of specialisation
C109.5	Speak appropriately and effectively in varied formal and informal contexts.

Course Code:C110 Course Name:MA 8251 Engineering Mathematics-II

C110.1	Eigen values and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices.
C110.2	Gradient, divergence and curl of a vector point function and related identities.
C110.3	Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification.
C110.4	Analytic functions, conformal mapping and complex integration.
C110.5	Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficient

Course Code:C111 Course Name:PH8253PHYSICS FOR ELECTRONICS ENGINEERING

C111.1	Gain knowledge on classical and quantum electron theories, and energy band structures
C111.2	Acquire knowledge on basics of semiconductor physics and its applications in various devices,
C111.3	Get knowledge on magnetic and dielectric properties of materials,
C111.4	Have the necessary understanding on the functioning of optical materials for optoelectronics,
C111.5	Understand the basics of quantum structures and their applications in spintronics and carbon electronics..

Course Code:C112 Course Name:BE8254 BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING

C112.1	Understand the concept of three phase power circuits and measurement.
C112.2	Comprehend the concepts in electrical generators, motors and transformers
C112.3	Choose appropriate measuring instruments for given application

Course Code:C113 Course Name:EC8251 CIRCUIT ANALYSIS

C113.1	Develop the capacity to analyze electrical circuits, apply the circuit theorems in real time
C113.2	Design and understand and evaluate the AC and DC circuits.

Course Code:C114 Course Name:EC8252 ELECTRONIC DEVICES

C114.1	Explain the V-I characteristic of diode, UJT and SCR
C114.2	Describe the equivalence circuits of transistors
C114.3	Operatethebasicelectronicdevices suchasPN junctiondiode, Bipolar and Field effectTransistors, Powercontrol devices,LED,LCDand other Opto-electronicdevices

Course Code: C115 Course Name: GE8261 Engineering Practices Laboratory

C115.1	Ability to Fabricate carpentry components and pipe connections including plumbing works
C115.2	Ability to Use welding equipments to join the structures
C115.3	Ability to Carry out the basic machining operations
C115.4	Ability to Make the models using sheet metal works
C115.5	Ability to Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry and fittings

Course Code:C202 Course Name:EC8261CIRCUITS AND DEVICES LABORATORY

C202.1	Analyze the characteristics of basic electronic devices
C202.2	Design RL and RC circuits
C202.3	Verify Thevinin& Norton theorem KVL & KCL, and Super Position Theorems

Course Code:C202 Course Name:MA8352 LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS

C202.1	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
C202.2	Demonstrateaccurateandefficientuseofadvancedalgebraictechniques.
C202.3	Demonstrate their mastery by solving non - trivial problems related to the concepts and by proving simple theorems about the statements proven by the text.
C202.4	Able to solve various types of partial differential equations.
C202.5	Able to solve engineering problems using Fourier series.

Course Code: C203 Course Name:EC8393FUNDAMENTALS OF DATA STRUCTURES IN C

C203.1	Implement linear and non-linear data structure operations using C
C203.2	Suggest appropriate linear / non-linear data structure for any given data set.
C203.3	Apply hashing concepts for a given problem
C203.4	Modify or suggest new data structure for an application
C203.5	Appropriately choose the sorting algorithm for an application

Course Code:C204 Course Name:EC8351 ELECTRONIC CIRCUITS I

C204.1	Acquireknowledge ofWorkingprinciples,characteristicsandapplications ofBJTandFET
	Frequencyresponse characteristicsofBJTandFETamplifiers

C204.2	Analyze the performance of small signal BJT and FET amplifiers - single stage and multi stage amplifiers
C204.3	Apply the knowledge gained in the design of electronic circuits

Course Code: C206 Course Name: EC8352 SIGNALS AND SYSTEMS

C206.1	To be able to determine if a given system is linear/causal/stable
C206.2	Capable of determining the frequency components present in a deterministic signal
C206.3	Capable of characterizing LTI systems in the time domain and frequency domain
C206.4	To be able to compute the output of an LTI system in the time and frequency domains

Course Code: C207 Course Name: EC8392 DIGITAL ELECTRONICS

C207.1	Use digital electronics in the present contemporary world
C207.2	Design various combinational digital circuits using logic gates
C207.3	Do the analysis and design procedures for synchronous and asynchronous sequential circuit
C207.4	Use the semiconductor memories and related technology
C207.5	Use electronic circuits involved in the design of logic gates

Course Code: C209 Course Name: EC8391 CONTROL SYSTEMS ENGINEERING

C209.1	Identify the various control system components and their representations.
C209.2	Analyze the various time domain parameters.
C209.3	Analyze the various frequency response plots and its system.
C209.4	Apply the concepts of various system stability criteria.
C209.5	Design various transfer functions of digital control system using state variable models.

Course Code: C211 Course Name: EC8381 FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY

C211.1	Write basic and advanced programs in C
C211.2	Implement functions and recursive functions in C
C211.3	Implement data structures using C
C211.4	Choose appropriate sorting algorithm for an application and implement it in a modularized way

Course Code: C212 Course Name: EC8361 ANALOG AND DIGITAL CIRCUITS LABORATORY

C212.1	Design and Test rectifiers, filters and regulated power supplies.
C212.2	Design and Test BJT/JFET amplifiers.
C212.3	Differentiate cascode and cascade amplifiers.
C212.4	Analyze the limitation in bandwidth of single stage and multi stage amplifier
C212.5	Measure CMRR in differential amplifier
C212.6	Simulate and analyze amplifier circuits using PSpice.
C212.7	Design and Test the digital logic circuits.

Course Code: C213 Course Name: HS8381 INTERPERSONAL SKILLS/LISTENING & SPEAKING

C213.1	Listen and respond appropriately
C213.2	Participate in group discussions
C213.3	Make effective presentations
C213.4	Participate confidently and appropriately in conversations both formal and informal

Course Code: C214 Course Name: MA8451 PROBABILITY AND RANDOM PROCESSES

C214.1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
C214.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
C214.3	Apply the concept random processes in engineering disciplines
C214.4	Understand and apply the concept of correlation and spectral densities
C214.5	The students will have an exposure of various distribution functions and help in acquiring skills in handling situations involving more than one variable. Able to analyze random inputs to linear time invariant systems.

Course Code: C215 Course Name: EC8452 ELECTRONIC CIRCUITS II - I

C215.1	Analyze different types of amplifier, oscillator and multivibrator circuits
C215.2	Design BJT amplifier and oscillator circuits
C215.3	Analyze transistorized amplifier and oscillator circuits
C215.4	Design and analyze feedback amplifiers
C215.5	Design LC and RC oscillators, tuned amplifiers, wave shaping circuits, multivibrators, power amplifier and DC convertors

Course Code: C216 Course Name: EC849 COMMUNICATION THEORY

C216.1	Design AM communication systems
C216.2	Design Angle modulated communication systems
C216.3	Apply the concept of Random Process to the design of Communication systems
C216.4	Analyze the noise performance of AM and FM systems
C216.5	Gain knowledge in sampling and quantization

Course Code: C217 Course Name: EC8451 ELECTROMAGNETIC FIELDS

C217.1	Display an understanding of fundamental electromagnetic laws and concepts
C217.2	Write Maxwell's equations in integral, differential and phasor forms and explain their physical meaning
C217.3	Explain electromagnetic wave propagation in lossy and in lossless media
C217.4	Solve simple problems requiring estimation of electric and magnetic field quantities based on these concepts and laws

Course Code: C218 Course Name: EC8453 LINEAR INTEGRATED CIRCUITS

C218.1	Design linear and non linear applications of OP – AMPS
C218.2	Design applications using analog multiplier and PLL
C218.3	Design ADC and DAC using OP – AMPS
C218.4	Generate waveforms using OP – AMP Circuits
C218.5	Analyze special function ICs

Course Code: C301 Course Name: GE8291 ENVIRONMENTAL SCIENCE AND ENGINEERING

C301.1	Environmental Pollution or problems cannot be solved by mere laws. Public participation is an important aspect which serves the environmental Protection. One will
C301.2	Public awareness of environmental is at infant stage.
C301.3	Ignorance and incomplete knowledge has lead to misconceptions
C301.4	Development and improvement in std. of living has lead to serious environmental disasters
C301.5	Public awareness of environmental is at infant stage.

Course Code: C302 Course Name: EC8461 CIRCUITS DESIGN AND SIMULATION LABORATORY

C302.1	Analyze various types of feedback amplifiers
C302.2	Design oscillators, tuned amplifiers, wave-shaping circuits and multivibrators
C302.3	Design and simulate feedback amplifiers, oscillators, tuned amplifiers, wave-shaping circuits and multivibrators using SPICE Tool.

Course Code: C303 Course Name: EC8462 LINEAR INTEGRATED CIRCUITS LABORATORY

C303.1	Design amplifiers, oscillators, D-A converters using operational amplifiers.
C303.2	Design filters using op-amp and performs an experiment on frequency response.
C303.3	Analyze the working of PLL and describe its application as a frequency multiplier.
C303.4	Design DC power supply using ICs.
C303.5	Analyze the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE.

Course Code: C304 Course Name: EC8501 DIGITAL COMMUNICATION

C304.1	Design PCM systems
C304.2	Design and implement baseband transmission schemes
C304.3	Design and implement band pass signaling schemes
C304.4	Analyze the spectral characteristics of band pass signaling schemes and their noise performance
C304.5	Design error control coding schemes

Course Code: C306 Course Name: EC8553 DISCRETE-TIME SIGNAL PROCESSING

C306.1	Apply DFT for the analysis of digital signals and systems
C306.2	Design IIR and FIR filters
C306.3	Characterize the effects of finite precision representation on digital filters
C306.4	Design multirate filters
C306.5	Apply adaptive filters appropriately in communication systems

Course Code: C307 Course Name: EC8552 COMPUTER ARCHITECTURE AND ORGANIZATION

C307.1	Describe data representation, instruction formats and the operation of a digital computer
C307.2	Illustrate the fixed point and floating-point arithmetic for ALU operation
C307.3	Discuss about implementation schemes of control unit and pipeline performance
C307.4	Explain the concept of various memories, interfacing and organization of multiple processors
C307.5	Discuss parallel processing technique and unconventional architectures

Course Code: C308 Course Name: EC8551 COMMUNICATION NETWORKS

C308.1	Identify the components required to build different types of networks
C308.2	Choose the required functionality at each layer for given application
C308.3	Identify solution for each functionality at each layer
C308.4	Trace the flow of information from one node to another node in the network
C308.5	Design a DSP system for various applications of DSP

Course Code: C309 Course Name: EC8562 DIGITAL SIGNAL PROCESSING LABORATORY

C309.1	Carry out basic signal processing operations
C309.2	Demonstrate their abilities towards MATLAB based implementation of various DSP Systems
C309.3	Analyze the architecture of a DSP Processor
C309.4	Design and Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals
C309.5	Design a DSP system for various applications of DSP

Course Code: C3010 Course Name: EC8561 COMMUNICATION SYSTEMS LABORATORY

C310.1	Simulate&validate the variousfunctionalmodules ofa communication system
C310.2	Demonstrate their knowledge in base band signaling schemes through implementationofdigitalmodulation schemes
C310.3	Apply various channel coding schemes &demonstrate their capabilities towards theimprovementof thenoiseperformance ofcommunicationsystem
	Simulateend-to-endcommunicationLink
C310.4	Simulateend-to-endcommunicationLink

Course Code:C311 Course Name: EC8563 COMMUNICATION NETWORKS LABORATORY

C311.1	Communicatebetween two desktopcomputers
C311.2	Implement thedifferent protocols
C311.3	Programusingsockets.
C311.4	Implement and comparethevariousroutingalgorithms
C311.5	Use thesimulationtool

Course Code: C312 Course Name: EC8691 MICROPROCESSORS AND MICROCONTROLLERS

C312.1	Understand and execute programs based on 8086 microprocessor.
C312.2	Design Memory Interfacing circuits.
C312.3	Design and interface I/O circuits.
C312.4	Design and implement 8051 microcontroller based systems.
C312.5	Understand and execute programs based on 8086 microprocessor.

Course Code: C313 Course Name:EC8095 VLSI DESIGN

C313.1	Realize the concepts of digital building blocks using MOS transistor.
C313.2	Design combinational MOS circuits and power strategies.
C313.3	Design and construct Sequential Circuits and Timing systems.
C313.4	Design arithmetic building blocks and memory subsystems.
C313.5	Apply and implement FPGA design flow and testing.
C313.6	Realize the concepts of digital building blocks using MOS transistor.

Course Code: C315 Course Name:EC8652 WIRELESS COMMUNICATION

C315.1	Characterize awirelesschannel and evolve thesystemdesignspecifications
C315.2	Design acellularsystembasedonresource availabilityand trafficdemands
C315.3	Characterize awirelesschannel and evolve thesystemdesignspecifications
C315.4	Design acellularsystembasedonresource availabilityand trafficdemands

Course Code: C316 Course Name: MG8591 PRINCIPLES OF MANAGEMENT

C316.1	Upon completionofthe course, studentswill beable to have clearunderstanding
C316.2	Managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management

Course Code: C317 Course Name: HS8581 Professional Communication

C317.1	Make effective presentations
C317.2	Participate confidently in Group Discussions
C317.3	Attend job interviews and be successful in them
C317.4	Develop adequate Soft Skills required for the workplace

Course Code: C401 Course Name:EC8651TRANSMISSION LINESAND RF SYSTEMS

C401.1	Explain the characteristics of transmission lines and its losses
C401.2	Write about the standing wave ratio and input impedance in high frequency transmissionlines
C401.3	Analyze impedance matchingby stubsusingSmith charts
C401.4	Analyze thecharacteristicsof TE andTM waves
C401.5	Design a RFtransceiver system forwireless communication

Course Code:C402 Course Name:EC8681 MICROPROCESSORSAND MICROCONTROLLERS LABORATORY

C402.1	WriteALP Programmesfor fixedand FloatingPointandArithmeticoperations
C402.2	Interfacedifferent I/Oswith processor
C402.3	Generate waveformsusingMicroprocessors
C402.4	Execute Programsin8051
C402.5	Explain thedifferencebetween simulator and Emulator

Course Code: C403 Course Name: EC8661VLSIDESIGNLABORATORY

C403.1	WriteHDL codeforbasicas well as advanceddigital integratedcircuit
C403.2	Import thelogicmodulesintoFPGA Boards
C403.3	Synthesize Placeand RoutethedigitalIPs
C403.4	Design, Simulateand Extract thelayoutofDigital & Analog IC BlocksusingEDA tools

Course Code: C407 Course Name: ME8791 Simulation and Analysis Lab

C407.1	Simulate simple problems in vibrations and simple mechanisms using simulation software.
C407.2	Perform analysis of stress, truss/beam and dynamic analysis of mechanical members.
C407.3	Perform two dimensional stress analysis in plate and asymmetric shells.
C407.4	Analyze the temperature distribution in one dimensional heat transfer problems (walls and fins).
C407.5	Analyze the temperature distribution in two dimensional heat transfer problems (plates and shell).

Course Code: C408 Course Name: EC8701 ANTENNAS AND MICROWAVE ENGINEERING

C408.1	Apply the basic principles and evaluate antenna parameters and link power budgets
C408.2	Design and assess the performance of various antennas
C408.3	Design a microwave system given the application specifications

Course Code: C409 Course Name: EC8751 OPTICAL COMMUNICATION

C409.1	Realize basic elements in optical fibers, different modes and configurations.
C409.2	Analyze the transmission characteristics associated with dispersion and polarization techniques.
C409.3	Design optical sources and detectors with their use in optical communication system.
C409.4	Construct fiber optic receiver systems, measurements and coupling techniques.
C409.5	Design optical communication systems and its networks.

Course Code: C410 Course Name: EC8791 EMBEDDED AND REAL TIME SYSTEMS

C410.1	Describe the architecture and programming of ARM processor
C410.2	Outline the concepts of embedded systems
C410.3	Explain the basic concepts of real time operating system design
C410.4	Model real-time applications using embedded-system concepts
C410.5	Describe the architecture and programming of ARM processor

Course Code: C411 Course Name: EC8702 AD HOC AND WIRELESS SENSOR NETWORK

C411.1	Know the basics of Ad hoc networks and Wireless Sensor Networks
C411.2	Apply this knowledge to identify the suitable routing algorithm based on the network and user requirement
C411.3	Apply the knowledge to identify appropriate physical and MAC layer protocols
C411.4	Understand the transport layer and security issues possible in Ad hoc and sensor networks.
C411.5	Be familiar with the OS used in Wireless Sensor Networks and build basic modules

Course Code: C412 Course Name: EC8711 EMBEDDED LABORATORY

C412.1	Write programs in ARM for a specific Application
C412.2	Interface memory, A/D and D/A converters with ARM system
C412.3	Analyze the performance of interrupt
C412.4	Write program for interfacing keyboard, display, motor and sensor.
C412.5	Formulate a mini project using embedded system

Course Code: C413 Course Name: EC8761 ADVANCED COMMUNICATION LABORATORY

C413.1	Analyze the performance of simple optical link by measurement of losses and Analyzing the mode characteristics of fiber
C413.2	Analyze the Eye Pattern, Pulse broadening of optical fiber and the impact on BER
C413.3	Estimate the Wireless Channel Characteristics and Analyze the performance of Wireless Communication System
C413.4	Understand the intricacies in Microwave System design