



# **IDHAYA ENGINEERING COLLEGE FOR WOMEN**

CHINNASALEM-606 201, VILLUPURAM DISTRICT, TAMIL NADU, INDIA.

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## **COURSE OUTCOMES FOR B.E. ELECTRONICS AND COMMUNICATION ENGINEERING**



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<b>HS8151 - COMMUNICATIVE ENGLISH</b>	
C101.1	<b>Enable</b> students to frame sentences, enrich vocabulary and develop basic LSRW Skills
C101.2	<b>Relate</b> synthesis of sentences and enhance LSRW skills for general purposes
C101.3	<b>Apply</b> coherence and sequence expressions and substitutes for advanced task
C101.4	<b>Refine</b> tense sense and word enrichment techniques for more complex and demanding social activities
C101.5	<b>Develop</b> usage of language to ensure development in the LSRW Skills
<b>MA8151 - ENGINEERING MATHEMATICS I</b>	
C102.1	The students are able to <b>understand</b> the various techniques in differentiation
C102.2	The students are able to <b>solve</b> the maxima, minima of functions of two variables and applications of Lagrange's method
C102.3	The Students <b>Acquire</b> skills in analyzing and solving the Integral problems
C102.4	The students are able to <b>solve</b> the problems based on multiple integration
C102.5	The Students <b>Acquire</b> skills in analyzing and solving the ordinary differential equations.
<b>PH8151 - ENGINEERING PHYSICS</b>	
C103.1	<b>Retrieve</b> the basics of properties of matter and
C103.2	<b>Summarize</b> the concepts of waves, optical devices and analyze their applications in fiber optics.
C103.3	<b>Understand</b> the concepts of thermal properties of materials and asses their applications in expansion joints and heat exchangers
C103.4	<b>Extend</b> the physics concepts of quantum theory and apply in tunneling microscopes
C103.5	<b>Retrieve</b> the basics of crystals, their structures and experimenting the preparation of different growth techniques.
<b>CY8151 - ENGINEERING CHEMISTRY</b>	
C104.1	<b>Understand</b> the concept of hard water, its problems and water treatment techniques.
C104.2	<b>Categorize</b> the concepts of adsorption, its isotherms and catalytic reaction
C104.3	<b>Apply</b> the phase rule to the one and two component system and to understand the significance of alloys.
C104.4	<b>Summarize</b> the different types of fuels and its manufacturing process and able to calculate the calorific value of the fuel
C104.5	<b>Apply</b> the principles of generation of energies in batteries, nuclear reactors and solar cells.
<b>GE8151 - PROBLEM SOLVING AND PYTHON PROGRAMMING</b>	
C105.1	<b>Develop</b> algorithmic solutions to simple computational problems
C105.2	<b>Read</b> , write, execute by simple Python programs.
C105.3	<b>Structure</b> simple Python programs for solving problems. Decompose a Python program



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	into functions.
C105.4	<b>Represent</b> compound data using Python lists, tuples and dictionaries.
C105.5	<b>Read</b> and write data from/to files in Python Programs.
	<b>GE8152 - ENGINEERING GRAPHICS</b>
C106.1	<b>To understand</b> the fundamentals and standards of Engineering graphics
C106.2	<b>To perform</b> freehand sketching of basic geometrical constructions and multiple views of objects
C106.3	<b>To understand</b> the concept of orthographic projections of lines and plane surfaces
C106.4	<b>To draw</b> the projections of section of solids and development of surfaces
C106.5	<b>To visualize</b> and to project isometric and perspective sections of simple solids
	<b>GE8161-PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY</b>
C107.1	<b>Write</b> , test, and debug simple Python programs.
C107.2	<b>Implement</b> Python programs with conditionals and loops.
C107.3	<b>Develop</b> Python programs step-wise by defining functions and calling them.
C107.4	<b>Use</b> Python lists, tuples, dictionaries for representing compound data.
C107.5	<b>Read</b> and write data from/to files in Python.
	<b>BS8161 - PHYSICS CHEMISTRY LABORATORY</b>
C108.1	<b>Acquire</b> the skills in the determination hardness of the water by EDTA method
C108.2	<b>Analyze</b> the alkalinity present in water by titrimetric method
C108.3	<b>Determine</b> the molecular weight of a polymer.
C108.4	<b>Deduce</b> the amount substance present by pH metry and Potentiometry method.
C108.5	<b>Calculate</b> the amount of acid and base present in the solution and in the mixture Conductometric method.
	<b>HS8251 - TECHNICAL ENGLISH</b>
C109.1	<b>Enables</b> students to acquire competence in LSRW for basic general and technology-based professional requirements.
C109.2	<b>Develop</b> ability in LSRW to achieve more demanding tasks in technical fields
C109.3	<b>Apply</b> more strategies and skills to enhance LSRW to produce quick, effective and coherent responses in the professional fields
C109.4	<b>Build</b> communication employment-based communication competence by making students self reliant and analytical
C109.5	<b>Foster</b> LSRW ability to respond effectively and competently for job-based demands



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<b>MA8251 - ENGINEERING MATHEMATICS II</b>	
C110.1	This Course helps the students to <b>understand</b> the concepts in diagonalisation of matrices
C110.2	Students <b>understands</b> the concept of vector calculus
C110.3	This Course helps the students to <b>understand</b> the uses of analytic functions. and conformal mapping
C110.4	The Students are able to <b>understand</b> the techniques of complex integration and contour integrals
C110.5	The Students are able to <b>understand</b> the applications of laplace transforms
<b>PH8253 - PHYSICS FOR ELECTRONICS ENGINEERING</b>	
C111.1	<b>Understand</b> the classical and quantum electronic theories and explaining the energy band structures,
C111.2	<b>Retrieve</b> the basis of semiconductor physics and its application in various devices.
C111.3	<b>Analyze</b> the magnetic and electrical properties of materials.
C111.4	<b>Understand</b> on the functioning of optical properties for opto electronics.
C111.5	<b>Highlight</b> the basics of quantum structures and analyzing their applications in spintronics and carbon electronics
<b>BE8254 - BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING</b>	
C112.1	<b>Discuss</b> the essentials of electric circuits and analysis.
C112.2	<b>Discuss</b> the basic operation of electric machines and transformers
C112.3	<b>Introduction</b> of renewable sources and common domestic loads.
C112.4	<b>To understand</b> the fundamentals of electronic circuit constructions
C112.5	<b>Introduction</b> to measurement and metering for electric circuits.
<b>EC8251 - CIRCUIT ANALYSIS</b>	
C113.1	<b>Develop</b> the capacity to analyze electrical circuits,
C113.2	<b>Apply</b> the circuit theorems in real time
C113.3	<b>Design</b> and understand and evaluate the AC circuits.
C113.4	<b>Design</b> and understand and evaluate the DC circuits.
C113.5	<b>Apply</b> the circuit theorems in two port network
<b>EC8252 - ELECTRONIC DEVICES</b>	
C114.1	<b>Explain</b> the V-I characteristic of diode, UJT and SCR
C114.2	<b>Describe</b> the equivalence circuits of transistors
C114.3	<b>Operate</b> the basic electronic devices such as PN junction diode, Bipolar and Field effect Transistors
C114.4	<b>Power</b> control devices, LED, LCD
C114.5	<b>Operate</b> the Opto-electronic devices



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<b>EC8261 - CIRCUITS AND DEVICES LAB</b>	
C115.1	<b>Analyze</b> the characteristics of basic electronic devices
C115.2	<b>Design</b> RL and RC circuits
C115.3	<b>Verify</b> Thevinin & Norton theorem KVL & KCL, and Super Position Theorems
<b>GE8261 - ENGINEERING PRACTICES LAB</b>	
C116.1	<b>Fabricate</b> carpentry components and pipe connections including plumbing works.
C116.2	<b>Use</b> welding equipments to join the structures.
C116.3	<b>Carry</b> out the basic machining operations. Make the models using sheet metal works.
C116.4	<b>Illustrate</b> on centrifugal pump, Air conditioner, operations of smithy, foundary and fittings
C116.5	<b>Measure</b> the electrical quantities
<b>MA8352 - LINEAR ALGEBRA AND PARTIAL DIFFERENTIAL EQUATIONS</b>	
C201.1	The students have the ability to form and <b>solve</b> the problems in vector spaces
C201.2	This Course helps the Students to <b>understand</b> and <b>solve</b> various problems in linear transformation and diagonalization
C201.3	The students have the ability to <b>solve</b> the problems on inner product spaces
C201.4	The students have the ability to form and <b>solve</b> the PDE by using various techniques.
C201.5	Students are able to <b>solve</b> the One Dimensional Wave and Heat Flow equations.
<b>EC8393 - FUNDAMENTAL OF DATA STRUCTURES IN C</b>	
C202.1	<b>Implement</b> linear and non-linear data structure operations using C
C202.2	<b>Suggest</b> appropriate linear / non-linear data structure for any given data set.
C202.3	<b>Apply</b> hashing concepts for a given problem
C202.4	<b>Modify</b> or suggest new data structure for an application
C202.5	<b>Appropriately</b> choose the sorting algorithm for an application
<b>EC8351 - ELECTRONICS CIRCUITS I</b>	
C203.1	<b>Acquire</b> knowledge of Working principles, characteristics of BJT and FET
C203.2	<b>Acquire</b> knowledge of applications BJT and FET
C203.3	<b>Frequency</b> response characteristics of BJT and FET amplifiers
C203.4	<b>Analyze</b> the performance of small signal BJT and FET amplifiers -single stage and multi stage amplifiers
C203.5	<b>Apply</b> the knowledge gained in the design of Electronic circuits
<b>EC8352 - SIGNALS AND SYSYTEM</b>	
C204.1	<b>To be able</b> to determine if a given system is linear/causal/stable



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C204.2	<b>Capable</b> of determining the frequency components present in a deterministic signal
C204.3	<b>Capable</b> of characterizing LTI systems in the time domain.
C204.4	<b>Capable</b> of characterizing LTI systems in the frequency domain
C204.5	To be <b>able</b> to compute the output of an LTI system in the time and frequency domains
	<b>EC8392 - DIGITAL ELECTRONICS</b>
C205.1	<b>Analyze</b> various methods used for simplification of Boolean expression.
C205.2	<b>Design</b> and implementation of combinational circuits.
C205.3	<b>Design</b> and implementation of Synchronous sequential circuits.
C205.4	<b>Design</b> and implementation of Asynchronous sequential circuits.
C205.5	<b>Program</b> the memory devices.
	<b>EC8391 - CONTROL SYSTEM ENGINEERING</b>
C206.1	<b>Identify</b> the various control system components and their representations.
C206.2	<b>Analyze</b> the various time domain parameters.
C206.3	<b>Analysis</b> the various frequency response plots and its system.
C206.4	<b>Apply</b> the concepts of various system stability criterions.
C206.5	<b>Design</b> various transfer functions of digital control system using state variable models.
	<b>EC8381 - FUNDAMENTALS OF DATA STRUCTURES IN C LAB</b>
C207.1	<b>Write</b> basic and advanced programs in C
C207.2	<b>Implement</b> functions and recursive functions in C
C207.3	<b>Implement</b> data structures using C
C207.4	<b>Choose</b> appropriate sorting algorithm for an application and implement it in a modularized way
C207.5	<b>Choose</b> appropriate sorting algorithm for an implement it in a modularized way
	<b>EC8361 - ANALOG AND DIGITAL CIRCUIT LAB</b>
C208.1	<b>Design</b> and Test rectifiers, filters and regulated power supplies.
C208.2	<b>Design</b> and Test BJT/JFET amplifiers.
C208.3	<b>Differentiate</b> cascode and cascade amplifiers.
C208.4	<b>Analyze</b> the limitation in bandwidth of single stage and multi stage amplifier
C208.5	<b>Measure</b> CMRR in differential amplifier
	<b>HS8381 - INTERPERSONAL SKILLS /LISTENING &amp; SPEAKING</b>
C209.1	<b>Listen</b> and respond appropriately especially in academic contexts
C209.2	<b>Participate</b> in group discussions with special emphasis on stress and intonation



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C209.3	<b>Develop</b> lexical accuracy and fluency in articulation
C209.4	<b>Assess</b> conversations and offer Verbal and Non-Verbal feedbacks
C209.5	<b>Plan</b> and devise effective presentations
	<b>MA8451 - PROBABILITY AND RANDOM PROCESSES</b>
C210.1	Students have thorough <b>understand</b> on Probability and various distributions
C210.2	This Course helps the Students to <b>Solve</b> the Joint distributions, Covariance, Correlation and Linear regression Problems.
C210.3	Students <b>understand</b> Stationary process, Markov process, Poisson process and its Applications.
C210.4	Students <b>Acquire</b> skills in analyzing and Solving the Various types of Markovian Queue Problems.
C210.5	The students <b>solve</b> problems on General Queueing Models (Non Markovian)
	<b>EC8452 - ELECTRONICS CIRCUITS II(EC8452)</b>
C211.1	<b>Analyze</b> different types of amplifier, oscillator and multivibrator circuits
C211.2	<b>Design</b> BJT amplifier and oscillator circuits
C211.3	<b>Analyze</b> transistorized amplifier and oscillator circuits
C211.4	<b>Design</b> and analyze feedback amplifiers
C211.5	<b>Design</b> LC and RC oscillators, tuned amplifiers, wave shaping circuits, multivibrators, power amplifier and DC convertors
	<b>EC8491 - COMMUNICATION THEORY</b>
C212.1	<b>Design</b> AM communication systems
C212.2	<b>Design</b> Angle modulated communication systems
C212.3	<b>Apply</b> the concepts of Random Process to the design of Communication systems
C212.4	<b>Analyze</b> the noise performance of AM and FM systems
C212.5	<b>Gain</b> knowledge in sampling and quantization
	<b>EC8451 - ELECTROMAGNETIC FIELDS</b>
C213.1	<b>Display</b> an understanding of fundamental electromagnetic laws and concepts
C213.2	<b>Write</b> Maxwell's equations in integral, differential and phasor forms and explain their physical meaning
C213.3	<b>Explain</b> electromagnetic wave propagation in lossy and in lossless media
C213.4	<b>Solve</b> simple problems requiring estimation of electric field quantities based on these concepts and laws
C213.5	<b>Solve</b> simple problems requiring estimation of magnetic field quantities based on these concepts and laws



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<b>EC8453 - LINEAR INTEGRATED CIRCUITS</b>	
C214.1	<b>Design</b> linear and nonlinear applications of OP –AMPS
C214.2	<b>Design</b> applications using analog multiplier and PLL
C214.3	<b>Design</b> ADC and DAC using OP –AMPS
C214.4	<b>Generate</b> waveforms using OP –AMP Circuits
C214.5	<b>Analyze</b> special function Ics
<b>GE8291 - ENVIRONMENTAL SCIENCE AND ENGINEERING</b>	
C215.1	<b>Understand</b> the different ecosystem and the importance of biodiversity
C215.2	<b>Categorize</b> the sources, causes, consequences and control methods the different types of pollution
C215.3	<b>Understand</b> the existence of natural resources and problems of over utilization of these resources.
C215.4	<b>Analyze</b> social issues related to environment.
C215.5	<b>Relate</b> the human population growth and issues related to human health with the role of Information technology
<b>EC8461 - CIRCUITS DESIGN AND SIMULATION LABORATORY</b>	
C216.1	<b>Analyze</b> various types of feedback amplifiers
C216.2	<b>Design</b> oscillators, tuned amplifiers
C216.3	<b>Design</b> wave-shaping circuits and multivibrators
C216.4	<b>Design</b> and simulate feedback amplifiers, oscillators, tuned amplifiers, using SPICE Tool.
C216.5	<b>Design</b> and simulate wave-shaping circuits and multivibrators using SPICE Tool.
<b>EC8462 - LINEAR INTEGRATED CIRCUITS LABORATORY</b>	
C217.1	<b>Design</b> amplifiers, oscillators, D-A converters using operational amplifiers.
C217.2	<b>Design</b> filters using op-amp and performs an experiment on frequency response.
C217.3	<b>Analyze</b> the working of PLL and describe its application as a frequency multiplier.
C217.4	<b>Design</b> DC power supply using ICs.
C217.5	<b>Analyze</b> the performance of filters, multivibrators, A/D converter and analog multiplier using SPICE.





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<b>EC8501 - DIGITAL COMMUNICATION</b>	
C201.1	<b>Analysis</b> various Source coding theorem.
C201.2	<b>Design</b> and implement base band transmission schemes
C201.3	<b>Design</b> and implement band pass signaling schemes
C201.4	<b>Analyze</b> the spectral characteristics of band pass signaling schemes and their noise performance
C201.5	<b>Design</b> error control coding schemes
<b>EC8553 - DISCRETE-TIME SIGNAL PROCESSING</b>	
C202.1	<b>Apply</b> DFT for the analysis of digital signals and systems
C202.2	<b>Design</b> IIR and FIR filters
C202.3	<b>Characterize</b> the effects of finite precision representation on digital filters
C202.4	<b>Design</b> multirate filters
C202.5	<b>Apply</b> adaptive filters appropriately in communication systems
<b>EC8551 - COMPUTER ARCHITECTURE AND ORGANIZATION</b>	
C203.1	<b>Describe</b> data representation, instruction formats and the operation of a digital computer
C203.2	<b>Illustrate</b> the fixed point and floating-point arithmetic for ALU operation
C203.3	<b>Discuss</b> about implementation schemes of control unit and pipeline performance
C203.4	<b>Explain</b> the concept of various memories, interfacing and organization of multiple processors
C203.5	<b>Discuss</b> parallel processing technique and unconventional architectures
<b>GE8077 - TOTAL QUALITY MANAGEMENT</b>	
C204.1	<b>Learn</b> the need for quality in an organization
C204.2	<b>Demonstrate</b> various TQM principles
C204.3	<b>Analyze</b> and interpret various TQM tools.
C204.4	<b>Understand</b> the concepts of six sigma and QFB
C204.5	<b>Audit</b> and organization using ISO quality system
<b>OR0551 RENEWABLE ENERGY SOURCE</b>	
C205.1	<b>Understanding</b> the physics of solar radiation.
C205.2	<b>Ability</b> to classify the solar energy collectors and methodologies of storing solar energy.
C205.3	<b>Knowledge</b> in applying solar energy in a useful way.
C205.4	<b>Knowledge</b> in wind energy and biomass with its economic aspects.
C205.5	<b>Knowledge</b> in capturing and applying other forms of energy sources like wind, biogas and geothermal energies



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<b>EC8562 - DIGITAL SIGNAL PROCESSING LAB</b>	
C206.1	<b>Carryout</b> basic signal processing operations
C206.2	<b>Demonstrate</b> their abilities towards MATLAB based implementation of various DSP systems
C206.3	<b>Analyze</b> the architecture of a DSP Processor
C206.4	<b>Design</b> and Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals
C206.5	<b>Design</b> a DSP system for various applications of DSP
<b>EC8561 - COMMUNICATION SYSTEM LAB</b>	
C207.1	<b>Simulate</b> the various functional modules of a communication system
C207.2	<b>Validate</b> the various functional modules of a communication system
C207.3	<b>Demonstrate</b> their knowledge in base band signaling schemes through implementation of digital modulation schemes
C207.4	<b>Apply</b> various channel coding schemes & demonstrate their capabilities towards the improvement of the noise performance of communication system
C207.5	<b>Simulate</b> end-to-end communication Link
<b>EC8563 - COMMUNICATION NETWORKS LAB</b>	
C208.1	<b>Identify</b> the components required to build different types of networks
C208.2	<b>Choose</b> the required functionality at each layer for given application
C208.3	<b>Identify</b> solution for each functionality at each layer
C208.4	<b>Trace</b> the flow of information from one node to another node in the network
C208.5	<b>study</b> about network software
<b>EC8691 - MICROPROCESSOR AND MICROCONTROLLER</b>	
C310.1	<b>Summarize</b> the architecture of 8086 and write the assembly language programs on 8086.
C310.2	<b>Analyze</b> the various configurations of 8086 microprocessor and system bus structure.
C310.3	<b>Design</b> the I/O and memory interfacing in 8086 processor.
C310.4	<b>Illustrate</b> the 8051 microcontroller architecture and write the ALP.
C310.5	<b>Develop</b> simple applications using 8051 microcontroller based system.
<b>EC8095 - VLSI DESIGN</b>	
C311.1	<b>Summarize</b> the architecture of 8086 and write the assembly language programs on 8086.
C311.2	<b>Analyze</b> the various configurations of 8086 microprocessor and system bus structure.
C311.3	<b>Design</b> the I/O and memory interfacing in 8086 processor.
C311.4	<b>Illustrate</b> the 8051 microcontroller architecture and write the ALP.
C311.5	<b>Develop</b> simple applications using 8051 microcontroller based system.



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<b>EC8652 - WIRELESS COMMUNICATION (EC8652)</b>	
C312.1	<b>Characterize</b> wireless channels and evolve the system design specifications
C312.2	<b>Design</b> a cellular system based on resource availability and traffic demands
C312.3	<b>Design</b> and <b>implement</b> various signaling schemes for fading channels
C312.4	<b>Compare</b> multipath mitigation techniques and analyze their performance
C312.5	<b>Develop</b> and <b>Demonstrate</b> MIMO system and also <b>Evaluate</b> capacity of fading and non fading channels
<b>MG8591-PRINCIPLES OF MANAGEMENT</b>	
C313.1	<b>Summarizing</b> of management evolution and different types of business organization.
C313.2	<b>Explain</b> on planning and decision making process of management
C313.3	<b>Summarizing</b> of Organization structure , HR planning and control
C313.4	<b>Acquaintance</b> of the various process and elements of directing function of management like motivation, leadership and communication.
C313.5	<b>Designing</b> of performance controlling process, techniques of control and reporting to the management.
<b>EC8651 - TRANSMISSION LINES AND RF SYSTEMS</b>	
C314.1	<b>Able</b> to apply network theory concepts to derive the line parameters, line equations and to analyze the characteristics of the transmission line.
C314.2	<b>Analyze</b> the characteristics of a dissipation less transmission line
C314.3	<b>Design</b> impedance matching networks for unmatched lines and learn the importance of Smith chart in the above application.
C314.4	<b>Analyze</b> transmission of electromagnetic waves in unguided and guided media.
C314.5	<b>Able</b> to design RF system transceiver employing active RF components.
<b>EC8004 - WIRELESS NETWORKS</b>	
C315.1	<b>Illustrate</b> about the different type of wireless LAN and its layer structure.
C315.2.	<b>Summarize</b> the various Mobile networks and routing protocols
C315.3	<b>Summarize</b> various Mobile wide area network and 3G.
C315.4	<b>Examine</b> the internetworking between WLANS and WWANS .
C315.5	<b>Analyze</b> Mobile 4G network and applications
<b>EC8002 - MULTIMEDIA COMPRESSION AND COMMUNICATION</b>	
C315.1	<b>Design</b> audio compression techniques
C315.2	<b>Configure</b> Text, image and video compression techniques
C315.3	<b>Select</b> suitable service model for specific application
C315.4	<b>Select</b> suitable service model for specific application



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C315.5	<b>Configure</b> multimedia communication network
	<b>EC8681 - MICROPROCESSOR AND MICROCONTROLLER LAB</b>
C316.1	<b>Summarize</b> the basic concepts and features of ALP using 8086 and 8051.
C316.2	<b>Analyze</b> the arithmetic and logical operations using 8086 and 8051 kit.
C316.3	<b>Design</b> of code converters and waveform generation using 8086 and 8051.
C316.4	<b>Interface</b> various I/O devices with 8086 processor.
C316.5	<b>Simulate</b> arithmetic operation using MASM and Simulate logical and BCD operation using MASM
	<b>EC8661- VLSI DESIGN LABORATORY</b>
C317.1	<b>Create</b> HDL code for advanced digital integrated circuits
C317.2	<b>Demonstrate</b> the logic modules in to FPGA boards
C317.3	<b>Analyze</b> sequential logic circuits and synthesis, place and route digital IPS
C317.4	<b>Simulate</b> and extract the layouts of analog IC blocks using EDA tools
C317.5	<b>Determine</b> layout diagram in all the digital expressions
	<b>EC8701- ANTENNAS AND MICROWAVE ENGINEERING</b>
C401.1	<b>Understand</b> the basic principles in antenna and microwave system design
C401.2	<b>Acquire</b> the basic knowledge of various antenna designs such as Wire and loop antennas, Aperture antennas, Reflector antennas, Microstrip antennas & Frequency independent antennas
C401.3	<b>Understand</b> and analyze the radiation characteristics of antenna arrays
C401.4	<b>Understand</b> and analyze the microwave components such as Power dividers and hybrid junctions and the operational concepts of microwave vacuum tubes-based oscillators and amplifiers
C401.5	<b>Design</b> a microwave system comprising of filter, LNA, power amplifier, oscillator and mixer for the given application specifications.
	<b>EC8751- OPTICAL COMMUNICATION</b>
C402.1	<b>Realize</b> basic elements in optical fibers, different modes and configurations
C402.2	<b>Analyze</b> the transmission characteristics associated with dispersion and polarization techniques
C402.3	<b>Design</b> optical sources and detectors with their use in optical communication system
C402.4	<b>Construct</b> fiber optic receiver systems, measurements and coupling techniques
C402.5	<b>Design</b> optical communication systems and its networks
	<b>EC8791 - EMBEDDED AND REAL TIME SYSTEMS</b>
C403.1	<b>Understand</b> the concepts of embedded system design and analysis
C403.2	<b>Learn</b> the architecture and programming of ARM processor



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C403.3	<b>Be</b> exposed to the basic concepts of embedded programming
C403.4	<b>Learn</b> the real time operating systems
C403.5	<b>Differentiate</b> between the general purpose operating system and the real time Operating system. Model real-time applications using embedded-system concepts
	<b>EC8702 - ADHOC AND WIRELESS SENSOR NETWORKS</b>
C404.1	<b>Know</b> the basics of Ad hoc networks and Wireless Sensor Networks
C404.2	<b>Apply</b> this knowledge to identify the suitable routing algorithm based on the network and user requirement
C404.3	<b>Apply</b> the knowledge to identify appropriate physical and MAC layer protocols
C404.4	<b>Understand</b> the transport layer and security issues possible in Ad hoc and sensor networks
C404.5	<b>Be</b> familiar with the OS used in Wireless Sensor Networks and build basic modules
	<b>EC8705 - COURCOGNITIVE RADIO</b>
C405.1	<b>To understand</b> the evolving software defined radio and cognitive radio techniques and their essential functionalities
C405.2	<b>To study</b> the basic architecture and standard for cognitive radio
C405.3	<b>To design</b> and implement algorithms for cognitive radio spectrum sensing and dynamic spectrum access
C405.4	<b>To understand</b> the physical, MAC and Network layer design of cognitive radio
C405.5	<b>To expose</b> the student to evolving applications and advanced features of cognitive radio
	<b>OTL751- TELECOMMUNICATION SYSTEM MODELING AND SIMULATION</b>
C406.1	<b>Apply</b> the constituents of a telecommunication systems
C406.2	<b>Analyze</b> various modeling methodologies and simulation techniques
C406.3	<b>Estimate</b> the performance measures of telecommunication systems
C406.4	<b>Apply</b> system modeling in telecommunication
C406.5	<b>Demonstrate</b> light wave communication and satellite communication systems
	<b>EC8711- EMBEDDED LABORATORY</b>
C407.1	<b>Able to</b> write programs in ARM for a specific application
C407.2	<b>Able to</b> interface memory, A/D and D/A convertors with ARM system
C407.3	<b>Able to</b> analyze the performance of interrupt
C407.4	<b>Able to</b> write program for interfacing keyboard, display, motor and sensor.
C407.5	<b>Able to</b> formulate a mini project using embedded system
	<b>EC8761 - ADVANCED COMMUNICATION LAB</b>
C408.1	<b>Understand</b> the working principle of optical sources, detector, fibers and microwave



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	components
C408.2	<b>Develop</b> understanding of simple optical communication link.
C408.3	<b>Understand</b> the measurement of BER and Pulse broadening in optical fiber.
C408.4	<b>Understand</b> and capture an experimental approach to digital wireless communication
C408.5	<b>Understand</b> actual communication waveforms that will be sent and received across wireless channel
	<b>EC8072 – ELECTROMAGNETIC INTERFERENCE AND COMPATIBILITY</b>
C409.1	<b>To understand</b> the basic concepts of interference and compatibility and its sources.
C409.2	<b>To study</b> the different methods by which interference can occur
C409.3	<b>To design</b> and study the different methods used to prevent interference
C409.4	<b>To learn</b> the importance of Electromagnetic Compatible designs
C409.5	<b>To study</b> the different test methods and instruments used to measure electromagnetic interference
	<b>EC8094 - SATELLITE COMMUNICATION</b>
C410.1	<b>Understand</b> the basics of satellite orbits.
C410.2	<b>Understand</b> the satellite segment and earth segment
C410.3	<b>Analyze</b> the various methods of satellite access.
C410.4	<b>Understand</b> the applications of satellite
C410.5	<b>Under</b> the basics of satellite networks.
	<b>EC8811 - PROJECT WORK</b>
C411.1	<b>To develop</b> the ability to solve a specific problem right from its identification
C411.2	<b>Review</b> on literatures and learn more about the problem and its solutions
C411.3	<b>To develop</b> the analytical skills, requirement analysis, design skills.
C411.4	<b>Learn</b> the various system modules for implementing the project useful for the society and testing with the experimental data.
C411.5	<b>To train</b> the students in preparing project reports and to face reviews and viva voce examination

## ABBREVIATIONS

- C101.1**      **C stands for Course**
- 1 stands for year of study**
- 01 stands for first paper as per the curriculum**
- .1 stands for Outcomes for particular course**

**\*The same format is followed for remaining years and courses**