

<u>COURSE NUMBER</u>	<u>COURSE OUTCOMES</u>
	<u>SECOND YEAR 2018 EVEN SEM</u>
ECC301	Applied Mathematics- III(ECC301)
ECC301.1	Demonstrate basic knowledge of Laplace transform and will be able to solve ODEs using Laplace transform.
ECC301.2	Expand a given function using Fourier series Expansion.
ECC301.3	To identify the analytic function, harmonic function, Orthogonal trajectories and to find bilinear transformations and Conformal mappings.
ECC301.4	Apply Green's theorem, Divergence theorem and Stoke's theorem to calculate line integral, surface and volume integral. And will be able to solve Bessel's equation.
ECC302	Electronic Devices and Circuits I
ECC302.1	Students will be able to design a regulated power supply.
ECC302.2	Students will be able to understand current voltage characteristics of BJT and FET and bias these devices as an Amplifier.
ECC302.3	Students will be able to analyze different BJT Amplifier and its frequency response and also design BJT amplifier.
ECC302.4	Students will be able to analyze different FET Amplifier and its frequency response and also design FET amplifier.
ECC303	Digital System Design
ECC303.1	Students will be able to develop digital logic and understand working of digital systems.
ECC303.2	Students will be able to analyze ,design and implement combinational logic circuits as well as classify different semiconductor memories.
ECC303.3	Students will be able to analyze ,design and implement sequential logic circuits.
ECC303.4	Students will be able to understand concept of programmable devices and simulation of combinational and sequential circuits using VHDL systems.
ECC304	Circuit Theory and Networks
ECC304.1	Apply their knowledge in analysing Circuits by using network theorems.
ECC304.2	Apply the time and frequency (laplace Transform) method of analysis.
ECC304.3	Find the various parameters of two port network.
ECC304.4	Apply network topology for analyzing the circuit
ECC304.5	Synthesize the network using passive elements.
ECC305	Electronic Instrumentation and Control
ECC305.1	Understand Basic Function & Principle of working sensors & transducers used in electronic Measurement.
ECC305.2	Understand Basic Principle of testing & Measurement of R, C, I by using bridges.
ECC305.3	Able to find transfer functions for given system.
ECC305.4	Able to calculate time domain parameters and can predict stability of a given system using appropriate criteria.

	SECOND YEAR 2017-18 ODD SEM
ECC401	Applied Mathematics- IV
ECC401.1	Apply matrix theory to solve system of linear equations and eigen values and eigen vectors and their applications.
ECC401.2	Evaluate the contour integrals to identify and classify Zeroes, Singular points, Residues and their applications.
ECC401.3	Apply method of Calculus of Variation to specific systems.
ECC401.4	Understand the basic concepts of Linear Algebra .
ECC402	Electronic Devices and Circuits II
ECC402.1	Students will be able to analyze and design multistage Amplifier for given specifications
ECC402.2	Students will be able to understand and design power Amplifier or given specifications.
ECC402.3	Students will be able to do analysis of different type of negative feedback amplifier.
ECC402.4	Students will be able to understand and design oscillator and also understand MOSFET and its biasing.
ECC403	Linear Integrated Circuits
ECC403.1	Students should be able to understand fundamentals of OP-AMP and it's characteristics.
ECC403.2	Students should be able to understand linear applications of OP-AMP.
ECC403.3	Students should be able to understand non linear applications of OP-AMP as well as different types of ADC and DAC.
ECC403.4	Students should be able to understand working and different applications of IC 555, IC 566, IC565, IC 78XX, IC 79XX, IC 723 and their limitations.
ECC404	Signals & Systems
ECC404.1	Understand and apply basics of signals and systems.
ECC404.2	Analyze CT/DT systems and evaluate response for CT/DT systems.
ECC404.3	Analyze CT/DT systems in time domain and transformed domain.
ECC404.4	Realize the systems using different forms, use tools like state space analysis and will have basic understanding of various application area of signals and systems.
ECC405	Principles of Communication Engineering
ECC405.1	Students should be able to understand basic elements of a communication system, baseband signal frequency bands and different types of noise in communication system.
ECC405.2	Students should be able to analyze the performance of Amplitude modulation / demodulation and AM receiver.
ECC405.3	Students should be able to analyze the performance of frequency modulation/demodulation and FM Receiver.
ECC405.4	Students should be able to understand basic principle of sampling and pulse modulation and multiplexing techniques

Vidyavardhini's College of Engineering & Technology

Department of Mechanical Engineering

Program Educational Objectives (PEOs)

PEO 1: Graduates will lead in the conception, design, and implementation of new products, processes, services, and systems applying deep working knowledge of technical fundamentals in areas related to mechanical to address needs of the industry and society.

PEO 2: Graduates will implement modern engineering practices and participate dynamically in their fields of expertise and in activities that support service and economic development nationally and throughout the world.

PEO 3: Graduates will achieve responsible citizenship by energetically involving in societal and environmental issues in the community, also undertake responsibilities linked with health, safety, legal and cultural concerns.

PEO 4: Graduates will integrate into the local and global workforce with effective business and communication skills, with high ethical and professional standards, make sound engineering or managerial decisions, and have enthusiasm for the profession and professional growth.

PEO 5: Graduates at all stages of their careers, will be engaged in activities that demonstrate a commitment to and a desire for ongoing personal and professional growth and life – long learning.

Program Specific Outcomes (PSOs)

PSO 1: Apply principles of fundamental physics, applied mathematics to Mechanical Engineering

PSO 2: Make students to be conversant in design, model, develop, simulate and analyse the mechanical components, products or processes.

PSO 3: Prepare students to work professionally in thermal, fluid, design of mechanical systems or manufacturing sectors while undergoing the courses in each area

PSO 4: Develop industrial entrepreneurship and invoke awareness among students towards social, environmental along with energy and its auditing related issues.

THIRD YEAR EVEN SEM 2017-18

ECC501	Microprocessor & Peripherals Interfacing
ECC501.1	Understand basic concepts of microcomputer systems.
ECC501.2	Understand the architecture of 8086, write assembly language program in 8086 and know the coprocessor configuration.
ECC501.3	Interface peripherals for 8086.
ECC501.4	Design Memory and Input/ output interfacing with 8086.
ECC502	Discrete Time Signal Processing
ECC502.1	Understand the concept of Discrete Fourier Transform & Fast Fourier Transform
ECC502.2	Apply the knowledge of design & IIR digital filters to meet arbitrary specifications
ECC502.3	Apply the knowledge of design & FIR digital filters to meet arbitrary specifications
ECC502.4	Apply the knowledge of DSP Processor for various application & analyse the effect of hardware limitations on digital filter performance
	Digital Communication
ECC503.1	Explain need of digital communication and its basic components.
ECC503.2	Describe and analyse various digital modulation scheme and basics of wide band signal.
ECC503.3	Check orthogonality of codes and analyse various detection techniques.
ECC503.4	Analyse and apply various channel coding techniques and solve the problem.
ECC504	Electromagnetic Engineering
ECC504.1	Students will be able to apply vector calculus to understand theory, laws and the behaviour of static electric field.
ECC504.2	Students will be able to apply vector calculus to understand theory, laws and the behaviour of static electric field.
ECC504.3	Students will be able to apply to understand the propagation of electromagnetic waves in different mediums
ECC504.4	Students will be able to apply understand different parameters of transmission lines & analyze those parameters with smith chart.
ECL503	Business Communication & Ethics Lab.
ECL503.1	Design a technical document using precise language, suitable vocabulary and apt style.
ECL503.2	Develop the life skills/interpersonal skills to progress professionally by building stronger relationships.
ECL503.3	Demonstrate awareness of contemporary issues knowledge of professional and ethical responsibilities.
ECL503.4	Apply the traits of a suitable candidate for a job/higher education, upon being trained in techniques of holding a group discussion, facing interviews and writing resume/SOP.
ECL503.5	Deliver formal presentation effectively implementing the verbal and non-verbal skills.
ECCDLO 5011	Microelectronics
ECCDLO 5011.1	Students will be able to understand fabrication process of MOSFET and effects of scaling of MOSFET.
ECCDLO 5011.2	Students will be able to analyze different Integrated biasing circuits.

ECCDLO 5011.3	Students will be able to analyze and design MOS active load amplifiers as well as Differential amplifiers.
ECCDLO 5011.4	Students will be able to understand concept of Power amplifiers using MOSFET as well as fabrication of passive devices in IC.
ECCDLO 5014	Data Compression and Encryption
ECCDLO 5014 .1	To apply Modular arithmetic for encryption& decryption algorithm.
ECCDLO 5014 .2	Able to generate symmetric & asymmetric key by applying number theory concept & provide data security.
ECCDLO 5014 .3	To apply compression fundamentals to compress text file
ECCDLO 5014 .4	Describe image,video & audio compression algorithm.
	THIRD YEAR ODD SEM 2017-18
ETC601	Digital Communication
ETC601.1	Explain need of digital communication and its basic components.
ETC601.2	Describe and analyse various digital modulation scheme and basics of wide band signal.
ETC601.3	Check orthogonality of codes and analyse various detection techniques.
ETC601.4	Analyse and apply various channel coding techniques and solve the problem.
ETC602	Discrete Time Signal Processing
ETC602.1	Students will be able to acquire knowledge about time and frequency analysis of LTI system and state LTI systems as minimum phase, maximum phase and mixed phase
ETC602.2	Students will be able to perform Discrete Fourier Transform and its computation using FFT.
ETC602.3	Students will be able to design Finite Impulse Response and Infinite Impulse Response and realize it using different forms.
ETC602.4	Students will be able to understand multirate signal processing and their use in polyphase filter structure. And test signal processing algorithms for various applications
ETC603	Computer Communication and Telecom Networks
ETC603.1	To understand basics of network architectures with its protocols and concepts of physical layer.
ETC603.2	To understand data link layer services and functions.
ETC603.3	To understand the network layer services and different routing algorithms and routing protocols.
ETC603.4	To understand the transport layer services and Network applications.
ETC604	Television Engineering
ETC604.1	Understand the transmission & reception of picture signal in Analog Television with various camera tubes.
ETC604.2	Understand various colour television system & able to describe the generation of colour signal
ETC604.3	Describe & differentiate the fundamental concept of digital & advance television systems..
ETC604.4	Understand the working principle of latest displays like LED, LCD, Plasma, High definition & Wide dimension systems & there standards along with MUSE systems
ETC605	Operating Systems

ETC605.1	Analyze the functions, structure and history of operating system, similarly understanding design issue associated with operating system.
ETC605.2	Master various process management concept including scheduling, synchronization, deadlock and multithreading, similarly understanding concept of memory management including virtual memory.
ETC605.3	understanding the issue related file interface and implementation of disk management.
ETC605.4	familiar with various operating systems such as UNIX.LINUX and RTOS.
ETC606	VLSI Design
ETC606.1	Students will be able to understand MOS fabrication process, technology scaling and its issues.
ETC606.2	Students will be able to design inverter, combinational and sequential circuits with different logic styles and their layouts.
ETC606.3	Students will be able to distinguish memories depending upon its usage and operation.
ETC606.4	Students will be able to understand clocking styles ,distribution,interconnect and power saving.
	Mini Project II
ETL604.1	Select the appropriate software/simulation project through proper survey.
ETL604.2	Design and implement project using appropriate method.
ETL604.3	Carry out performance analysis of the implemented method using quantitative measures.
ETL604.4	Write and present their work effectively with ethical values.

FINAL YEAR EVEN SEM 2017-18

ETC701	Image and Video Processing
ETC701.1	Students will be able to understand basics of monochrome and color image processing.
ETC701.2	Students will be able to select among various spatial domain and frequency domain filtering techniques and apply them for image enhancement.
ETC701.3	Students will be able to perform image segmentation, morphological operations and image restoration operations for the application in hand.
ETC701.4	Students will be able to interpret and apply quantitative models for various fields of digital video processing.
ETC702	Mobile Communication
ETC702.1	To introduce the concept of cellular system and multiple access techniques.
ETC702.2	To provide the students evolution of digital mobile system (1G to 4G) and identify key challenges.
ETC702.3	To make the students get acquainted with emerging technologies in 4G.
ETC702.4	To introduce various radio propagation model and identify their effect on the performance of channel characteristics.
ETC703	Optical Communication and Networks
ETC703.1	To understand the fundamental principles of optics optical fiber communication system.
ETC703.2	Identify structures, functions, working principle of optical fibres, light sources, detectors, amplifiers and transmission characteristics of optical fiber
ETC703.3	To understand the network system component functions, optical multiplexing and optical network standards (SONET/SDH)
ETC703.4	To understand transmission system model and network management functions.
ETC704	Microwave and Radar Engineering
ETC704.1	Students would be able to design lumped and distributed matching networks
ETC704.2	Students would be able to analyse various waveguide and waveguide components
ETC704.3	Students would be able to quantitatively analyse and qualitatively describe the operation of microwave semiconductor and vacuum devices
ETC704.4	Students would be able to describe the working of different types of radar
ETE 701	Data Compression and Encryption
ETE 701.1	To apply Modular arithmetic for encryption & decryption algorithm.
ETE 701.2	Able to generate symmetric & asymmetric key by applying number theory concept & provide data security.
ETE 701.3	To apply compression fundamentals to compress text file & audio file.
ETE 701.4	Describe video & audio compression algorithm.
ETE 703	Neural Network and Fuzzy Logic
ETE 703.1	Student will be able to understand the concepts and techniques of neural networks by studying various architectures and training algorithm.
ETE 703.2	Students will be able to describe various applications of NN in the field of pattern recognition and classification.

ETE 703.3	Student will be able to demonstrate knowledge in Fuzzy logic principles and will be able to determine different methods of Fuzzification and Defuzzification.
ETE 703.4	Students will be able design various Fuzzy systems for embedded applications.
ETP701	Project stage I
ETP701.1	Investigate complex problem through in-depth literature survey
ETP701.2	Explore beyond the curriculum to identify and use appropriate methodology to solve the problems.
ETP701.3	Implement the methodology with modern tools.
ETP701.4	Analyze and compare the results with the standard results.
ETP701.5	Work as an individual and contribute as a team member with effectual management skills to achieve a common objective.
ETP701.6	Write and present their work effectively with ethical values.
ETP701.7	Engage themselves in area of their interest applying the knowledge gained and exploring new technical trends.
	FINAL YEAR ODD SEM 2017-18
C801	Wireless Networks
ETC801.1	Students will be able to explain concepts and specifications of cellular systems such as GSM, UMTS, HSPA.
ETC801.2	Students will be able to explain concepts of planning and design of wide area wireless networks.
ETC801.3	Students will be able to understand and compare different emerging wireless networks.
ETC801.4	Students will be able to explain WSN technology and middleware principles for wireless sensor networks.
ETC802	Satellite communication and Networks
ETC802.1	Students will be able to the basics of satellite communication and its space segment.
ETC802.2	Students will be able to Analyze satellite link power requirements and link budget
ETC802.3	Students will be able to understand space segment utilization and access and earth station types.
ETC802.4	Students will be able to understand inter-satellite Laser links and satellite networks concepts.
ETC803	Internet and Voice Communication
ETC803.1	Students will be able explain the features and operations of various application layer protocols such as FTP, DNS, DHCP and SMTP.
ETC803.2	Students will be able explain the features and operations of Transport layer protocols and concept of flow control, error control and congestion control.
ETC803.3	Students will be able to design, calculate, and apply subnet masks and addresses to fulfill networking requirements.
ETC803.4	Students will be able to understand and analyze the issues in providing quality-of-service for multimedia applications, such as internet telephony.
ETE 802	Telecom Network Management
ETE 802.1	Students will be able to understand fundamental Principles of TNM and discuss case histories of the same.
ETE 802.2	Students will be able to identify and discuss different network management standards, models and understand ASN.1.

ETE 802.3	Students should be able to apply network management fundamental Principles in TCP/IP based Internet Model using SNMP.
ETE 802.4	Students will be able explain Broadband network management and TMN architecture with its Interfaces.
ETP801	Project (Stage II)
ETP801.1	Investigate complex problem through in-depth literature survey
ETP801.2	Explore beyond the curriculum to identify and use appropriate methodology to solve the problems.
ETP801.3	Implement the methodology with modern tools.
ETP801.4	Analyze and compare the results with the standard results.
ETP801.5	Work as an individual and contribute as a team member with effectual management skills to achieve a common objective.
ETP801.6	Write and present their work effectively with ethical values.
ETP801.7	Engage themselves in area of their interest applying the knowledge gained and exploring new technical trends.