	ESC-C-103 Fundamentals of Electronics and Computer
ESC110.1	Students understand construction, biasing, V-I characteristics and application of Diode and BJT.
ESC110.2	Students understand basics of Digital Electronics.
ESC110.3	Students understand basic applications of Transducers and appliances
ESC110.4	Acquire the essential knowledge of computer system & peripherals.
ESC110.5	Understand operating system features and practice application software.
ESC110.6	Demonstrate use of computer networks and Internet.
	BSC-ETC-301-Engineering Mathematics-III
BSC-ETC-301.1	Make use ofLinear Differential Equations to solve the Electrical Engineering problems.
BSC-ETC-301.2	Applyknowledge of vector differentiation to find directional derivatives, curl and divergence of vector fields.
BSC-ETC-301.3	Define fuzzy sets using linguistic words and represent these sets by membership functions,

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	convexity, Normality, support, etc
BSC-ETC-301.4	Develop Fourier series expansion of a function over the given interval.
BSC-ETC-301.5	Find Laplace transforms of given functions and use it to solve linear differential equations
BSC-ETC-301.6	Solve basic problems in probability theory, including problems involving the binomial, Poisson, and normal distribution
	PCC-ETC-301-Electronic Circuit Design - I
PCC-ETC-301.1	Analyze and design electronic circuits such as rectifiers & unregulated power supply.
PCC-ETC-301.2	Analyze and design electronic circuits such as regulated power supply.
PCC-ETC-301.3	Analyze & Design of BJT & FET Biasing.
PCC-ETC-301.4	Explain the hybrid model of transistor and analyze the transistor amplifier (CE, CB,CC) using h-parameters
PCC-ETC-301.5	Analysis of CE Amplifier for low frequency & High frequency response forsinusoidal & square wave input.
PCC-ETC-301.6	Analyze & Design LPF, HPF, Clipper, Clampers, Multipliers

PCC-ETC-302-Network Analysis	
PCC-ETC-302.1	Analyze AC and DC circuits using different network Theorems and Apply graph theory tosolve network equations
PCC-ETC-302.2	Identify and analyze the series, parallel resonance circuits, calculate the bandwidth, selectivity factor also
PCC-ETC-302.3	Evaluate two port parameters and Understand network transfer functions in s-domain
PCC-ETC-302.4	Analyze and design prototype LC filters.
PCC-ETC-302.5	Evaluate initial conditions and solve differential equation for RL, RC, and RLC circuits andcarry out transient analysis.
PCC-ETC-303-Transducers and Measurements	
PCC-ETC-303.1	Student will able to select appropriate transducer and sensors as per required.
PCC-ETC-303.2	Students will get acquainted with different DAS
PCC-ETC-303.3	Student will be able to design instrumentation system
PCC-ETC-303.4	Student will able to understand measurement basics and select proper instrument forparticular measurement of electrical parameters.
PCC-ETC-304-Analog Communication	
PCC-ETC-304.1	Understand and identify the fundamental concepts and various components of analog communication systems.

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PCC-ETC-304.2	Understand, analyze and explain various analog modulation schemes.
PCC-ETC-304.3	Understand the performance of analog communications systems under the presence of noise.
PCC-ETC-304.4	Develop the ability to compare and contrast the strengths and weaknesses of various communication systems
PCC-ETC-304.5	Analyze Basic communications systems and their performance under the presence of noise
PCC-ETC-304.6	Differentiate between various pulse modulation techniques.
	PCC-ETC-305 Programming Lab-I
PCC-ETC-305.1	Student will be able to understand the basic concepts of procedure oriented programming language.
PCC-ETC-305.2	Student will be able to implement the control statements, looping statements and functions concepts.
PCC-ETC-305.3	Student will be able to design programs using user defined functions and data type
PCC-ETC-305.4	Student will be able to design & apply the skills for solving the engineering problems.
	PCC-ETC-401 Electronic Circuit Design-II
PCC-ETC-401.1	Analyze & Design Multistage and Feedback Amplifier
PCC-ETC-401.2	Analyze & Design Power Amplifier
PCC-ETC-401.3	Describe & Design Different types of Oscillators using BJT
PCC-ETC-401.4	Describe & Design Different types of Multivibrator using BJT
PCC-ETC-401.5	Describe & Design IC voltage Regulators
	PCC-ETC-402 Linear Integrated Circuits
PCC-ETC-402.1	Explain operational amplifier with its parameters

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PCC-ETC-402 .2	Classify different configuration of op-amp
PCC-ETC-402 .3	Identify and explain different applications of op-amp
PCC-ETC-402 .4	Design and implement various filters
PCC-ETC-402 .5	Analyze different waveform generator circuits
PCC-ETC-402 .6	Apply knowledge of op-amp in various industrial applications
	PCC-ETC-403 Control System Engineering
PCC-ETC-403.1	Apply knowledge of mathematics, science, and engineering to design, analyze and controlthe different systems
PCC-ETC-403 .2	Explain time & frequency domain analysis for different control systems
PCC-ETC-403.3	Demonstrate & compare different control systems
PCC-ETC-403.4	Describe state variables
PCC-ETC-403.5	Design model for control system
	PCC-ETC-404 Digital Communication
PCC-ETC-404.1	Describe the probability of random signal
PCC-ETC-404.2	Solve the problem based on information theory
PCC-ETC-404.3	Classify different source coding technique
PCC-ETC-404 .4	Explain different line coding techniques.

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PCC-ETC-404 .5	Compare different digital modulation technique
PCC-ETC-405 Data Structure	
PCC-ETC-405.1	Elaborate the basic concept of data structure & its types
PCC-ETC-405 .2	Design and Implement the various algorithms on arrays & records
PCC-ETC-405 .3	Implement algorithms on linked list
PCC-ETC-405 .4	Understand the concept of stacks, queues & its applications.
PCC-ETC-405 .5	Construct various types of trees & their applications
PCC-ETC-405 .6	Understand the concept of Graph & Hashing.
PCC-ETC-406 Programming Lab-II	
PCC-ETC-406 .1	Student will be able to understand the basic concepts of procedure oriented programminglanguage.
PCC-ETC-406 .2	Student will be able to use the class, objects, function and operator overloading concepts
PCC-ETC-406 .3	Student will be able to understand and implement the concept of inheritance, templateand exception handling applications
PCC-ETC-406 .4	Student will be able to design & apply the skills for solving the engineering problems
PCC-ETC 501: Signals and Systems	
PCC-ETC 501.1	Demonstrate use of signals and their representation.
PCC-ETC 501.2	Represent CT & DT system
PCC-ETC 501.3	Use Fourier transform for analysis of CT & DT signals

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PCC-ETC 501.4	Compute DFT and IDFT
PCC-ETC 501.5	Analyze signals using Z-transform
PCC-ETC 501.6	Realize the systems
PCC-ETC502: ElectromagneticEngineering	
PCC-ETC502.1	Explain the fundamentals of mathematical skills related with differential, integral andvector calculus.
PCC-ETC502.2	Apply and analyze the concepts of steady electric & magnetic fields.
PCC-ETC502.3	Develop field equations from understanding of Maxwell"s Equations.
PCC-ETC502.4	Extend the knowledge of basic properties of transmission lines to analyze electromagneticwave propagation in generic transmission line geometries.
PCC-ETC503 : Digital and VLSI Design	
PCC-ETC503.1	Apply Boolean laws/K-Map-method, to reduce a given Boolean function
PCC-ETC503 .2	Design & realize combinational logic circuits using logic gates.
PCC-ETC503 .3	Demonstrate the operation of flip-flops, counters , shift registers Synchronous sequential machine using Moore and Mealy machine
PCC-ETC503.4	Design combinational and sequential logic circuits using various description techniques inVHDL

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PCC-ETC504:Optical Communication	
PCC-ETC504.1	Differentiate the different types of optical fiber structures and light propagatingmechanisms.
PCC-ETC504.2	Acquire knowledge of signal degradation mechanism in optical fiber.
PCC-ETC504.3	Understand the construction of and working of optical sources and detectors.
PCC-ETC504.4	Differentiate the different types of optical fiber structures and light propagatingmechanisms.
OEC-ETC 501: Industrial Automation	
OEC-ETC 501.1	Demonstrate the working of PLC,DCS and SCADA
OEC-ETC 501.2	Apply the concept; analyze the importance and application of industrial automation.
OEC-ETC 501.3	Compile ideas into new different solutions with the help of programming languages as perIEC 61131-3.
OEC-ETC 501.4	Apply the knowledge of automation for design and development of Graphical user interface for different process.
OEC-ETC 501.5	Use the advanced software tools for Industrial Automation such Codesys ,GX Works 2,RS logix 5000 , Delta V Explorer etc.
OEC-ETC 501: Biomedical Instrumentation	
OEC-ETC 501.1	Express the anatomy and physiology of human body.
OEC-ETC 501.2	Explain the process to capture Bioelectric signal.
OEC-ETC 501.3	Apply knowledge of Diagnostic and Therapeutic equipment"s.
OEC-ETC 501.4	State medical safety aspects
PCC-ETC505:Simulation and Modeling	
PCC-ETC505.1	Understand the python programming basics
PCC-ETC505.2	Able to solve programs on decision making & looping statements in python

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PCC-ETC505.3	Understand python list, tuple, and dictionary collection concepts
PCC-ETC505.4	Understand simulation programs using SimPy Library
PCC-ETC505.5	Design & Apply Simpy library functions to model real time problems.
	PCC-ETC 601: Digital Signal Processing
PCC-ETC 601.1	Make use of FFT algorithm for filtering of long duration sequences
PCC-ETC 601.2	Design digital FIR filters
PCC-ETC 601.3	Design digital IIR filters
PCC-ETC 601.4	Implement FIR and IIR filters using DSP Processor
PCC-ETC 601.5	Apply the basic concept of Multirate digital signal processing
PCC-ETC 601.6	Apply the basic concept of wavelet transform
	PCC-ETC 602: Microprocessor and Microcontroller
PCC-ETC 602.1	Describe Architecture of 8085 and write various Programs.
PCC-ETC 602.2	Implement Interrupts and interfacing of memory, 8255 with 8085.
PCC-ETC 602.3	Describe Architecture of 8051 and write various Programs.
PCC-ETC 602.4	Perform experiment using ON-Chip resources of 8051.
PCC-ETC 602.5	Select I/O peripherals to satisfy system design requirements.
PCC-ETC 602.6	Design Embedded „C" Programs for I/O Peripherals
	PCC-ETC603: Power Electronics
PCC-ETC603.1	Understand the characteristics of various power electronics devices and Compare thedifferent firing circuits.

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PCC-ETC603.2	Analyze converters, Inverters and Choppers.
PCC-ETC603.3	Understand the Industrial applications of Power circuits.
	PCC-ETC604: Antenna and Wave Propagation
PCC-ETC604.1	Realize the importance of basics of antenna systems to differentiate the applicability ofeach type of antenna
PCC-ETC604.2	Analyze the utilization of Antenna systems in wide areas like wireless communication,fixed line communication, computer communication etc.
PCC-ETC604.3	Discuss radio wave propagation
	OEC-ETC601:Robotics Engineering
OEC-ETC601.1	Understand the concept, development and key components of robotics technologies.
OEC-ETC601.2	Select different sensors, electronics systems for Robot
OEC-ETC601.3	Classify different types of effectors and actuators
OEC-ETC601.4	Analyze the system & develop software for particular robotic applications
OEC-ETC601.5	Understand robot applications & develop robot for particular applications
	OEC-ETC 601: Mobile Technology
OEC-ETC 601.1	Apply multiple access techniques to mobile communication.
OEC-ETC 601.2	Explore the architecture of GSM.

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OEC-ETC 601.3	Apply and make use of GSM Services.
OEC-ETC 601.4	Differentiate thoroughly the routing protocols and generations of mobile technologies
OEC-ETC601.5	Apply multiple access techniques to mobile communication.
PCC-ETC605: Mini Project	
PCC-ETC605.1	Practice acquired knowledge within the chosen area of technology for projectdevelopment.
PCC-ETC605.2	Identify, discuss and justify the technical aspects of the chosen project with a Comprehensive and systematic approach.
PCC-ETC605.3	Reproduce, improve and refine technical aspects for engineering projects
PCC-ETC605.4	Work as an individual or in a team in development of technical projects.
PCC-ETC605.5	Communicate and report effectively project related activities and findings
ET401 Satellite Communication	
ET401.1	Identify Orbital aspects involved in satellite communication
ET401.2	Formulate Power budget calculation
ET401.3	State Satellite system and services provided
ET401.4	Analyze the performance of satellite communication system
ET402 Embedded Systems	
ET402.1	Define embedded systems and state its characteristics
ET402.2	Describe the Architecture of PIC and ARM core
ET402.3	Build programs in assembly language for ARM core
ET402.4	Apply knowledge of PIC and ARM to develop embedded system designs

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ET402.5	Explain concepts of RTOS
	ET403 Computer Communication Networks
ET403.1	Describe and differentiate types of networks such as LAN, WAN, MAN and network topologies like star, bus, ring etc. Explain and distinguish between OSI and TCP/IP reference model.
ET403.2	Summarizes guided & unguided transmission media and different networking devices used at physical layer.
ET403.3	Explain error detection &correction mechanisms and frame formats at data link layer.
ET403.4	Explain various routing algorithms like shortest path, distance vector, link state etc and congestion control algorithms viz. leaky bucket, token bucket used at network layer.
ET403.5	Illustrate different TCP/IP protocols like IP,ARP,RARP,TCP,UDP etc.
ET403.6	Demonstrate the network Security Mechanisms.
	ET404 RF & Microwave Engineering
ET404.1	Explain the different types modes propagation in waveguides
ET404.2	Select the appropriate component for various applications.
ET404.3	Measure the various microwave parameters.
ET404.4	Explain the different microwave Hazards.
ET404.5	Demonstrate the application of Microwave Engineering to various field
	ET405 Elective-I (ET405A Robotics)
ET405A .1	Student can understand basics concept of industrial atomization & Robotic technology

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ET 405A. 2	Students can able to select different sensors, electronics systems for Robot
ET 405A .3	Student can develop software for particular robotic applications
ET 405A. 4	Students will understand robot applications & develop robot for particular applications
	ET408 Video Engineering
ET408.1	Identify picture and sound transmission and reception.
ET408.2	Interpret color composite video signal.
ET408.3	Describe principle of digital TV system.
ET408.4	Demonstrate high definition television system.
ET408.5	Initiate advanced TV system like LCD, plasma, LED, CCTV, etc.
	ET409 Digital Image Processing
ET409.1	To state the fundamental steps involved in Digital Image Processing.
ET409.2	Select the appropriate image transforms and filtering techniques on an image.
ET409.3	Apply and analyze image enhancement techniques.
ET409.4	Demonstrate an application based on image processing.
ET409.5	Perform operations on color image processing.
	ET410 Wireless and Mobile Commnication

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ET410.1	List basic fundamentals of wireless communication
ET410.2	Analyze large & small scale radio wave propagation
ET410.3	Apply multiple access techniques to mobile communication.
ET410.4	Create mobile network.
	ET411 Elective-II (ET411C-Remote Sensing and GPS)
ET4111C.1	Explain concepts, methodologies and applications of Remote SensingTechnology.
ET4111C.2	Build the candidates for National and Global Employability
ET4111C.3	Adapt skills in handling instruments, tools, techniques and modeling while using Remote Sensing Technology
ET4111C.4	Build the candidate with confidence and leadership qualities

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