

Year/Sem	Course	Course Outcomes	
II/III	C201 - Transforms and partial differential equations	C201.1	Understand the partial differential equations of homogenous and non homogenous equations.
		C201.2	Solve differential equations using Fourier series
		C201.3	Apply Fourier series techniques to solve one and two dimensional heat flow and wave phenomena
		C201.4	Solve the mathematical principles of Fourier transforms.
		C201.5	Apply z-transform techniques in partial differential equations.
Year/Sem	Course	Course Outcomes	
II/III	C202 - Electrical engineering and instrumentation.	C202.1	Explain the operation and characteristics of DC generator, DC motor and its applications.
		C202.2	Discuss the working of transformers and its performance.
		C202.3	Outline the construction and working principles of three phase & single phase Induction Motor and Synchronous Motor.
		C202.4	Classify the static and dynamic characteristics of measurement instruments and analyze the various types of transducers
		C202.5	Explain the application of analog and digital instruments in measurements
II/III	C203 - Object orientated Programming and data structures	C203.1	Explain the concept of Object Oriented Programming like data abstraction, encapsulation
		C203.2	Demonstrate the concepts of inheritance and polymorphism.
		C203.3	Apply the concepts of ADT in data structures like Stack and Queue.
		C203.4	Analyze the advanced concepts of tree preliminaries and other tree structures
		C203.5	Construct the different Sorting Algorithms
II/III	C204 - Digital electronics	C204.1	Analyze the different methods used for simplification of boolean expressions.
		C204.2	Design and develop the various types of combinational circuits.

		C204.3	Design and implementing synchronous and asynchronous sequential circuits.
		C204.4	Classify the various types of memory devices and PLDs.
		C204.5	Apply the simple HDL codes for the combinational and sequential circuits.
Year/Sem	Course	Course Outcomes	
II/III	C205 - Signals and system	C205.1	Classify the various types of continuous and discrete signals and systems.
		C205.2	Analyze continuous time signals using Fourier series, Laplace and Fourier transform
		C205.3	Design continuous time LTI systems using Fourier and Laplace transform.
		C205.4	Analyze discrete time signal using z-transform and DTFT.
		C205.5	Design discrete time LTI systems using z-transform and DTFT.
II/III	C206 - Electronic circuits -I	C206.1	Design of transistors circuits with biasing concepts.
		C206.2	Analyze small signal equivalent circuits of various BJT amplifiers.
		C206.3	Analyze small circuit equivalent circuits of various J-FET and MOSFET amplifiers.
		C206.4	Determine the frequency analysis of the BJT and MOSFET amplifiers.
		C206.5	Analyze different IC MOSFET amplifiers
II/III	C207 - Analog and digital laboratory	C207.1	Observe the frequency response of CE/CC/CB/CS amplifiers.
		C207.2	Observe the characteristics of Darlington and differential amplifiers.
		C207.3	Compute the bandwidth of single stage and multistage amplifiers.
		C207.4	Design combinational circuits for arithmetic, code conversions and comparison operations
		C207.5	Design sequential circuits for counter and shift register operations

Year/Sem	Course	Course Outcomes	
II/III	C208 - Oops and data structures & laboratory	C208.1	Design and implement the C++ program for manipulating stack, queues and linked list
		C208.2	Develop C++ programs using object oriented concepts.
		C208.3	Develop C++ programs using handling exceptions.
		C208.4	Apply the different data structures programs for practical problems using non-linear data structures.
		C208.5	Design and implement the recursive programs using trees and graphs
II/IV	C209- Probability and Random Processes	C209.1	Identify the functions of Discrete & Continuous Random variables, Moments and Moment Generating Functions
		C209.2	Solve problems in Marginal and Conditional distributions using the concept of Correlation, Regressions and Transformation of two dimensional random variables.
		C209.3	Determine the process is either SSS or WSS and classify the TPM of Markov chain process.
		C209.4	Analyze the Autocorrelation and Cross correlation between two random variables and find the Power spectral Density and Cross Power Spectral Density
		C209.5	Solve the system transfer function and solution of auto correlation & cross correlation functions of LTI systems.
II/IV	C-210- Electronic Circuits –II	C210.1	Remembering the concept of feedback and compare various feedback amplifier.
		C210.2	Analyze various Oscillators along with its frequency determination.
		C210.3	Understand and analyze the performance of different tuned amplifiers
		C210.4	Design of different wave shaping and multivibrator circuits
		C210.5	Design and Analyze of various Blocking Oscillators and time base generators

Year/Sem	Course	Course Outcomes	
II/IV	C-211 - Communication Theory	C211.1	Explain the types of amplitude modulation techniques such as DSBSC, SSB and VSB.
		C211.2	Discuss the various types of angle modulation such as narrow and wide band FM circuits.
		C211.3	Apply the concepts of Random Process to the design of communication systems.
		C211.4	Classify the types of noise sources added in communication channel and analyze the noise performance in AM and FM systems.
		C211.5	Discuss about information theory and evaluate the Huffman and Shannon-fano encoding models.
II/IV	C-212 - Electromagnetic Fields	C212.1	Analyze field potentials due to static charges using theorems and laws.
		C212.2	Discuss different boundary conditions for electric field and apply Poisson's & Laplace's equations to find capacitance.
		C212.3	Analyze the field potentials due to charges in static magnetic fields.
		C212.4	Explain how materials affect magnetic fields.
		C212.5	Analyze the relation between the fields under time varying situations.
II/IV	C-213 - Linear Integrated Circuits	C213.1	Explain the performance characteristics of operational amplifier.
		C213.2	Design linear and non-linear applications of operational amplifiers.
		C213.3	Discuss the applications using analog multiplier and PLL.
		C213.4	Explain ADC and DAC using OP-AMP.
		C213.5	Generate Waveforms using OP-AMP circuits and Analyze special function IC's.

Year/Sem	Course	Course Outcomes	
II/IV	C-214 -Control System Engineering	C214.1	Compute the transfer function of different physical systems
		C214.2	Analyze the time domain specifications and calculate the steady state error.
		C214.3	Illustrate the frequency response characteristics of open loop and closed loop system response.
		C214.4	Analyze the stability using Routh and root locus techniques.
		C214.5	Illustrate the state space model of a physical system and discuss the concepts of sampled data control system..
II / IV	C-215 - Circuits and Simulation Integrated Laboratory	C215.1	Analyze various types of feedback amplifiers.
		C215.2	Design and Construct the oscillators, tuned amplifiers, wave shaping circuits and multivibrators.
		C215.3	Build the oscillators and tuned amplifiers using SPICE tool.
		C215.4	Demonstrate the waveform shaping circuits and multivibrators using SPICE tool.
		C215.5	Test the voltage and current time base circuit using SPICE tool.
II/IV	C-216 -Linear Integrated Circuit Laboratory	C216.1	Design of oscillators and amplifiers using Op-Amp.
		C216.2	Design of filters using Op-Amp and analyze the frequency response.
		C216.3	Design and implement the concepts of multiplexer, demultiplexer.
		C216.4	Analyze the working of PLL and its frequency multiplier circuit.
		C216.5	Design of DC power supply circuit using ICs.

Year/Sem	Course	Course Outcomes	
II/IV	C-217 - Electrical Engineering and Control System Laboratory	C217.1	Classify the starters for various applications and test the characteristics of DC shunt machines under various conditions.
		C217.2	Compute the transfer function of a DC shunt generator and the regulation of three phase alternator.
		C217.3	Analyze the performance of a single phase transformer and performance curves of AC machines.
		C217.4	Construct the bridge network circuit to measure the value of passive elements and analyze the stability of linear system through the simulation software.
		C217.5	Illustrate the effect of P, PI and PID controllers and design the Lead & Lag compensators.
III/V	C301 - Digital communication	C301.1	Explain sampling, quantization and encoding techniques.
		C301.2	Discuss about DPCM, DM, ADPCM and ADM techniques.
		C301.3	Explain the line coding and techniques for eliminating ISI in digital communication system.
		C301.4	Analyze the various pass band digital modulation techniques.
		C301.5	Apply error control coding techniques in digital communication system.
III/V	C302 – Principles of Digital Signal Processing	C302.1	Apply the concept of DFT for the analysis of digital signal and systems.
		C302.2	Design and investigate IIR filters using various approximation techniques.
		C302.3	Design FIR filters and discuss the finite word length effects in digital filters.
		C302.4	Classify the finite word length effects by understanding the concepts of quantization.
		C302.5	Discuss about multirate filters and apply adaptive filtering in communication systems

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III/V	C303 – Transmission Lines and Wave Guides	C303.1	Analyze the propagation of signals, distortion, loading methods and reflections in low frequency transmission lines.
		C303.2	Understand and Analyze signal propagation and measurement of power, VSWR, wavelength at Radio frequencies.
		C303.3	To solve transmission lines problems using smith chart.
		C303.4	Compare and design different types of filters.
		C303.5	Evaluate the propagation of various modes in TE, TM and TEM waves.
III/V	C304 – Environmental Science and Engineering	C304.1	Explain the various eco-systems and Bio-diversity.
		C304.2	Classify the environmental pollutions, related problems and control methods.
		C304.3	Identify the natural resources and the effects of its over-exploitation.
		C304.4	List out the fundamental social issues and sustainable development of public.
		C304.5	Illustrate population, environmental health issues and its awareness.
III/V	C305 – Microprocessor and microcontroller	C305.1	Explain the architecture and addressing modes of 8086.
		C305.2	Explain the concept of system bus structure and different modes of 8086 processor.
		C305.3	Analyze the various I/O interfacing techniques of 8086 microprocessor.
		C305.4	Explain the architecture and addressing modes of 8051.
		C305.5	Analyze the various interfacing techniques and applications of 8051 microprocessor.

Year/Sem	Course	Course Outcomes	
III/V	C306 – Digital Signal Processing Laboratory	C306.1	Experiment with sequence generation, correlation, convolution and spectrum analysis using DFT
		C306.2	Design FIR and IIR filters with known specifications
		C306.3	Apply adaptive filtering in equalization for various applications of DSP
		C306.4	Demonstrate DSP processors and explain its operation and addressing modes.
		C306.5	Build FIR and IIR filters and analyze finite word length effects on DSP processors.
III/V	C307 – Communication System Laboratory	C307.1	Design and verify the sampling and TDM circuits.
		C307.2	Design and verify the AM, FM and its demodulation circuits.
		C307.3	Demonstrate the working of PCM, DM and demodulation circuits.
		C307.4	Compile band pass digital signaling schemes through simulation of FSK, PSK, QPSK and QAM techniques.
		C307.5	Compile the line coding and error coding schemes to improve the performance of communication systems through simulations.
III/V	C308 – Microprocessor and Microcontroller Laboratory	C308.1	Demonstrate the ALP programs in 8086.
		C308.2	Apply the Arithmetic & logical operations in 8086 microprocessor.
		C308.3	Experiment with A/D & D/A, stepper motor, traffic light Interfacing with 8086 Microprocessor.
		C308.4	Demonstrate the ALP Programs in 8051.
		C308.5	Compile the programs using MASM Software.

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III/VI	C309 -Principles of management	C309.1	Explain the managerial roles in local and global organization, environmental factors & strategies for International business.
		C309.2	Describe the planning process & benefits of MBO and prescribe the decision making model under different conditions.
		C309.3	Illustrate the different organization structure, Line & staff authority, staff selection & career development and performance appraisal process.
		C309.4	Demonstrate the creativity, innovation and leadership styles through the principles of effective communication and organization culture.
		C309.5	Explain the process of control authority, budget preparation, productivity measurement and planning operations in management.
III/VI	C310 - Computer Architecture	C310.1	Explain the basis of the computer hardware and how software interacts with computer hardware.
		C310.2	Design arithmetic and logic units.
		C310.3	Design and analyze pipelined controlled units.
		C310.4	Understand parallel processing architecture.
		C310.5	Evaluate performance of memory units.
III/VI	C311 - Computer Networks	C311.1	Identify the components to built different types of networks.
		C311.2	Choose the required functionality at each layer for given application.
		C311.3	Identify the solution for functionality at each layer.
		C311.4	Analyze the mechanisms involved in transport layer.
		C311.5	Test the flow of information from on node to another node in the networks.

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III/VI	C312 - VLSI Design	C312.1	Classify the various characteristics of MOS transistors technology and its principles.
		C312.2	Explain the design principles of various combinational logic circuits for digital operations.
		C312.3	Explain the design principles of various sequential logic circuits for digital operations.
		C312.4	Design the arithmetic building blocks using various MOS transistors.
		C312.5	Classify the various building blocks of FPGA, cell libraries and routing strategies.
III/VI	C313 - Antenna and Wave Propagation	C313.1	Define the fundamentals of antenna parameters, impedance matching and dipole antennas.
		C313.2	Compare the concepts of aperture antennas and understand its design procedures.
		C313.3	Analyze the various types of antenna arrays element antenna arrays and pattern multiplication.
		C313.4	Design and explain the principles of special antennas, EBG structures and measure the gain, radiation pattern, polarization and VSWR.
		C313.5	Discuss the different types of propagation of radio waves at different frequencies.
III/VI	C314 - Medical Electronics	C314.1	Discuss the terminologies of electro –physiology and its recording.
		C314.2	Determine the measurement techniques of bio-chemical and non-electrical parameters.
		C314.3	Categorize the various types of assist devices.
		C314.4	Explain the various diathermy and bio telemetry techniques
		C314.5	Outline current trends in medical instrumentation.

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III/VI	C315 - Computer Networks Laboratory	C315.1	Develop the communication between two desktop computers.
		C315.2	Develop simple applications and sockets using TCP &UDP.
		C315.3	Develop the various protocols.
		C315.4	Analyze the performance of protocols in different layers.
		C315.5	Analyze various Routing protocols.
III/VI	C316 - VLSI Design Laboratory	C316.1	Develop the Verilog HDL code for basic as well as advanced digital integrated circuits.
		C316.2	Build the integrated circuit logics into FPGA
		C316.3	Evaluate area, speed, power, delay and path of the integrated circuit modules.
		C316.4	Model the analog IC blocks using EDA tools and build the GDSII format.
		C316.5	Design the digital integrated circuits and analyze its performance using internal logic analyzer.
III/VI	C317 - Communication And Soft Skills Laboratory	C317.1	Develop communicative competence in English with specific reference to listening and speaking.
		C317.2	Evaluate learner's ability in reading and writing to communicative effectively.
		C317.3	Improve the prospects of the learner's for success in competitive examinations.
		C317.4	Examine the learner's ability clearly to shine in the interviews.
		C317.5	Improve soft skills, creative thinking, team work and sustainability in workplace.

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IV/VII	C401 - RF And Microwave Engineering	C401.1	Describe Low and high frequency parameters for two port network.
		C401.2	Identify RF transistor amplifier stability and impedance matching networks.
		C401.3	Explain the operation of various passive comparators.
		C401.4	Explain about the working principle of various microwave tubes and the limitations of conventional tubes.
		C401.5	Understand microwave generation and to measure microwave parameters.
IV/VII	C402 - Optical Communication And Networks	C402.1	Explain the basic elements of optical fiber transmission link and types of fiber mode configuration.
		C402.2	Classify the various signal degradation factors associated with optical fiber.
		C402.3	Explain various sources and connecting techniques in optical communication.
		C402.4	Examine fiber optic receiver operation and various fiber parameter measurements.
		C402.5	Analyze the optical networks and its associated parameters on system performance.
IV/VII	C403 - Embedded And Real Time Systems	C403.1	Describe the architecture and programming of ARM processor.
		C403.2	Outline the concepts program level in embedded processor computing.
		C403.3	Explain the basic concepts of the real time operating system.
		C403.4	Explain the concept of design methodologies techniques for embedded system.
		C403.5	Describe model real-time applications using embedded-system concepts.

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IV/VII	C404 - Digital Image Processing	C404.1	Explain the image formation and the role of the human visual system.
		C404.2	Explain the various image enhancement techniques in spatial and frequency domain.
		C404.3	Analyze the various filtering methods for image restoration and segmentation.
		C404.4	Compare various coding techniques for image compression.
		C404.5	Discuss the features of image representation techniques.
IV/VII	C405 - Advanced Computer Architecture	C405.1	Discuss about the fundamentals of Computer design
		C405.2	To demonstrate the performance of instruction level parallelism.
		C405.3	To Classify the different data level parallelism.
		C405.4	To Compare the performance of different architectures.
		C405.5	Explain the hardware features involved in memory and I/O.
IV/VII	C406 - Advanced Microprocessor and Microcontroller	C406.1	Discuss the architecture of Pentium processor.
		C406.2	Discuss the architecture of ARM processor along with its programming techniques.
		C406.3	Develop the applications of ARM processor.
		C406.4	Illustrate the interfacing between Motorola 68HC11 and different peripheral devices.
		C406.5	Discuss the architecture of PIC microcontroller along with its interfacing.

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IV/VII	C407 - Embedded Laboratory	C407.1	Practice to write the programs for ARM based applications.
		C407.2	Demonstrate the memory operations, A/D & D/A converters using ARM systems.
		C407.3	Analyze the interrupt functions in Arm based systems.
		C407.4	Demonstrate the keyboard, display, motor and sensor interfacing units.
		C407.5	Design an ARM based system as a mini project.
IV/VII	C408 - Optical And Microwave Laboratory	C408.1	Estimate the performance of analog and digital optical link.
		C408.2	Analyze the mode characteristics of optical fiber.
		C408.3	Solve theoretical S-parameter measurement with the practical value.
		C408.4	Measure the microwave parameter such as frequency, wavelength, and VSWR and radiation pattern.
		C408.5	Evaluate the DC characteristics of LED and photo diode.
IV/VIII	C409 - Wireless Communication	C409.1	Discuss about wireless channels and various signaling schemes for fading channels.
		C409.2	Explain the cellular system and classify the different types of multiple access techniques.
		C409.3	Discuss about various signaling schemes for fading channels.
		C409.4	Compare multipath mitigation technique and analyze their performance.
		C409.5	Discuss about MIMO systems with transmit/receive diversity.

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IV/VIII	C410 - Wireless Networks	C410.1	Explain the various protocols and standards of wireless LAN.
		C410.2	Describe the protocols for mobile network layer and routing in the mobile ad-hoc network.
		C410.3	Illustrate the TCP for mobile transport layer.
		C410.4	Discuss about the different wireless WAN architectures.
		C410.5	Explain the 4G technologies and its applications.
IV/VIII	C411 - Professional Ethics In Engineering	C411.1	Describe an awareness of human values to appreciate the rights of others and stress management
		C411.2	Illustrate the moral issues and models of professional roles.
		C411.3	Discuss the ethical issues related to engineering and realize the responsibilities and rights in the society.
		C411.4	Describe the responsibilities, rights and assesses of the safety and risk
		C411.5	Apply the social responsibility on multinational corporations related to engineering
IV/VIII	C412 - Total Quality Management	C412.1	Define the need and dimensions of quality and to discuss the contributions made by Juran, Crosby and Deming.
		C412.2	Explain the TQM principles such as leadership, quality plan, customer focus, employee involvement and six sigma concepts.
		C412.3	Discuss the benchmarking process and various stages of FMEA.
		C412.4	Describe various tools and techniques of TQM such as QFD, Taguchi quality loss function and TPM.
		C412.5	Illustrate the need of ISO 9000, QS 9000, ISO 14000 quality system elements, documentation and quality audit.

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IV/VIII	C413 - PROJECT WORK	C413.1	Identify challenging practical problems, solutions to cope up with present scenario of electronics and communication engineering field.
		C413.2	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
		C413.3	Apply technical knowledge and project management skills for solving the problem.
		C413.4	Design and develop hardware and/or software for their project specific problem.
		C413.5	Prepare the project reports and justify during presentation and demonstration.

Year/ Sem	Course	CO/PO	PO1	PO2	PO 3	PO4	PO5	PO 6	PO7	PO8	PO9	PO1 0	PO11	PO1 2	PSO 1	PSO2
II / III	C201 - Transforms and Partial Differential Equations															
		C201.2	3	-	-	-	2	-	2	-	1	3	-	-	2	2
		C201.3	-	2	2	-	-	3	-	3	3	1	2	-	2	3
		C201.4	2	-	-	2	-	-	-	-	3	-	-	-	2	2
		C201.5	-	2	-	-	2	-	-	3	-	-	-	-	3	2
		C201	2.50	2.00	2.00	2.00	2.00	2.00	3.00	2.00	3.00	2.33	2.00	2.00	-	2.40
Year/ Sem	Course	CO/PO	PO1	PO2	PO 3	PO4	PO5	PO 6	PO7	PO8	PO9	PO1 0	PO11	PO1 2	PSO 1	PSO2
II / III	C202 - Electrical Engineering and Instrumentation	C202.1	3	2	2	2	-	2	2	-	-	-	2	-	3	2
		C202.2	3	2	2	2	-	2	2	-	-	-	2	-	3	2
		C202.3	3	2	2	2	-	2	2	-	-	-	2	-	3	2
		C202.4	3	2	2	2	-	2	2	-	-	-	2	-	3	2
		C202.5	3	2	2	2	-	2	2	-	-	-	2	-	3	2
		C202	3.00	2.00	2.00	2.00	-	2.00	2.00	-	-	-	2.00	-	3.00	2.00

II / III	C203 - Object Oriented Programming and Data Structures	C203.1	3	3	2	1	-	-	-	-	-	-	-	2	3	-
		C203.2	3	2	2	1	-	-	-	-	-	-	-	2	2	2
		C203.3	3	3	3	3	-	-	-	-	-	-	-	2	1	3
		C203.4	3	3	3	2	-	-	-	-	-	-	-	2	2	2
		C203.5	3	3	3	-	-	-	-	-	-	-	-	2	3	1
		C203	3.00	2.80	2.60	1.75	-	-	-	-	-	-	-	-	2.00	2.20
II / III	C204 - Digital electronics	C204.1	3	-	3	-	3	-	-	-	-	-	-	3	2	2
		C204.2	3	-	3	-	3	-	-	-	-	-	-	3	3	3
		C204.3	3	2	3	-	3	-	-	-	-	-	-	3	3	2
		C204.4	3	2	3	-	3	-	-	-	-	-	-	3	2	2
		C204.5	3	3	3	3	3	-	-	-	-	-	-	3	3	3
		C204	3.00	2.33	3.00	3.00	3.00	-	-	-	-	-	-	-	3.00	2.60

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
II / III	C205 - Signals and Systems	C205.1	3	2	-	-	-	-	-	-	-	-	2	3	3	3
		C205.2	3	3	3	-	-	-	-	-	-	-	2	3	3	3
		C205.3	3	3	3	3	-	-	-	-	-	-	2	3	3	3
		C205.4	3	3	3	-	-	-	-	-	-	-	2	3	3	3
		C205.5	3	3	3	3	-	-	-	-	-	-	2	3	3	3
		C205	3.00	2.80	3.00	3.00	-	-	-	-	-	-	-	2.00	3.00	3.00

II / III	C206 - Electronic Circuits-I	C206.1	3	-	-	-	-	-	-	-	-	-	-	3	3	2
		C206.2	-	3	2	3	-	-	-	-	-	-	-	3	3	2
		C206.3	-	3	-	-	-	-	-	-	-	-	-	3	2	2
		C206.4	3	-	-	3	-	-	-	-	-	-	-	3	3	3
		C206.5	-	3	-	-	-	-	-	-	-	-	-	3	2	2
		C206	3.00	3.00	2.00	3.00	-	-	-	-	-	-	-	-	3.00	2.60
II / III	C207 - Analog and Digital Circuits Laboratory	C207.1	3	3	2	-	-	-	-	-	-	-	-	3	3	3
		C207.2	3	3	2	-	-	-	-	-	-	-	-	3	3	2
		C207.3	3	3	2	-	-	-	-	-	-	-	-	3	2	2
		C207.4	3	3	2	-	-	-	-	-	-	-	-	3	3	3
		C207.5	3	3	2	-	-	-	-	-	-	-	-	3	2	2
		C207	3.00	3.00	2.00	3.00	-	-	-	-	-	-	-	-	3.00	2.60

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
II / III	C208 - OOPS and Data Structures Laboratory	C208.1	3	3	2	-	3	2	-	2	3	3	-	2	3	-
		C208.2	3	3	3	-	2	2	-	2	2	3	-	2	2	2
		C208.3	3	3	3	-	2	2	-	3	3	3	-	2	1	3
		C208.4	3	3	3	-	3	3	-	3	3	3	-	2	2	2
		C208.5	3	3	3	-	3	3	-	3	3	3	-	2	3	1
		C208	3.00	3.00	2.80	-	2.60	2.40	-	2.60	2.80	3.00	-	2.00	2.20	2.00

II / IV	C209 - Probability and Random Processes	C209.1	2	-	3	-	1	2	-	1	-	-	-	3	3	3
		C209.2	-	3	-	1	-	2	2	-	3	-	-	3	2	2
		C209.3	3	-	1	-	2	-	2	2	-	-	1	2	3	3
		C209.4	-	3	-	3	-	2	-	-	1	-	-	2	2	2
		C209.5	3	-	2	-	2	-	1	-	-	-	-	-	3	3
		C209	2.67	3.00	2.00	2.00	1.67	2.00	1.67	1.50	2.00	-	1.00	2.50	2.60	2.60
II / IV	C210 - Electronic Circuits– II	C210.1	3	2	-	2	2	-	-	-	-	-	-	3	3	2
		C210.2	3	2	-	2	2	-	-	-	-	-	-	3	3	2
		C210.3	3	2	-	2	2	-	-	-	-	-	-	3	3	2
		C210.4	3	3	2	2	3	-	-	-	-	-	-	3	3	2
		C210.5	3	2	-	2	2	-	-	-	-	-	-	3	3	2
		C210	3.00	2.20	2.00	2.00	2.20	-	-	-	-	-	-	3.00	3.00	2.00

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
II / IV	C211 - Communication Theory	C211.1	3	3	-	2	-	-	-	-	-	-	-	3	3	3
		C211.2	3	3	-	2	-	-	-	-	-	-	-	3	3	2
		C211.3	3	2	3	2	-	-	-	-	-	-	-	3	3	2
		C211.4	3	3	2	2	-	-	-	-	-	-	-	3	2	2
		C211.5	3	-	3	2	-	-	-	-	-	-	-	3	3	2
		C211	3.00	2.75	2.67	2.00	-	-	-	-	-	-	-	-	3.00	2.80

II / IV	C212 - Electromagnetic Fields	C212.1	3	2	-	-	-	-	-	-	-	-	3	3	3	3	
		C212.2	3	2	2	-	-	-	-	-	-	-	-	3	3	3	2
		C212.3	3	3	-	-	-	-	-	-	-	-	-	3	3	3	3
		C212.4	3	2	2	-	-	-	-	-	-	-	-	3	3	2	2
		C212.5	2	1	-	-	-	-	-	-	-	-	-	3	3	3	3
		C212	2.80	2.00	2.00	-	-	-	-	-	-	-	-	3.00	3.00	2.80	2.60
II / IV	C213 - Linear Integrated Circuits	C213.1	3	3	3	-	-	-	-	-	-	-	-	3	3	3	
		C213.2	3	3	-	-	-	-	-	-	-	-	-	3	3	2	
		C213.3	3	3	-	-	-	-	-	-	-	-	-	3	3	3	
		C213.4	3	2	3	-	-	-	-	-	-	-	-	3	3	2	
		C213.5	3	2	3	-	-	-	-	-	-	-	-	3	3	3	
		C213	3.00	2.60	3.00	-	-	-	-	-	-	-	-	-	3.00	3.00	2.60

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
II / IV	C214 - Control System Engineering	C214.1	2	2	3	3	3	-	-	-	-	-	-	3	3	3
		C214.2	2	3	2	2	3	-	-	-	-	-	-	3	2	2
		C214.3	2	2	3	3	3	-	-	-	-	-	-	3	3	3
		C214.4	3	2	2	-	2	-	-	-	-	-	-	3	3	3
		C214.5	2	3	2	2	3	-	-	-	-	-	-	3	2	2
		C214	2.20	2.40	2.40	2.50	2.80	-	-	-	-	-	-	-	3.00	2.60

II / IV	C215 - Circuits and Simulation Integrated Laboratory	C215.1	-	3	3	3	-	-	-	-	-	-	2	-	2	2	
		C215.2	-	3	3	3	-	-	-	-	-	-	-	2	-	3	3
		C215.3	-	3	3	3	3	-	-	-	-	-	-	2	3	3	3
		C215.4	-	3	3	3	3	-	-	-	-	-	-	2	3	3	3
		C215.5	-	3	3	3	3	-	-	-	-	-	-	2	3	3	2
		C215	-	3.00	3.00	3.00	3.00	-	-	-	-	-	-	2.00	3.00	2.80	2.60
II / IV	C216 - Linear Integrated Circuit Laboratory	C216.1	3	-	3	3	3	-	-	-	-	-	-	3	3	2	
		C216.2	3	-	3	3	3	-	-	-	-	-	-	3	3	2	
		C216.3	3	-	3	3	3	-	-	-	-	-	-	3	3	2	
		C216.4	3	-	3	3	3	-	-	-	-	-	-	3	2	2	
		C216.5	3	-	3	3	3	-	-	-	-	-	-	3	3	2	
		C216	3.00	-	3.00	3.00	3.00	-	-	-	-	-	-	-	3.00	2.80	2.00

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
II / IV	C217 - Electrical Engineering and Control System Laboratory	C217.1	2	2	-	3	2	3	-	-	-	-	3	3	3	3
		C217.2	3	2	2	3	2	3	-	-	-	-	3	3	2	2
		C217.3	2	2	2	3	2	3	-	-	-	-	3	3	2	3
		C217.4	2	2	2	3	2	3	-	-	-	-	3	3	2	2
		C217.5	3	2	2	3	2	3	-	-	-	-	3	3	3	2
		C217	2.40	2.00	2.00	3.00	2.00	3.00	-	-	-	-	-	3.00	3.00	2.40

III / V	C301 - Digital communication	C301.1	3	2	-	-	-	-	-	-	-	-	-	3	2	3
		C301.2	2	-	2	2	-	-	-	-	-	-	-	2	3	3
		C301.3	3	2	-	2	-	-	-	-	-	-	-	3	2	3
		C301.4	2	3	3	3	-	-	-	-	-	-	-	3	3	3
		C301.5	2	2	3	2	-	-	-	-	-	-	-	3	3	3
		C301	2.40	2.25	2.67	2.25	-	-	-	-	-	-	-	2.80	2.60	3.00
III / V	C302 - Principles of digital signal processing	C302.1	3	2	-	-	3	-	-	-	-	-	3	3	3	
		C302.2	3	3	3	3	3	-	-	-	-	3	3	2	2	
		C302.3	3	3	3	3	3	-	-	-	-	3	3	2	2	
		C302.4	3	-	2	-	3	-	-	-	-	-	3	3	2	
		C302.5	2	3	3	2	3	-	-	-	-	3	3	2	2	
		C302	2.80	2.75	2.75	2.67	3.00	-	-	-	-	-	3.00	3.00	2.40	2.20

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
III / V	C303 - Transmission lines and waveguides	C303.1	3	3	2	3	2	-	-	-	-	-	2	3	3	2
		C303.2	3	3	2	2	3	-	-	-	-	-	3	3	3	3
		C303.3	3	3	3	2	3	-	-	-	-	-	2	3	3	3
		C303.4	3	2	3	3	2	-	-	-	-	-	3	3	3	3
		C303.5	3	3	2	2	2	-	-	-	-	-	2	3	3	2
		C303	3.00	2.80	2.40	2.40	2.40	-	-	-	-	-	-	2.40	3.00	3.00

III / V	C304 - Environmental science and engineering	C304.1	3	3	-	-	-	2	2	3	-	-	-	3	3	2
		C304.2	3	3	1	-	-	3	2	2	-	-	-	2	2	2
		C304.3	3	3	-	-	-	3	2	3	-	-	-	1	2	3
		C304.4	3	2	-	-	-	3	2	2	-	-	-	3	2	2
		C304.5	3	2	1	-	-	2	2	3	-	-	-	2	3	2
		C304	3.00	2.60	1.00	-	-	2.60	2.00	2.60	-	-	-	2.20	2.40	2.20
III / V	C305 - Microprocessor and Microcontroller	C305.1	3	-	-	-	3	-	-	-	-	-	-	3	3	3
		C305.2	-	-	3	2	-	-	-	-	-	-	-	3	3	3
		C305.3	-	2	3	3	3	-	-	-	-	-	-	3	2	2
		C305.4	2	-	-	-	3	-	-	-	-	-	-	3	3	3
		C305.5	-	2	3	3	-	-	-	-	-	-	-	3	2	2
		C305	2.50	2.00	3.00	2.67	3.00	-	-	-	-	-	-	3.00	2.60	2.60

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
III / V	C306 - Digital signal processing Laboratory	C306.1	-	2	2	3	3	-	-	-	-	-	-	3	3	3
		C306.2	-	3	2	3	3	-	-	-	-	-	3	3	2	3
		C306.3	-	2	2	3	3	-	-	-	-	-	3	3	3	3
		C306.4	2	2	-	3	-	-	-	-	-	-	-	3	2	3
		C306.5	-	2	2	3	3	-	-	-	-	-	3	3	3	3
		C306	2.00	2.20	2.00	3.00	3.00	-	-	-	-	-	-	3.00	3.00	2.60

III / V	C307 - Communication Systems laboratory	C307.1	-	-	3	3	-	-	-	-	-	-	2	3	3	2	
		C307.2	-	-	3	3	-	-	-	-	-	-	-	-	3	3	3
		C307.3	-	-	3	3	-	-	-	-	-	-	-	-	3	2	3
		C307.4	-	-	-	3	3	-	-	-	-	-	-	2	3	3	2
		C307.5	-	-	-	3	3	-	-	-	-	-	-	2	3	3	2
		C307	-	-	3.00	3.00	3.00	-	-	-	-	-	-	2.00	3.00	2.80	2.40
III / V	C308 - Microprocessor and Microcontroller Laboratory	C308.1	3	-	-	3	-	-	-	-	-	-	-	3	3	3	
		C308.2	2	2	-	3	-	-	-	-	-	-	-	3	2	3	
		C308.3	3	3	3	3	-	-	-	-	-	-	3	3	3	3	
		C308.4	3	-	-	3	-	-	-	-	-	-	-	3	3	3	
		C308.5	2	-	-	3	3	-	-	-	-	-	-	3	3	2	
		C308	2.60	2.50	3.00	3.00	3.00	-	-	-	-	-	-	3.00	3.00	2.80	2.80

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
III / VI	C309 - Principles of management	C309.1	1	-	-	-	-	-	-	-	-	-	-	3	3	2	
		C309.2	-	-	-	-	-	-	-	-	-	-	-	3	2	2	
		C309.3	-	-	-	-	-	-	-	1	-	1	2	-	3	2	3
		C309.4	-	-	-	-	-	-	-	1	2	-	-	-	3	2	2
		C309.5	-	-	-	-	-	2	-	-	-	-	-	-	3	3	2
		C309	1.00	-	-	-	-	2.00	-	1.00	2.00	1.00	2.00	-	3.00	2.40	2.20

III / VI	C310 - Computer Architecture	C310.1	3	2	3	-	-	-	-	-	-	-	-	3	3	3
		C310.2	3	2	3	-	-	-	-	-	-	-	-	3	2	2
		C310.3	3	3	3	2	-	-	-	-	-	-	-	3	2	3
		C310.4	3	2	2	2	-	-	-	-	-	-	-	3	2	2
		C310.5	3	3	3	-	-	-	-	-	-	-	-	3	3	2
		C310	3.00	2.40	2.80	2.00	-	-	-	-	-	-	-	-	3.00	2.40
III / VI	C311 - Computer Networks	C311.1	3	2	2	-	-	-	-	-	-	-	-	2	3	2
		C311.2	3	3	2	2	-	-	-	-	-	-	-	2	2	2
		C311.3	3	3	3	2	-	-	-	-	-	-	-	3	3	3
		C311.4	3	3	3	3	-	-	-	-	-	-	-	2	2	2
		C311.5	3	3	3	3	-	-	-	-	-	-	-	2	3	3
		C311	3.00	2.80	2.60	2.50	-	-	-	-	-	-	-	-	2.20	2.60

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
III / VI	C312 - VLSI Design	C312.1	3	3	2	-	-	-	-	-	-	-	3	3	3	3
		C312.2	3	2	3	3	-	-	-	-	-	-	2	3	3	3
		C312.3	3	2	3	3	-	-	-	-	-	-	2	3	2	3
		C312.4	3	2	3	2	-	-	-	-	-	-	3	3	3	2
		C312.5	2	3	2	2	-	-	-	-	-	-	2	3	2	2
		C312	2.80	2.40	2.60	2.50	-	-	-	-	-	-	-	2.40	3.00	2.60

III / VI	C313 - Antenna and Wave Propagation	C313.1	3	2	3	3	3	3	-	-	-	-	3	3	3	3
		C313.2	3	3	3	3	3	3	-	-	-	-	3	3	3	3
		C313.3	3	3	3	3	3	2	-	-	-	-	3	2	2	3
		C313.4	3	3	3	2	3	3	-	-	-	-	3	3	3	3
		C313.5	3	3	3	3	3	3	-	-	-	-	3	3	3	3
		C313	3.00	2.80	3.00	2.80	3.00	2.80	-	-	-	-	3.00	2.80	2.80	3.00
III / VI	C314 - Medical Electronics	C314.1	3	1	-	-	-	-	1	-	-	-	-	3	2	3
		C314.2	3	2	-	-	-	-	1	-	-	-	-	3	2	2
		C314.3	3	1	-	-	-	-	1	-	-	-	-	3	3	2
		C314.4	3	2	-	-	-	2	1	-	-	-	-	3	2	2
		C314.5	3	1	-	-	-	-	1	-	-	-	-	3	2	3
		C314	3.00	1.40	-	-	-	2.00	1.00	-	-	-	-	3.00	2.20	2.40

Year/Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
III / VI	C315 - Computer Networks Laboratory	C315.1	3	2	2	3	2	2	-	2	2	3	-	2	2	2
		C315.2	3	2	2	3	2	2	-	2	2	3	-	2	3	2
		C315.3	2	3	3	3	3	3	-	2	3	3	-	3	3	3
		C315.4	2	3	3	3	3	3	-	3	3	3	-	2	3	2
		C315.5	2	3	3	3	3	2	-	2	2	3	-	2	3	3
		C315	2.40	2.60	2.60	3.00	2.60	2.40	-	2.20	2.40	3.00	-	2.20	2.80	2.40

III / VI	C316 - VLSI Design Laboratory	C316.1	3	-	3	3	3	-	-	-	-	-	3	3	3	3
		C316.2	2	2	3	3	3	-	-	-	-	-	2	3	3	3
		C316.3	-	-	3	3	3	-	-	-	-	-	2	3	2	3
		C316.4	-	2	3	3	3	-	-	-	-	-	3	3	3	3
		C316.5	-	3	2	3	3	-	-	-	-	-	2	3	2	2
		C316	2.50	2.33	2.80	3.00	3.00	-	-	-	-	-	2.40	3.00	2.60	2.80
III / VI	C317 - Communication and Soft Skills Laboratory	C317.1	-	-	-	-	-	-	-	-	3	3	-	2	3	2
		C317.2	-	-	-	-	-	-	-	-	-	3	-	2	3	2
		C317.3	-	-	-	-	-	-	-	-	2	3	-	2	3	2
		C317.4	-	-	-	-	-	-	-	-	3	3	-	2	3	2
		C317.5	-	-	-	-	-	-	-	-	3	3	-	2	3	2
		C317	-	-	-	-	-	-	-	-	2.75	3.00	-	2.00	3.00	2.00

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IV / VII	C401 - RF And Microwave Engineering	C401.1	3	3	2	-	-	-	-	-	-	-	-	3	3	3
		C401.2	3	2	3	-	-	-	-	-	-	-	-	3	3	2
		C401.3	3	2	2	-	-	-	-	-	-	-	-	3	2	3
		C401.4	3	2	3	-	-	-	-	-	-	-	-	3	3	2
		C401.5	3	2	3	-	-	-	-	-	-	-	-	3	3	2
		C401	3.00	2.20	2.60	-	-	-	-	-	-	-	-	-	3.00	2.80

IV / VII	C402 - Optical Communication And Networks	C402.1	3	3	3	-	-	-	-	-	-	-	-	3	3	-	
		C402.2	3	3	3	-	-	-	-	-	-	-	-	-	3	3	3
		C402.3	3	-	2	-	-	-	-	-	-	-	-	-	3	3	-
		C402.4	3	3	3	-	-	-	-	-	-	-	-	-	3	3	3
		C402.5	3	2	2	-	3	-	-	-	-	-	-	-	3	3	-
		C402	3.00	2.75	2.60	-	3.00	-	-	-	-	-	-	-	3.00	3.00	3.00
IV / VII	C403 - Embedded And Real Time Systems	C403.1	3	2	3	2	-	-	-	-	-	-	-	3	3	2	
		C403.2	3	-	2	-	3	-	-	-	-	-	-	3	2	2	
		C403.3	3	-	2	2	3	-	-	-	-	-	-	3	2	3	
		C403.4	3	-	3	3	3	-	-	-	-	-	-	3	2	2	
		C403.5	-	-	3	-	3	-	-	-	-	-	-	3	2	2	
		C403	3.00	2.00	2.60	2.33	3.00	-	-	-	-	-	-	-	3.00	2.20	2.20

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IV / VII	C404 - Digital Image Processing	C404.1	3	-	-	-	-	-	-	-	-	-	-	3	3	2
		C404.2	3	-	-	-	-	-	-	-	-	-	-	3	3	2
		C404.3	-	3	-	-	-	-	-	-	-	-	-	3	2	2
		C404.4	-	2	-	-	-	-	-	-	-	-	-	3	2	2
		C404.5	-	-	3	-	-	-	-	-	-	-	-	3	2	2
		C404	3.00	2.50	3.00	-	-	-	-	-	-	-	-	-	3.00	2.40

IV / VII	C405 - Advanced Computer Architecture	C405.1	2	-	2	-	2	-	-	-	-	-	-	3	3	3	
		C405.2	3	-	2	-	-	-	-	-	-	-	-	-	3	2	3
		C405.3	3	-	3	-	2	-	-	-	-	-	-	-	3	2	2
		C405.4	2	-	2	-	3	-	-	-	-	-	-	-	3	2	2
		C405.5	2	-	2	-	3	-	-	-	-	-	-	-	3	3	3
		C405	2.40	-	2.20	-	2.50	-	-	-	-	-	-	-	3.00	2.40	2.60
IV / VII	C406 - Advanced Microprocessor and Microcontroller	C406.1	3	-	-	-	3	-	-	-	-	-	2	3	3	3	
		C406.2	-	-	-	-	3	-	-	-	-	-	3	3	3	2	
		C406.3	-	-	3	-	3	-	-	-	-	-	3	3	3	2	
		C406.4	3	-	3	-	3	-	-	-	-	-	3	3	3	3	
		C406.5	-	-	3	-	3	-	-	-	-	-	3	3	3	3	
		C406	3.00	-	3.00	-	3.00	-	-	-	-	-	-	2.80	3.00	3.00	2.60

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IV / VII	C407 - Embedded Laboratory	C407.1	3	2	-	3	-	-	-	-	-	-	3	2	3	2
		C407.2	3	2	-	3	-	-	-	-	-	-	3	2	3	2
		C407.3	3	3	2	3	-	-	-	-	-	-	3	2	2	2
		C407.4	3	3	2	3	-	-	-	-	-	-	3	3	3	2
		C407.5	3	2	2	3	-	-	-	-	-	-	3	2	2	2
		C407	3.00	2.40	2.00	3.00	-	-	-	-	-	-	-	3.00	2.20	2.60

IV / VII	C408 - Optical And Microwave Laboratory	C408.1	3	3	-	3	-	-	-	-	-	-	-	3	3	-	
		C408.2	3	3	-	3	-	-	-	-	-	-	-	-	3	3	3
		C408.3	3	3	-	3	-	-	-	-	-	-	-	-	3	3	-
		C408.4	3	3	-	3	-	-	-	-	-	-	-	-	3	3	3
		C408.5	3	3	-	3	-	-	-	-	-	-	-	-	3	3	3
		C408	3.00	3.00	-	3.00	-	-	-	-	-	-	-	-	3.00	3.00	3.00
IV / VIII	C409 - Wireless Communication	C409.1	3	-	-	-	3	-	-	-	-	-	-	3	2	2	
		C409.2	3	-	-	-	3	-	-	-	-	-	-	3	2	3	
		C409.3	3	2	-	-	3	-	-	-	-	-	2	3	3	3	
		C409.4	3	-	3	-	3	-	-	-	-	-	2	3	3	2	
		C409.5	-	-	3	-	3	-	-	-	-	-	2	3	2	2	
		C409	3.00	2.00	3.00	-	3.00	-	-	-	-	-	-	2.00	3.00	2.40	2.40

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IV / VIII	C410 - Wireless Networks	C410.1	2	3	2	2	3	-	-	-	-	-	-	3	2	2
		C410.2	-	1	2	2	3	-	-	-	-	-	-	3	3	2
		C410.3	2	1	-	-	1	-	-	-	-	-	-	3	3	3
		C410.4	-	1	2	2	3	-	-	-	-	-	-	3	3	2
		C410.5	2	1	-	-	1	-	-	-	-	-	-	3	3	2
		C410	2.00	1.40	2.00	2.00	2.20	-	-	-	-	-	-	-	3.00	2.80

IV / VIII	C411 - Professional Ethics In Engineering	C411.1	1	-	-	-	-	-	-	-	2	-	-	-	3	3	3
		C411.2	-	-	-	-	-	2	-	-	-	-	-	-	3	2	2
		C411.3	-	-	1	2	-	2	-	-	-	-	-	-	3	2	3
		C411.4	-	-	-	-	-	-	2	-	-	-	-	-	3	2	2
		C411.5	-	2	-	1	2	-	-	-	-	-	-	-	3	3	2
		C411	1.00	2.00	1.00	1.50	2.00	2.00	2.00	2.00	2.00	-	-	-	3.00	2.40	2.40
IV / VIII	C412 - Total Quality Management	C412.1	-	-	-	-	3	3	3	-	-	-	-	3	3	-	
		C412.2	-	-	-	-	-	-	-	-	-	-	-	3	2	2	
		C412.3	-	-	-	-	2	-	-	-	-	-	-	3	1	3	
		C412.4	-	-	-	-	-	-	-	-	-	-	-	3	2	2	
		C412.5	-	-	-	-	-	-	-	-	-	-	-	3	3	1	
		C412	-	-	-	-	2.50	3.00	3.00	-	-	-	-	3.00	2.20	2.00	

Year/ Sem	Course	CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
IV / VIII	C413 - PROJECT	C413.1	3	3	3	3	3	2	-	-	-	3	3	3	3	3
		C413.2	2	3	3	3	3	2	-	-	-	3	3	3	2	3
		C413.3	2	2	3	3	3	3	-	-	-	3	3	3	2	3
		C413.4	2	2	3	3	3	3	-	-	-	3	3	3	2	3
		C413.5	2	2	3	3	2	2	-	-	-	3	3	3	2	3
		C413	2.20	2.40	3.00	3.00	2.80	2.40	-	-	-	3.00	3.00	3.00	2.20	3.00


PRINCIPAL

GNANAMANI COLLEGE OF TECHNOLOGY,
NH-7, A.K. Samuthiram,
Pachal (Po), Namakkal-637 018

ME-APPLIED ELECTRONICS

Course Code &Name: C101 - MA5152 - Applied Mathematics for Electronics Engineers

REGULATION: R2017

YEAR/SEM: I/I

COURSE OUTCOMES

C101.1	Understand the basic explanation of Fuzzy Propositions .
C101.2	Apply the application of Cholesky decomposition in matrix theory.
C101.3	Apply the Conditional probability in Baye's theorem .
C101.4	Examine the Principal of optimality in Dynamic programme.
C101.5	Examine the solution of Single and Multi-server models in Little's formula.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C101.1	3	3	0	1	3	-	-	-	-	3	-	3	2	2
C101.2	3	3	1	2	1	-	-	-	-	3	-	3	2	2
C101.3	3	3	3	2	1	-	-	-	-	3	-	0	2	2
C101.4	3	3	3	2	2	-	-	-	-	3	-	0	1	2
C101.5	3	3	1	2	2	-	-	-	-	3	-	3	2	2
C101	3	3	1.6	1.8	1.8	-	-	-	-	3	-	1.8	1.8	2

Course Code &Name: C102 - AP5151 - Advanced Digital System Design

REGULATION: R2017

YEAR/SEM: I/I

COURSE OUTCOMES

C102.1	Understands synchronous sequential circuits
C102.2	Understand asynchronous sequential circuits.
C102.3	Analyz e the various fault using various technique
C102.4	Explain the PLD and FPGA architecture
C102.5	Design and use programming tools for implementing digital circuits

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C102.1	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.2	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.3	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.4	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.5	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102	3	2	2	2	-	-	-	3	2	3	-	2	3	3

Course Code &Name: C103 - AP5152 - Advanced Digital Signal Processing
REGULATION: R2017
YEAR/SEM: I/I

COURSE OUTCOMES

C103.1	Explain the image formation and the role of the human visual system.
C103.2	Explain the various image enhancement techniques in spatial and frequency domain.
C103.3	Analyze the various filtering methods for image restoration and segmentation.
C103.4	Compare various coding techniques for image compression.
C103.5	Discuss the features of image representation techniques.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C103.1	3	3	2	2	2	-	-	-	-	-	2	2	3	3
C103.2	3	3	3	2	3	-	-	-	-	-	2	2	3	3
C103.3	3	3	2	3	3	-	-	-	-	-	3	3	3	3
C103.4	3	3	3	2	3	-	-	-	-	-	3	2	3	3
C103.5	3	2	2	2	3	-	-	-	-	-	2	2	3	3
C103	3	2.8	2.4	2.2	2.8	-	-	-	-	-	2.4	2.2	3	3

Course Code &Name: C104 - AP5191 - Embedded System Design

REGULATION: R2017

YEAR/SEM: I/I

COURSE OUTCOMES

C104.1	Analyse and Explain the modeling of Embedded system.
C104.2	Examine the general and single purpose processor.
C104.3	Analyse and Explain various bus structure
C104.4	Design and Analyse the state machine and concurrent process models.
C104.5	Explain the different Embedded software development tools and RTOS.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C104.1	3	3	2	2	2	-	-	-	-	-	2	2	3	3
C104.2	3	3	3	2	3	-	-	-	-	-	2	2	3	3
C104.3	3	3	2	3	3	-	-	-	-	-	3	3	3	3
C104.4	3	3	3	2	3	-	-	-	-	-	3	2	3	3
C104.5	3	2	2	2	3	-	-	-	-	-	2	2	3	3
C104	3	2.8	2.4	2.2	2.8	-	-	-	-	-	2.4	2.2	3	3

Course Code &Name: C105 - AP5101 - Sensors, Actuators and Interface Electronics

YEAR/SEM: I/I

COURSE OUTCOMES

C105.1	Understand static and dynamic characteristics of measurement systems.
C105.2	Categorize the various types Resistive and Reactive Sensors
C105.3	Categorize the various types of Self Generating Sensors.
C105.4	Understand and Explain different types of actuators and their usage.
C105.5	Categorize and Explain the digital and semiconductor sensors

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C105.1	3	2	2	1	-	-	-	3	2	3	-	2	3	3
C105.2	3	2	2	1	-	-	-	3	2	3	-	2	3	3
C105.3	3	2	2	1	-	-	-	3	2	3	-	2	3	3
C105.4	3	2	2	1	-	-	-	3	2	3	-	2	3	3
C105.5	3	2	2	1	-	-	-	3	2	3	-	2	3	3
C105	3	2	2	1	-	-	-	3	2	3		2	3	3

Course Code &Name: C106 - AP5091 - Digital Control Engineering
REGULATION: R2017
YEAR/SEM: I/I

COURSE OUTCOMES

C106.1	Understand the principles of PI,PD,PID controllers
C106.2	Categorize and Explain the sampling and quantization process
C106.3	Understand the time and frequency response discrete time control system
C106.4	Understand and Explain the digital control algorithms.
C106.5	Understand the knowledge to implement PID control algorithms

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C106.1	3	2	2	1	-	-	-	3	2	3	-	2	3	3
C106.2	3	2	2	1	-	-	-	3	2	3	-	2	2	3
C106.3	3	2	3	1	-	-	-	3	2	3	-	2	3	3
C106.4	3	2	3	1	-	-	-	3	2	3	-	2	3	3
C106.5	3	2	2	1	-	-	-	3	2	3	-	2	3	3
C106	3	2	2	1	-	-	-	3	2	3		2	3	3

Course Code &Name: C107 - AP5111 - Electronic System Design Laboratory I
REGULATION: R2017
YEAR/SEM: I/I

COURSE OUTCOMES

C107.1	Develop the different interface by using PIC,MSP430 and DSP processor kit .
C107.2	Analysis the different interface by using 8085 and 8085,8086 microprocessor and 8051 microcontroller kit.
C107.3	Evaluate the design of asynchronous and clocked synchronous sequential circuits
C107.4	Develop the Real time application of fault diagnosis and simulation tools.
C107.5	Design and analysis of real time application with data acquisition and signal processing.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C107.1	3	2	2	2	2	-	-	3	3	3	-	2	3	3
C107.2	3	2	2	2	2	-	-	3	3	3	-	2	3	3
C107.3	3	2	2	2	2	-	-	3	3	3	-	2	3	3
C107.4	3	2	2	2	2	-	-	3	3	3	-	2	3	3
C107.5	3	2	2	2	2	-	-	3	3	3	-	2	3	3
C107	3	2	2	2	2	-	-	3	3	3	-	2	3	3

Course Code &Name: C108 - AP5251 - Soft Computing and Optimization Techniques

REGULATION: R2017

YEAR/SEM: I/II

COURSE OUTCOMES

C108.1	Demonstrate the importance of neural networking and architecture.
C108.2	Explain the concept of fuzzy logic operations and functions.
C108.3	Explain the neuro- fuzzy modeling process and data clustering algorithms.
C108.4	Understand the optimization techniques and different methods.
C108.5	Analyze the working principal and algorithm for optimization techniques.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C108.1	3	2	2	2	1	-	-	3	2	3	-	2	3	3
C108.2	3	2	2	2	1	-	-	3	2	3	-	2	3	3
C108.3	3	2	2	2	1	-	-	3	2	3	-	2	3	3
C108.4	3	2	2	2	1	-	-	3	2	3	-	2	3	3
C108.5	3	2	2	2	1	-	-	3	2	3	-	2	3	3
C108	3	2	2	2	1	-	-	3	2	3	-	2	3	3

Course Code &Name: C109 - AP5252 - ASIC and FPGA Design

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C109.1	Design of various types of ASICs and PLDs.
C109.2	Explain the various types of partitioning methods and Routing.
C109.3	Analyze various types of Logic Synthesis, Simulation and Testing.
C109.4	Understand and Explain the architecture of FPGA.
C109.5	Explain about System on Chip Design.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C109.1	3	2	2	2	-	-	-	3	2	3	2	3	3	3
C109.2	3	2	2	2	-	-	-	3	2	3	2	2	3	3
C109.3	3	2	1	2	-	-	-	3	2	2	2	3	3	3
C109.4	3	2	2	2	-	-	-	3	2	3	2	2	3	3
C109.5	3	2	2	1	-	-	-	3	2	3	2	2	3	3
C109	3	2	2	2	-	-	-	3	2	3	2	2	3	3

Course Code &Name: C110 - AP5291 - Hardware – Software Co-design

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C110.1	Understand the system specifications and device modeling techniques.
C110.2	Categorize the various types Hardware and software partitioning.
C110.3	Understanding the Hardware Software Co-Synthesis.
C110.4	Understand and Explain different types of architectures for Prototyping and Emulation.
C110.5	Explain about System level specification and verification.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C110.1	3	2	2	2	-	-	-	3	2	3	2	3	3	3
C110.2	3	2	1	2	-	-	-	3	2	3	2	2	3	3
C110.3	3	2	1	1	-	-	-	3	2	2	2	3	3	3
C110.4	3	2	2	2	-	-	-	3	2	3	2	2	3	3
C110.5	3	2	2	1	-	-	-	3	2	3	2	2	3	3
C110	3	2	2	2	-	-	-	3	2	3	2	3	3	3

Course Code &Name: C111 - AP5292 - Digital Image Processing

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C111.1	Explain the image formation, the role of the human visual system and digital image fundamentals.
C111.2	Discuss the various image transformation techniques.
C111.3	Analyze the various methods for image segmentation of gray level images.
C111.4	Explain the various image enhancement techniques, Color image processing in spatial and frequency domain.
C111.5	Compare various coding techniques for image compression.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C111.1	3	2	-	2	1	-	-	-	2	-	-	2	3	3
C111.2	3	-	-	2	-	-	-	-	2	3	-	2	3	3
C111.3	-	3	-	2	-	-	-	-	2	3	-	2	3	3
C111.4	-	2	-	2	-	-	-	3	2	-	-	2	3	3
C111.5	-	-	3	2	-	-	-	3	2	-	-	2	3	3
C111	3.00	2.50	3.00	2.00	1.00	-	-	3.00	2.00	3.00	-	2.00	3.00	3.00

Course Code &Name: C112 - AP5004 - High Performance Networks

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C112.1	Understand the basic concepts of network.
C112.2	Explain the various multimedianeetworking concepts and its applications.
C112.3	Discuss the various types of VPN and tunneling protocols for security.
C112.4	Explain the traffic modeling and its concepts.
C112.5	Explain the network security in many layers and network management

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C112.1	3	2	2	-	-	-	-	3	3	3	-	3	3	3
C112.2	3	2	1	-	-	-	-	3	2	3	-	2	3	3
C112.3	3	2	2	-	-	-	-	3	2	3	-	2	3	3
C112.4	3	3	1	-	-	-	-	3	2	3	-	2	3	3
C112.5	3	2	1	-	-	-	-	3	3	3	-	3	3	3
C112	3	2	1	-	-	-	-	3	2	3	-	2	3	3

Course Code &Name: C113 - AP5092 - Solid State Device Modeling and Simulation

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C113.1	Discuss about basic operation and modeling of MOSFET
C113.2	Applying sparse matrix techniques and Newton –Raphson technique for solution of network equation.
C113.3	Applying the multistep method to solution of electrical network and general purpose simulator.
C113.4	Applying various mathematics technique to obtain 1D ,2Dand grid generation.
C113.5	Analysis of characteristics of simple devices like P-N junction ,MOS capacitor and MOSFET.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C113.1	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C113.2	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C113.3	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C113.4	3	3	2	3	-	-	-	-	-	-	3	3	3	3
C113.5	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C113	3	2	3	3	-	-	-	-	-	-	3	3	3	3

Course Code &Name: C114 - AP5211 - Electronic System Design Laboratory II

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C114.1	To Explain of 32 bit ARM7 microcontroller RTOS and its application
C114.2	To Demonstrate testing RTOS environment and system programming
C114.3	To Analyse wireless network design using embedded systems
C114.4	To Apply System design using ASIC
C114.5	To Determine an use of Verilog and VHDL in sequential digital system modeling

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C114.1	3	2	3	2	3	-	-	3	3	3	-	2	3	3
C114.2	3	3	2	3	2	-	-	3	3	3	-	3	3	3
C114.3	3	2	3	2	3	-	-	3	3	3	-	2	3	3
C114.4	3	3	2	3	2	-	-	3	3	3	-	3	3	3
C114.5	3	2	3	2	3	-	-	3	3	3	-	2	3	3
C114	3	2	2	2	2	-	-	3	3	3	-	2	3	3

Course Code &Name: C115 - CP5281 - Term Paper Writing and Seminar

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C115.1	To study research papers for understanding of a new field, in the absence of a textbook , to summarise and review them
C1152	To identify promising new directions of various cutting edge technologies
C115.3	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
C115.4	To impart skills in preparing detailed report describing the project and results
C115.5	To effectively communicate by making an oral presentation before an evaluation committee

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C115.1	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C1152	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.3	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.4	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.5	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.1	3	2	2	2	-	-	-	3	2	3			3	2

Course Code &Name: C201 - AP5301 - Advanced Microprocessor and Microcontroller Architecture
REGULATION: R2017
YEAR/SEM: II /III

COURSE OUTCOMES

C201.1	Discuss the features of modern microprocessors.
C201.2	Discuss the architecture of Intel Pentium 32 bit and 64 bit processors with salient features.
C201.3	Discuss the architecture of ARM processors along with its programming techniques.
C201.4	Explain about the features, specification of modern microcontrollers.
C201.5	Discuss the 32 bit microcontrollers based on ARM and PIC32 architectures.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C201.1	3	2	2	2	-	-	-	3	2	3	-	2	2	3
C201.2	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C201.3	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C201.4	3	2	2	2	-	-	-	3	2	3	-	2	2	3
C201.5	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C201	3	2	2	2	-	-	-	3	2	3	-	2	2.6	3

Course Code &Name: C202 - AP5005 - System on Chip Design

REGULATION: R2017

YEAR/SEM: II /III

COURSE OUTCOMES

C202.1	Analyse algorithms and architecture of hardware software in order to optimise the system based on requirements and implementation
C202.2	Design and specify systems at high level of abstraction
C202.3	Understand and appreciate the co-design approach and virtual platform models
C202.4	Understand hardware, software and interface synthesis
C202.5	Understand the SOC VERIFICATION AND TESTING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C202.1	3	3	2	2	2	-	-	-	-	-	2	2	3	3
C202.2	3	3	3	2	3	-	-	-	-	-	2	2	3	3
C202.3	3	3	2	3	3	-	-	-	-	-	3	3	3	3
C202.4	3	3	3	2	3	-	-	-	-	-	3	2	3	3
C202.5	3	2	2	2	3	-	-	-	-	-	2	2	3	3
C202	3	2.8	2.4	2.2	2.8	-	-	-	-	-	2.4	2.2	3	3

Course Code &Name: C203 - AP5094 - Signal Integrity for High Speed Design

REGULATION: R2017

YEAR/SEM: II /III

COURSE OUTCOMES

C203.1	Analyse and Explain the signal propagation on transmission lines.
C203.2	Examine the transmission lines using various parameter.
C203.3	Analyse and Explain various transmission losses related to connectors methods.
C203.4	Design and Analyse identity sources affect speed of digital circuits .
C203.5	Explain the various clock related characteristics in digital circuits.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C203.1	3	2	1	-	-	-	-	3	2	3	-	2	3	3
C203.2	3	2	1	-	-	-	-	3	2	3	-	2	3	3
C203.3	3	2	1	-	-	-	-	3	2	3	-	3	3	3
C203.4	3	2	1	-	-	-	-	3	2	3	-	2	3	3
C203.5	3	2	1	-	-	-	-	3	2	3	-	2	3	3
C203	3	2	1	-	-	-	-	3	2	3	-	2	3	3

Course Code &Name: C204 - AP5311 - Project Work Phase I

REGULATION: R2017

YEAR/SEM: II /III

COURSE OUTCOMES

C204.1	Identify challenging practical problems, solutions to cope up with present scenario of electronics field.
C204.2	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
C204.3	Apply technical knowledge and project management skills for solving the problem.
C204.4	Design and develop hardware and/or software for their project specific problem.
C204.5	Prepare the project reports and justify during presentation and demonstration.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C204.1	3	3	3	3	3	2	-	-	-	3	3	3	3	3
C204.2	2	3	3	3	3	2	-	-	-	3	3	3	2	3
C204.3	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C204.4	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C204.5	2	2	3	3	2	2	-	-	-	3	3	3	2	3
C204	2.20	2.40	3.00	3.00	2.80	2.40	-	-	-	3.00	3.00	3.00	2.20	3.00

Course Code &Name: C205 - AP5411 - Project Work Phase II

REGULATION: R2017

YEAR/SEM: II /IV

COURSE OUTCOMES

C205.1	Identify challenging practical problems, solutions to cope up with present scenario of electronics field.
C205.2	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
C205.3	Apply technical knowledge and project management skills for solving the problem.
C205.4	Design and develop hardware and/or software for their project specific problem.
C205.5	Prepare the project reports and justify during presentation and demonstration.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C205.1	3	3	3	3	3	2	-	-	-	3	3	3	3	3
C205.2	2	3	3	3	3	2	-	-	-	3	3	3	2	3
C205.3	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C205.4	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C205.5	2	2	3	3	2	2	-	-	-	3	3	3	2	3
C205	2.20	2.40	3.00	3.00	2.80	2.40	-	-	-	3.00	3.00	3.00	2.20	3.00

ME-VLSI Design

Course Code &Name: C101 - MA5152 - Applied Mathematics for Electronics Engineers

REGULATION: R2017

YEAR/SEM: I/I

COURSE OUTCOMES

C101.1	Understand the basic explanation of Fuzzy Propositions .
C101.2	Apply the application of Cholesky decomposition in matrix theory.
C101.3	Apply the Conditional probability in Baye'stheorem .
C101.4	Examine the Principal of optimality in Dynamicprogramme.
C101.5	Examine the solution of Single and Multi-server models in Little's formula.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C101.1	3	3	0	1	3	-	-	-	-	3	-	3	2	2
C101.2	3	3	1	2	1	-	-	-	-	3	-	3	2	2
C101.3	3	3	3	2	1	-	-	-	-	3	-	0	2	2
C101.4	3	3	3	2	2	-	-	-	-	3	-	0	1	2
C101.5	3	3	1	2	2	-	-	-	-	3	-	3	2	2
C101	3	3	1.6	1.8	1.8	-	-	-	-	3	-	1.8	1.8	2

Course Code &Name: C102 - AP5151 - Advanced Digital System Design

REGULATION: R2017

YEAR/SEM: I/I

COURSE OUTCOMES

C102.1	Understands synchronous sequential circuits
C102.2	Understand asynchronous sequential circuits.
C102.3	Analyz e the various fault using various technique
C102.4	Explain the PLD and FPGA architecture
C102.5	Design and use programming tools for implementing digital circuits

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C102.1	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.2	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.3	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.4	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102.5	3	2	2	2	-	-	-	3	2	3	-	2	3	3
C102	3	2	2	2	-	-	-	3	2	3	-	2	3	3

Course Code &Name: C103 - VL5101 - CMOS Digital VLSI Design

REGULATION: R2017

YEAR/SEM: I /I

COURSE OUTCOMES

C103.1	Classify the various characteristics of MOS transistors technology and its principles.
C103.2	Explain the design principles of various combinational logic circuits for digital operations.
C103.3	Explain the design principles of various sequential logic circuits for digital operations.
C103.4	Design the arithmetic building blocks using various MOS transistors.
C103.5	Classify the various building blocks of FPGA, cell libraries and routing strategies.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C103.1	3	3	2	-	-	-	-	-	-	-	3	3	3	3
C103.2	3	2	3	3	-	-	-	-	-	-	2	3	3	3
C103.3	3	2	3	3	-	-	-	-	-	-	2	3	2	3
C103.4	3	2	3	2	-	-	-	-	-	-	3	3	3	2
C103.5	2	3	2	2	-	-	-	-	-	-	2	3	2	2
C103	2.80	2.40	2.60	2.50	-	-	-	-	-	-	2.40	3.00	2.60	2.60

Course Code &Name: C104 - VL5191 - DSP Integrated Circuits
REGULATION: R2017
YEAR/SEM: I /I

COURSE OUTCOMES

C104.1	Discuss about the principles of discrete Fourier transform and FFT algorithms.
C104.2	Design and investigate FIR and IIR filters using various approximation techniques.
C104.3	Explain the architecture of Digital Signal Processors.
C104.4	Determine the mapping of DSP algorithms in synchronous and Asynchronous circuits
C104.5	Explain the performance synthesis of processing elements

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C104.1	3	2	2	2	3	-	-	-	2	2	-	3	3	3
C104.2	3	2	2	2	3	-	-	-	2	2	-	3	3	3
C104.3	3	2	2	2	3	-	-	-	2	2	-	3	3	3
C104.4	3	2	2	2	3	-	-	-	2	2	-	3	3	3
C104.5	3	2	2	2	3	-	-	-	2	2	-	3	3	3
C104	3	2	2	2	3	-	-	-	2	2	-	3	3	3

Course Code &Name: C105 - VL5102 - CAD for VLSI Circuits

REGULATION: R2017

YEAR/SEM: I/I

COURSE OUTCOMES

C105.1	Explain the concepts of VLSI design flow.
C105.2	Explain the design principles of Layout, Placement &Partitioning for VLSI Circuits.
C105.3	Explain the concepts of floor planning and routing for VLSI circuits.
C105.4	Discuss various types of Simulation and logic synthesis in VLSI circuits.
C105.5	Classify the various high level synthesis for VLSI circuits.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C105.1	3	-	-	-	-	-	-	-	-	-	-	-	2	2
C105.2	3	2	-	-	-	-	-	-	-	-	-	-	2	2
C105.3	3	3	-	-	-	-	-	-	-	-	-	-	3	3
C105.4	3	3	3	3	3	-	-	-	-	-	-	-	3	3
C105.5	3	3	3	3	3	-	-	-	-	-	-	-	3	3
C105	3	2.75	3	3	3								2.6	2.6

Course Code &Name: C106 - VL5103 - Analog IC Design

REGULATION: R2017

YEAR/SEM: I/I

COURSE OUTCOMES

C106.1	Design metrics and Identify, formulates, and solves engineering problems in the area of analog integrated circuits
C106.2	Design multistage amplifiers and operational amplifiers for desired frequencies
C106.3	Analyze Stability, frequency response, and Noise in MOS amplifiers
C106.4	Discuss about various reference circuits in analog design
C106.5	Develop the applications of op-amps

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C106.1	3	3	3	2	-	-	-	-	-	-	-	2	2	2
C106.2	3	3	3	2	-	-	-	-	-	-	-	2	2	2
C106.3	3	3	3	2	-	-	-	-	-	-	-	1	2	2
C106.4	3	3	3	2	-	-	-	-	-	-	-	2	2	2
C106.5	3	3	3	-	-	-	-	-	-	-	-	1	2	2
C106	3	3	3	1.6	-	-	-	-	-	-	-	1.6	2	2

Course Code &Name: C107 - VL5111 - VLSI Design Laboratory I

REGULATION: R2017

YEAR/SEM: I /I

COURSE OUTCOMES

C107.1	Develop HDL code for combinational and sequential logic design.
C107.2	Illustrate Real time Programming and interfacing with FPGA.
C107.3	Evaluate the design functionality implemented in FPGA by capturing the signal in DSO.
C107.4	Develop the Real time application.
C107.5	Design the Digital circuit descriptions and sequential, concurrent statements and structural description by using VHDL or Verilog.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C107.1	3	2	2	2	3	-	-	-	-	-	-	2	3	3
C107.2	3	2	2	2	3	-	-	-	-	-	-	2	3	3
C107.3	3	2	2	2	3	-	-	-	-	-	-	2	3	3
C107.4	3	2	2	2	3	-	-	-	-	-	-	2	3	3
C107.5	3	2	2	2	3	-	-	-	-	-	-	2	3	3
C107	3	2	2	2	3	-	-	-	-	-	-	2	3	3

Course Code &Name: C108- VL5201 - Testing of VLSI Circuits

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C108.1	Understand the concept of testing methods and fault models
C108.2	Categorize and Explain tests for Combinational and sequential circuits
C108.3	Identify the design techniques for testability
C108.4	Understand and Explain the test algorithms
C108.5	Understand the knowledge to diagnosis the fault

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C108.1	3	-	2	-	-	-	-	3	2	3	-	2	3	3
C108.2	3	2	2	-	-	-	-	3	2	3	-	2	2	3
C108.3	-	2	3	-	-	-	-	3	2	3	-	2	3	3
C108.4	-	2	3	-	-	-	-	3	2	3	-	2	3	3
C108.5	3	2	2	-	-	-	-	3	2	3	-	2	3	3
C108	3	2	2	-	-	-	-	3	2	3		2	3	3

Course Code &Name: C109 - VL5291 - VLSI Signal Processing

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C109.1	Discuss the pipelining and parallel processing of digital filters.
C109.2	Applying the algorithmic strength reduction technique-I.
C109.3	Applying the algorithmic strength reduction technique-II.
C109.4	Explain about the bit-level arithmetic architectures.
C109.5	Explain about numerical strength reduction, wave and asynchronous pipelining.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C109.1	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C109.2	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C109.3	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C109.4	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C109.5	3	2	3	3	-	-	-	-	-	-	3	3	3	3
C109	3	2	3	3	-	-	-	-	-	-	3	3	3	3

Course Code &Name: C110 - VL5202 - Low Power VLSI Design

REGULATION: R2017

YEAR/SEM: I/II

COURSE OUTCOMES

C110.1	Analyze various techniques of power dissipation in CMOS.
C110.2	Analyze various techniques of power optimization in CMOS.
C110.3	Design of low power CMOS circuits.
C110.4	Discuss various power estimation techniques.
C110.5	Design low power CMOS using synthesis and software techniques.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C110.1	2	3	2	2	3	0	0	0	0	0	2	3	3	2
C110.2	2	3	2	2	3	0	0	0	0	0	2	3	3	2
C110.3	0	1	2	1	3	0	0	0	0	0	2	3	3	3
C110.4	0	1	2	1	3	0	0	0	0	0	2	3	3	2
C110.5	0	1	2	1	3	0	0	0	0	0	2	3	3	3
C110	2	1.8	2	1.4	3	0	0	0	0	0	2	3	3	2.4

Course Code &Name: C111 - VL5003 - Design of Analog Filters and Signal Conditioning Circuits

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C111.1	Understand and Analyze different filter Topologies
C111.2	Classify the various filter realization by using Op-Amp.
C111.3	Understand and Realize Switched Capacitor Filter along with its Techniques.
C111.4	Explain different Signal Conditioning Techniques.
C111.5	Explain the various Signal Conditioning Circuits.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C111.1	3	2	2	1	2	3	3	3	2	3	2	2	3	3
C111.2	3	2	2	1	2	3	3	3	2	3	2	2	3	3
C111.3	3	2	2	1	2	3	3	3	2	3	2	2	3	3
C111.4	3	2	2	1	2	3	3	3	2	3	2	2	3	3
C111.5	3	2	2	1	2	3	3	3	2	3	2	2	3	3
C111	3	2	2	1	2	3	3	3	2	3	2	2	3	3

Course Code &Name: C112 - VL5005 - Networks on Chip

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C112.1	Understand the concept of network-on-chip
C112.2	Understand and Compare the design of different router architectures
C112.3	Discuss the various types of routing algorithms
C112.4	Explain the fault and test tolerance for network on chip
C112.5	Explain the three dimensional networks on chip architectures

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C112.1	3	2	2	2	2	-	-	-	-	-	3	3	3	3
C112.2	3	2	3	2	2	-	-	-	-	-	3	3	3	3
C112.3	3	2	2	2	2	-	-	-	-	-	3	2	2	3
C112.4	3	3	2	2	2	-	-	-	-	-	3	3	3	3
C112.5	3	2	2	2	2	-	-	-	-	-	3	3	3	3
C112	3	2.2	2.2	2	2	-	-	-	-	-	3	2.8	2.8	3

Course Code &Name: C113 - AP5191 - Embedded System Design

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C113.1	Analyse and Explain the modeling of Embedded system.
C113.2	Examine the general and single purpose processor.
C113.3	Analyse and Explain various bus structure
C113.4	Design and Analyse the state machine and concurrent process models.
C113.5	Explain the different Embedded software development tools and RTOS.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C113.1	3	3	2	2	2	-	-	-	-	-	2	2	3	3
C113.2	3	3	3	2	3	-	-	-	-	-	2	2	3	3
C113.3	3	3	2	3	3	-	-	-	-	-	3	3	3	3
C113.4	3	3	3	2	3	-	-	-	-	-	3	2	3	3
C113.5	3	2	2	2	3	-	-	-	-	-	2	2	3	3
C113	3	2.8	2.4	2.2	2.8	-	-	-	-	-	2.4	2.2	3	3

Course Code &Name: C114 - VL5211 - VLSI Design Laboratory II

REGULATION: R2017

YEAR/SEM: I /II

COURSE OUTCOMES

C114.1	understand the Boolean optimization
C114.2	Design and implement boundary scan
C114.3	Design and construct MOS and power strategies
C114.4	Analysis of different types of amplifiers using Spice
C114.5	Design and implement Layout generations, LVS, Back annotation

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C114.1	3	2	2	0	2	0	0	0	0	0	0	2	2	2
C114.2	3	2	2	0	2	0	0	0	0	0	0	2	3	3
C114.3	3	2	2	0	2	0	0	0	0	0	0	2	3	2
C114.4	3	2	2	0	2	0	0	0	0	0	0	2	2	2
C114.5	3	2	2	0	2	0	0	0	0	0	0	2	3	2
C114	3	2	2	0	2	0	0	0	0	0	0	2	2.6	2.2

Course Code &Name: C115 - CP5281 - Term Paper Writing and Seminar

REGULATION: R2017

YEAR/SEM: I/II

COURSE OUTCOMES

C115.1	To study research papers for understanding of a new field, in the absence of a textbook , to summarise and review them
C115.2	To identify promising new directions of various cutting edge technologies
C115.3	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
C115.4	To impart skills in preparing detailed report describing the project and results
C115.5	To effectively communicate by making an oral presentation before an evaluation committee

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C115.1	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.2	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.3	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.4	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115.5	3	2	2	2	-	-	-	3	2	3	-	-	3	2
C115	3	2	2	2	-	-	-	3	2	3			3	2

Course Code &Name: C201 - VL5301 - Analog to Digital Interfaces

REGULATION: R2017

YEAR/SEM: II /III

COURSE OUTCOMES

C201.1	Demonstrate the importance of sampling the input analog signal for digitization and enabling circuit architectures.
C201.2	Compare the performance of various switched capacitor circuits and comparators.
C201.3	Explain the principles of Analog to Digital and Digital to Analog conversion of signals
C201.4	Understand the principles of Analog to Digital and Analog to Digital conversion of signals
C201.5	Identify the significance of calibration techniques for achieving precision during data conversion

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C201.1	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C201.2	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C201.3	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C201.4	3	3	3	3	-	-	-	-	-	-	3	3	3	3
C201.5	3	3	3	3	3	-	-	-	-	-	3	3	3	3
C201	3	3	3	3	3	-	-	-	-	-	3	3	3	3

Course Code &Name: C202 - AP5292 - Digital Image Processing

REGULATION: R2017

YEAR/SEM: II /III

COURSE OUTCOMES

C202.1	Explain the image formation, the role of the human visual system and digital image fundamentals.
C202.2	Discuss the various image transformation techniques.
C202.3	Analyze the various methods for image segmentation of gray level images.
C202.4	Explain the various image enhancement techniques, Color image processing in spatial and frequency domain.
C202.5	Compare various coding techniques for image compression.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C202.1	3	2	-	2	1	-	-	-	2	-	-	2	3	3
C202.2	3	-	-	2	-	-	-	-	2	3	-	2	3	3
C202.3	-	3	-	2	-	-	-	-	2	3	-	2	3	3
C202.4	-	2	-	2	-	-	-	3	2	-	-	2	3	3
C202.5	-	-	3	2	-	-	-	3	2	-	-	2	3	3
C202	3.00	2.50	3.00	2.00	1.00	-	-	3.00	2.00	3.00	-	2.00	3.00	3.00

Course Code &Name: C203 - AP5291 - Hardware – Software Co-Design

REGULATION: R2017

YEAR/SEM: II /III

COURSE OUTCOMES

C203.1	Understand the system specifications and device modeling techniques.
C203.2	Categorize the various types Hardware and software partitioning.
C203.3	Understanding the Hardware Software Co-Synthesis.
C203.4	Understand and Explain different types of architectures for Prototyping and Emulation.
C203.5	Explain about System level specification and verification.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C203.1	3	2	2	2	-	-	-	3	2	3	2	3	3	3
C203.2	3	2	1	2	-	-	-	3	2	3	2	2	3	3
C203.3	3	2	1	1	-	-	-	3	2	2	2	3	3	3
C203.4	3	2	2	2	-	-	-	3	2	3	2	2	3	3
C203.5	3	2	2	1	-	-	-	3	2	3	2	2	3	3
C203	3	2	2	2	-	-	-	3	2	3	2	3	3	3

Course Code &Name: C204 - VL5311 - Project Work Phase I

REGULATION: R2017

YEAR/SEM: II /III

COURSE OUTCOMES

C204.1	Identify challenging practical problems, solutions to cope up with present scenario of integrated chip design.
C204.2	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
C204.3	Apply technical knowledge and project management skills for solving the problem.
C204.4	Design and develop hardware and/or software for their project specific problem.
C204.5	Prepare the project reports and justify during presentation and demonstration.


	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C204.1	3	3	3	3	3	2	-	-	-	3	3	3	3	3
C204.2	2	3	3	3	3	2	-	-	-	3	3	3	2	3
C204.3	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C204.4	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C204.5	2	2	3	3	2	2	-	-	-	3	3	3	2	3
C204	2.20	2.40	3.00	3.00	2.80	2.40	-	-	-	3.00	3.00	3.00	2.20	3.00

Course Code & Name: C205 - VL5411 - Project Work Phase II
REGULATION: R2017
YEAR/SEM: II /IV

COURSE OUTCOMES

C205.1	Identify challenging practical problems, solutions to cope up with present scenario of electronics field.
C205.2	Analyze the various methodologies and technologies and discuss with the team for solving the problem.
C205.3	Apply technical knowledge and project management skills for solving the problem.
C205.4	Design and develop hardware and/or software for their project specific problem.
C205.5	Prepare the project reports and justify during presentation and demonstration.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C205.1	3	3	3	3	3	2	-	-	-	3	3	3	3	3
C205.2	2	3	3	3	3	2	-	-	-	3	3	3	2	3
C205.3	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C205.4	2	2	3	3	3	3	-	-	-	3	3	3	2	3
C205.5	2	2	3	3	2	2	-	-	-	3	3	3	2	3
C205	2.20	2.40	3.00	3.00	2.80	2.40	-	-	-	3.00	3.00	3.00	2.20	3.00


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