# VIJAYA INSTITUTE OF TECHNOLOGY FOR WOMEN

An ISO 9001:2015 Certified Institute, Approved by AICTE, Affiliated to JNTU Kakinada, AP
Phone: 0866-2844444, Email: vijayatechfw@gmail.com Website: www.vitw.edu.in
College Code: NP, Enikepadu, Vijayawada-521108

## Department of Electronics and Communication Engineering

List of Course Outcomes

Batch: 2016(R16)

| Year & Sem | Subject Code | Course Code | Course Name | At The End of The Course, The Student Will Be Able To |
|---|---|---|---|---|
| I-I | R161101 | C111 | English -I | CO1:Develop their knowledge on different fields and serve the society accordingly. |
| | | | | CO2:Get motivated and adopt road safety measures. |
| | | | | CO3:Creates an awareness in the readers that mass production is ultimately detrimental to biological survival |
| | | | | CO4:To choose a source of energy suitable for rural India |
| | | | | CO5:Acquisite writing skills |
| | | | | CO6:ndentiffy saftey measures against different varieties of accidents at home and in the work place . |
| I-I | R161104 | C112 | Applied Physics | CO1:Impart the knowledge of the concept of coherence and superposition and apply the knowledge to understand the utility of interference in our daily life. |
| | | | | CO2:Analyse the intensity variation of light due to diffraction and apply the knowledge to understand the working of optical instrumentation with high resolution. |
| | | | | CO3:Impart the knowledge of the physical optics phenomena like polarisation. Analyse the concept of population inversion and different types of emission. Comprehend the role of LASERS in the scenario of human development. |
| | | | | CO4:Study the theoretical concepts underlying the EM fields and comprehend its role in the advancement of science and technology. |
| | | | | CO5:Conceive the concepts related to quantum mechanics and apply the knowledge to different problems. Provide a clear understanding about the different electron theories and their defects. |
| | | | | CO6:Discern the classification of crystalline solids and comprehend the relevance of Einstein's equations in the drift and diffusion mechanisms in the conduction of semiconductors, Hall effect and its applications. |
| | | | | CO1:Outline the basic terminology of computer programming and illustrate to write, compile & debug a C-program. |
| | | | | CO2:Make use of basic C- programming language constructs to build C-programs. |

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| I-I | R161107 | C113 | Computer Programming | CO3:Develop C-programs by utilizing various control structures. |
| | | | | CO4:Classify modular programming techniques to implement C- programs. |
| | | | | CO5:Build C-programs by using data structures like arrays, strings. |
| | | | | CO6:Make use of pointers and different derived data structures to solve problems in C. |
| I-I | R1611102 | C114 | Mathematics -I | CO1:Solve linear differential equations of first order and first degree and their applications |
| | | | | CO2:Solve linear differential equations of second and higher order and their applications to various engineering fields. |
| | | | | CO3:Determine Laplace transform and inverse Laplace transform of various functions. Apply the Laplace transforms for Solving Linear Differential Equations |
| | | | | CO4:Calculate total derivative, Jocobian and minima of functions of two variables |
| | | | | CO5:Formation of Partial differential Equations and solution of first order linear and non linear equations. |
| | | | | CO6:Solve Linear Partial differential Equations of higher order and Classification of second order Partial differential Equations . |
| I-I | R161113 | C115 | Engineering Drawing | CO1:Make use of graphic representation as per standards and to construct polygons, curves |
| | | | | CO2:Construct scales and prepare the orthographic projections of points and straight lines placed in various quadrants |
| | | | | CO3:Identify and draw the projection of straight lines inclined to both the planes |
| | | | | CO4:Identify and draw the projection of planes inclined to both the planes |
| | | | | CO5:Plan and draw the projection of solids in different positions & inclined to one of the planes |
| | | | | CO6:Interpret orthographic and isometric views of objects |
| I-I | R161109 | C116 | Mathematics II | CO1:Calculate a root of algebraic and transcendental equations. |
| | | | | CO2:Explain relation between the finite difference operators. Compute interpolating polynomial for the given data. |
| | | | | CO3:Solve ordinary differential equations numerically using Euler's and RK method |
| | | | | CO4:Find Fourier series for certain functions |
| | | | | CO5:Identify/classify and solve the different types of partial differential equations |
| | | | | CO6:Find Fourier Transforms for certain functions |

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| I-II | R161201 | C121 | English -II | CO1:Make use of the greatest resource, education and follow Dr.A.P.J's simple life and service to the nation. Develop the skill of writing official letters. |
| | | | | CO2:Develop peaceful co existence and universal harmony and have deep insight on the achievements of Sir C.V.Raman. apply e- correspondence in professional field. |
| | | | | CO3:Analyse the symptoms of cultural shock and aftermath consequences due to globalization and assimilate the contributions of H.J.Bhabha. Plan speech writing. |
| | | | | CO4:Assess the theme which the society needs to re-examine its traditions when they are outdated and acquire the knowledge of discoveries and inventions made by J.CBose. Understand the structure of the text. |
| | | | | CO5:Categorize several health disorders due to climatic change and recommend protective environment for the sustainability of the future generations and develop insight into the contributions of P.C.Ray. Make use of technical writing for the media. |
| | | | | CO6:Relate eminent personalities, who toiled for the present day advancement in software field and perceive Ramanujan innate talent. Develop report writing skills. |
| I-II | R161203 | C122 | Mathematics III | CO1:Find rank and Solve simultaneous linear equations numerically using various matrix methods |
| | | | | CO2:Determine Eigen values and Eigen vectors of a given matrix. |
| | | | | CO3:Determine double integral over a region and triple integral over a volume. |
| | | | | CO4:Evaluation of Improper Integrals by using special functions. |
| | | | | CO5:Calculate gradient of a scalar function, divergence and curl of a vector function. |
| | | | | CO6:Determine line, surface and volume integrals. Apply Green, Stokes and Gauss divergence theorems to calculate line, surface and volume integrals |
| I-II | R161211 | C123 | Applied Chemistry | CO1:Analyze the advantages and limitations of plastic materials and their use in designing analysis. |
| | | | | CO2:Know the properties, limitations and advantages of Fuels namely Coal, Petrol, Diesel and Biodiesel etc. |
| | | | | CO3:Redesign engineering products by making use of concepts as on construction and working methodologies of electrodes, batteries and fuel cells and classify the reasons for corrosion and methods to control corrosion. |
| | | | | CO4:Adapt Nanomaterials for modern advances of engineering technology. |

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| | | | | CO5:Prepare Semiconductors and gain knowledge about phenomenon of semiconductors |
| | | | | CO6:Design models for energy by different natural sources and gets exposure about alternative fuels and their advantages and limitations |
| I-II | R161212 | C124 | Environmental Studies | CO1:Outline global environmental challenges, initiatives towards sustainable development, understand the concept of the ecosystem and its importance |
| | | | | CO2:Demonstrate an understanding about natural resources and recognize the need to conserve them |
| | | | | CO3:Explain biodiversity, identify threats to biodiversity and the conservation methods |
| | | | | CO4:Categorize and explain different types pollution, their causes, impacts, control measures and waste management practices |
| | | | | CO5:Identify social issues pertaining to environment and gain knowledge about various environmental legislations |
| | | | | CO6:Examine and understand the concept of environmental impact assessment, environmental audit and its importance |
| I-II | R161213 | C125 | Data Structures | CO1:Relate the concept of Abstract Data Type and Build Polynomials, Sparse Matrix ADT. |
| | | | | CO2:Apply data structures like stacks and queues to Solve various real time computing problems. |
| | | | | CO3:Develop algorithms using linear data structures to Solve real world problems |
| | | | | CO4:Utilize various non-linear data structures such as trees to Solve various computing problems.. |
| | | | | CO5:Apply various non-linear data structures such as graphs on various computing problems.. |
| | | | | CO6:Make use of various sorting techniques on unsorted Data. |
| I-II | R161214 | C126 | Electrical & Mechanical Technology | CO1:Outline the working principles of DC Machines and Transformers |
| | | | | CO2:Make use of the principles of electromechanical conversion to summarize the operation of AC Machines |
| | | | | CO3:Classify and Illustrate the construction and working of various measuring instruments. |
| | | | | CO4:Classify Internal combustion engines by their operational principals and evaluate the performance of IC engines |
| | | | | CO5:Understand the fundamentals of heat transfer mechanisms in fluids and solids and their applications |
| | | | | CO6:Analyze the different power transmission systems and Select the suitable manufacturing processes for a typical component |

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| II-I | R1621041 | C211 | Electronic Devices And Circuits | CO1:Outline the basic concepts of semiconductor physics. |
| | | | | CO2:Understand the concept of formation of a p-n junction and the construction of different diodes. |
| | | | | CO3:Analyze the working of rectifiers and filters with relevant expressions. |
| | | | | CO4:Understand the operation and analyze the characteristics of BJT and FET in different configurations. |
| | | | | CO5:Apply proper biasing and stabilization methods to BJT and FET circuits. |
| | | | | CO6:Analyze BJT and FET amplifier circuits using small signal low frequency model. |
| II-I | R1621042 | C212 | Switching Theory and Logic Design | CO1:Represent signed binary numbers using different number systems and binary codes. |
| | | | | CO2:Apply Boolean algebra, K-maps and Tabular method to minimize logic functions. |
| | | | | CO3:Make use of combinational circuits to implement combinational logic functions. |
| | | | | CO4:Develop combinational circuits using PLD's. |
| | | | | CO5:Construct sequential circuits like counters and registers using flip-flops. |
| | | | | CO6:Model the minimized Finite State Machines by using state diagrams. |
| II-I | R1621043 | C213 | Signals & Systems | CO1:Characterize the signals and systems and build the analogy between vectors & signals to develop the Fourier series concepts. |
| | | | | CO2:Make use of the Fourier concept to analyze the spectral characteristics for different classes of signals. |
| | | | | CO3:Explain the process of sampling and reconstruction of signal. |
| | | | | CO4:Outline the concepts of convolution & Correlation to examine the response of LTI systems. |
| | | | | CO5:Apply the Laplace transform to analyze continuous LTI systems. |
| | | | | CO6:Apply the Z- transform to analyze DT LTI systems. |
| II-I | R1621044 | C214 | Network Analysis | CO1:Understand the basic concepts, laws and network topologies of electric circuits. |
| | | | | CO2:Analyze R, L, and C network with sinusoidal excitation to evaluate its response. |
| | | | | CO3:Understand the concepts of magnetic circuits with various dot conventions and examine the concept of resonance by varying the parameters of electrical circuits. |
| | | | | CO4:Simplify electrical networks by using principles of network theorems. |
| | | | | CO5:Determine the parameters of two port networks. |
| | | | | CO6:Evaluate the transient response of electrical networks for different types of excitations. |

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| II-I | R1621045 | C215 | Random Variables and Stochastic Process | CO1:Mathematically model the random phenomena and solve simple probabilistic problems. |
| | | | | CO2:Identify different types of random variables and compute statistical averages of these random variables. |
| | | | | CO3:Make use of the concepts of single random variable to study the behaviour of random phenomenon for a multi random variable case. |
| | | | | CO4:Outline the Temporal characteristics of the Random processes. |
| | | | | CO5:Explain the characteristics of the Random processes in spectral domain. |
| | | | | CO6:Apply the concepts of random variables and processes to analyze the behaviour of LTI systems in the presence of different types of noise. |
| II-I | R1621026 | C216 | Managerial Economics and Financial Analysis | CO1:Utilize the demand forecasting methods to predict demand of a product. |
| | | | | CO2:Analyse Production function & economies of scale and assess the BEP of their own business. |
| | | | | CO3:Identify the concepts of competitive market situations. |
| | | | | CO4:Classify the types of business organizations and identify the stages of business cycles to improve the organizations. |
| | | | | CO5:Simplify accounting concepts to prevent loss for the organization. |
| | | | | CO6:Discover the sources of raising capital for business undertaking |
| II-II | R1622041 | C221 | Electronic Circuit Analysis | CO1:Compare small signal low & high frequency amplifiers using BJT and FET. |
| | | | | CO2:Compare multistage amplifiers based on the combination of different amplifier configurations. |
| | | | | CO3:Compare different types of feedback amplifiers |
| | | | | CO4:Make use of baurkhasan criteion to design different types of oscillators. |
| | | | | CO5:Apply load line concept to examine different types of power amplifiers. |
| | | | | CO6:Analyze different Tuned amplifiers. |
| II-II | R1622042 | C222 | Control Systems | CO1:Develop the transfer function using block diagram algebra and signal flow graph methods |
| | | | | CO2:Analyze the Transient & Steady State Performance of control systems |
| | | | | CO3:Analyze the stability of LTI systems using Routh's stability criterion and the Root locus method. |
| | | | | CO4:Analyze the stability of LTI systems using frequency response methods. |
| | | | | CO5:Design Lag, Lead, Lag-Lead compensators to improve system performance from Bode diagrams. |

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| | | | | CO6:Develop the state models to solve time invariant state equations and outline the concepts of controllability and observability of control systems. |
| II-II | R1622043 | C223 | Electromagnetic Waves and Transmission Lines | CO1:Explain and illustrate the steady Electric fields in different media. |
| | | | | CO2:Summarize magnetostatic fields for static case, and apply the Maxwell equations to study the time varying behaviour of EM waves. |
| | | | | CO3:Interpret the characteristics of uniform plane waves in different media. |
| | | | | CO4:Illustrate the wave characteristics for normal and oblique incidence and derive the relation for the power flow mechanism. |
| | | | | CO5:Classify different types of transmission lines based on primary and secondary constants. |
| | | | | CO6:Derive the expressions to determine different transmission line parameters and verify the same with the smith chart. |
| II-II | R1622044 | C224 | Analog Communications | CO1:Explain the basic concepts of analog communication system and compare various generation, detection techniques of amplitude modulation |
| | | | | CO2:Compare various types of amplitude modulation techniques with spectral characteristics |
| | | | | CO3:Explain different methods of generation and detection of FM |
| | | | | CO4:Classify radio transmitters and receivers based on their operation |
| | | | | CO5:Outline the effect of noise on analog modulation systems |
| | | | | CO6:Illustrate various analog pulse modulation systems |
| II-II | R1622045 | C225 | Pulse and Digital Circuits | CO1:Explain the response of linear waveshaping circuits to various non sinusoidal inputs. |
| | | | | CO2:Extend the applications of diodes and transistors to non-linear waveshaping case. |
| | | | | CO3:Build the Collector and Emitter Coupled Bistable Multivibrators for the given specifications. |
| | | | | CO4:Make use of basic electronic components to design monostable and astable multivibrators. |
| | | | | CO5:Explain the operation of different time base generators. |
| | | | | CO6:Compare the working mechanism of logic gates in different logic families. |
| | | | | CO1;Appraise the practices of management concepts in the business environment and evaluate various types of organization structures. |
| | | | | CO2:Identify the production management practices and distinguish the different stock levels of an organization. |

| II-II | R1622026 | C226 | Management Studies | CO3:Prepare an appropriate marketing mix and determine the recruitment process in global competitive environment. |
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| | | | | CO4:Evaluate the project process on the basis of costs and time. |
| | | | | CO5:Recognize and analyze the strategies of the firm and can re discover the SWOT of themselves. |
| | | | | CO6:Understand and develop the contemporary management practices such as MIS, MRP, TQM,ERP, BPO and assess the changing business environment. |
| III-I | R1631041 | C311 | Computer Architecture and Organisation | CO1:Outline the architecture, the performance measurement of a modern computer |
| | | | | CO2:Extend the knowledge of registers, instructions and addressing modes in understanding the architecture of a digital computer. |
| | | | | CO3:Extend the knowledge of instructions ,addressing modes and I/O operations in understanding the architecture of a digital computer. |
| | | | | CO4:Compare and Contrast different methods for computer I/O. |
| | | | | CO5:Classify read only memories, cache memories, Secondary storages in hierarchical memory system. |
| | | | | CO6:Summarize processing unit and Micro programmed control unit |
| III-I | R1631042 | C312 | Linear IC Applications | CO1:Outline the basic operation and performance parameters of differential amplifiers. |
| | | | | CO2:Demonstrate the measuring techniques for performance parameters of OP-AMP. |
| | | | | CO3:Construct different linear and non-linear circuits using OP- AMPs |
| | | | | CO4:Analyze and design amplifiers and active filters using OP- AMPs |
| | | | | CO5:Develop applications by making use of different analog ICs. |
| | | | | CO6;Construct different types of DAC's and ADC's using OP- AMP |
| III-I | R1631043 | C313 | Digital IC Applications | CO1:Illustrate the electrical behavior of CMOS and Bipolar logic families. |
| | | | | CO2:Apply Data flow and Structural VHDL modeling styles to realize digital circuits. |
| | | | | CO3:Model different digital circuits using behavioral modeling in VHDL and Study the logic synthesis process steps. |
| | | | | CO4:Develop different combinational based digital system design modules with relevant digital ICs. |
| | | | | CO5:Build different Sequential based digital system design modules with relevant digital ICs. |
| | | | | CO6:Analyze different Synchronous and Asynchronous Sequential circuits with examples. |

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| III-I | R1631044 | C314 | Digital Communications | CO1:Illustrate the various types of baseband digital modulation techniques |
| | | | | CO2:Explain band pass digital modulation and demodulation techniques |
| | | | | CO3:Identify the error probability of various receivers using digital modulation techniques |
| | | | | CO4:Apply the information theory in determine the channel capacity |
| | | | | CO5:Compare different source coding schemes for efficient data representation |
| | | | | CO6:Compare different error control coding schemes for the reliable transmission of digital information over the channel |
| III-I | R1631045 | C315 | Antenna Wave Propagation | CO1:Explain the radiation mechanism of an antenna and basic antenna parameters. |
| | | | | CO2:Apply Maxwell's equations to quantify the fields radiated by thin linear wire antennas. |
| | | | | CO3:Classify and Examine various types of antenna Arrays. |
| | | | | CO4:Construct and analyze non resonant antennas and Broad band antennas. |
| | | | | CO5:Analyze UHF, Microwave antennas and summarize the antenna measurement techniques. |
| | | | | CO5:Outline the characteristics of radio wave propagation. |
| III-I | R1631049 | C316 | Professional Ethics & human values | CO1:Apply the moral template inculcating the core human values for transformation into an ethical human being. |
| | | | | CO2:Utilize the principles of engineering ethics for development of professionalism and professional competencies and also to solve moral dilemmas. |
| | | | | CO3:Explain and understand accountability, engineering codes and experimental nature of engineering. |
| | | | | CO4:Evaluate the responsibility and accountability of a professional engineer towards design, operation, safety, by adopting risk benefit analysis. |
| | | | | CO5:Judge issues pertaining to individual rights, collegiality, moral dilemmas and conflicts while discharging their professional duties. |
| | | | | CO6:Analyse cross cultural issues in different ethical domains by acquiring knowledge on intellectual property rights in the context of globalization. |
| III-II | R1632041 | C321 | Micro Processor & Micro Controllers | CO1:Comprehend the architecture and working of 16 bit microprocessor 8086. |
| | | | | CO2:Apply assembly language programming skills to perform arithmetic, logical and string operations with 8086. |
| | | | | CO3:Develop applications involving interfacing of various peripherals with 8086 microprocessor. |

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| | | | | CO4:Outline the architectural features of 80386 and 80486 microprocessors. |
| | | | | CO5:Develop microcontroller based standalone applications for societal needs. |
| | | | | CO6:Comprehend the architecture and instruction set of PIC 16F877 microcontroller. |
| III-II | R1632042 | C322 | Micro Wave Engineering | CO1:Make use of maxwells equations to derive the field components in rectangular wave guides. |
| | | | | CO2:Analyze the field components in circular wave guides & Cavity resonators. |
| | | | | CO3:Compare and analyze various klystron oscillators and amplifiers. |
| | | | | CO4:Classify the slow wave structures and cross field devices. |
| | | | | CO5:Examine different types waveguide junctions and components. |
| | | | | CO6:Explain the procedure to measure the wave guide parameters using microwave bench setup. |
| III-II | R1632043 | C323 | VLSI Design | CO1:Illustrate the various fabrications steps of IC and come across basic electrical properties of MOSFET. |
| | | | | CO2:Apply design rules to construct the layout of different digital circuits. |
| | | | | CO3:Build MOS circuits with the help of Basic circuit concepts and analyze its characteristics based on the Scaling factors. |
| | | | | CO4:Describe Chip input & output circuits and Design For Testability using different testing techniques. |
| | | | | CO5:Make use of FPGA architectures to realize digital circuits. |
| | | | | CO6:Analyze low power circuits through low Power Design Approaches. |
| III-II | R1632044 | C324 | Digital signal Processing | CO1:Apply the concepts of difference equations to analyze the discrete time systems. |
| | | | | CO2:Make use of the FFT algorithm for solving the DFT of a given signal. |
| | | | | CO3:Analyze the Digital IIR filter design for different specifications and Realize its structures. |
| | | | | CO4:Analyze the Digital FIR filter design for different specifications and Realize its structures. |
| | | | | CO5:Understand the Multirate Processing concepts in various applications. |
| | | | | CO6:Outline the architecture of programmable Digital Signal processors and apply the signal processing concepts on DSP Processor. |
| | | | | CO1:Able to learn the fundamental of the physiology of the human being |
| | | | | CO2:Understanding the different applications of electrodes and transducers |

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| III-II | R163204D | C325 | Bio Medical Engineering | CO3:able to learn measurement of different physiology parameters of cardiovascular and respiratory systems |
| | | | | CO4:Understanding the patient care monitoring and different Therapeutic And Prosthetic Devices |
| | | | | CO5: Able to learn different Diagnostic Techniques And Bio-Telemetry |
| | | | | CO6:Able to learn the applications of different Monitors, Recorders And Shock Hazards |
| III-II | R1632049 | C326 | IPR& Patents | CO1:Recall and relate the real property law with Intellectual property law. |
| | | | | CO2:Outline the subject matters of copyright and could able to demonstrate the registration procedure and infringement consequences. |
| | | | | CO3:Make use of Rights and Limitations under Patent Law and could make new inventions and developments in Patent Law. |
| | | | | CO4:Understand the Trade Mark Registration Process, maintenance, Inter parties Proceedings, Infringement, Ownership of Trade Mark and Litigations. |
| | | | | CO5:Utilize maintaining Trade Secret, Physical Security, Employee Access Limitation, Employee Confidentiality Agreement of Trade Secret Law. |
| | | | | CO6:Understand the concepts of the Cyber Law, Cyber Crime, E- commerce, Data Security, Confidentiality, Privacy and International aspects of Computer and Online Crime. |
| IV-I | R1641041 | C411 | Radar Signals | CO1:Illustrate the basic principle of radar and to derive the radar range equation. |
| | | | | CO2:Classify the different types of Radars and its applications. |
| | | | | CO3:Analyze the principle of each and every block of MTI and Pulse Doppler Radar. |
| | | | | CO4:Compare the various techniques involved in tracking the targets. |
| | | | | CO5:Demonstrate the basic principle of Receiver and also extraction of signal in Noise. |
| | | | | CO6:Understand the various components used in radar receivers and can describe antennas used for radar. |
| IV-I | R1641042 | C412 | Digital Image Processing | CO1:Illustrate the fundamental concepts of Digital Image Processing and apply different transforms for image processing applications. |
| | | | | CO2:Analyze the effect of spatial and frequency domain filtering of images. |
| | | | | CO3:Outline various image restoration and reconstruction methods. |
| | | | | CO4:Apply different image compression techniques and outline the concepts of wavelet transforms for image processing. |

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| | | | | CO5:Illustrate different image segmentation techniques and morphological image operations. |
| | | | | CO6:Compare full color and pseudo color image processing techniques. |
| IV-I | R1641043 | C413 | Computer Networks | CO1:Understand the concepts of Network Topologies and network (communication) reference models (OSI and TCP/IP reference models). |
| | | | | CO2:Illustrate Physical layer Guided Transmission media and Multiplexing concepts. |
| | | | | CO3:InterpretDatalink layer Framing Techniques, Error control Techniques using CRC, flow control techniques using Elementary Data Link layer protocols, sliding window protocols in a network.. |
| | | | | CO4:Illustrate how the Media Access control problem solved in a network using multiple access protocols–ALOHA, CSMA, collision free protocols |
| | | | | CO5:Make use of the Network Layer routing algorithms , congestion control algorithms to perform better network communication. |
| | | | | CO6:Analyze the internet Transport layer protocols-TCP,UDP protocol working mechanism in Client – Server Data communication. |
| IV-I | R1641044 | C414 | Optical Communications | CO1:Explain the working principle of the optical fiber and classify the structures of Optical fiber and types |
| | | | | CO2:Explain the various loss and dispersion mechanisms in optical fiber. Choose the appropriate materials required to construct the optical fibers. |
| | | | | CO3:Choose appropriate connectors and/or splices to join the optical fibers. |
| | | | | CO4:Classify the Optical sources and detectors and to discuss their principle. |
| | | | | CO5:Analyze the power launching and coupling techinques of optical fiber. Compare the performance of optical analog and digital recievers. |
| | | | | CO6:Design the optical system for given specifications and also high speed links using WDM. Measure the optical fiber parameters. |
| IV-I | R164104B | C415 | Electronic Switching Systems | CO1:Evaluate the time and space parameters of a switched signal |
| | | | | CO2:Establish the digital signal path in time and space, between two terminals |
| | | | | CO3:Evaluate the inherent facilities within the system to test some of the SLIC, CODEC and digital switch functions |
| | | | | CO4:Investigate the traffic capacity of the system. |
| | | | | CO5:Evaluate methods of collecting traffic data. |
| | | | | CO6:Evaluate the method of interconnecting two separate digital switches |

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| IV-I | R164104D | C416 | Embeeded Systems | CO1:Classify the elements, characteristics, quality attributes and applications of typical embedded systems. |
| | | | | CO2:Identify hardware components required for an embedded system and the design approach of an embedded hardware. |
| | | | | CO3:Compare embedded firmware design approaches on embedded environment. |
| | | | | CO4:Explain Internals of Real-Time operating system and the fundamentals of RTOS based embedded firmware design and identify the need for hardware software Co-design. |
| | | | | CO5:Make use of different IDEs for firmware development of different family of processors/controllers and embedded operating systems. |
| | | | | CO6:Outline the concepts of embedded system implementation and testing. |
| IV-II | R1642041 | C421 | Cellular Mobile Communication | CO1:Outline the concepts of cellular systems and the effect of co- channel Interference reduction. |
| | | | | CO2:Analyze the effects of interferences, develop antenna system. |
| | | | | CO3:Outline various frequency management, channel assignment algorithms in cellular systems and illustrate various propagation effects in cellular environment. |
| | | | | CO4:Illustrate different types of antennas used at cell site and mobile stations. |
| | | | | CO5:Compare various types of handoff techniques and summarise the concepts of dropped calls. |
| | | | | CO6:Illustrate the architecture of GSM and multiple access techniques. |
| IV-II | R1642042 | C422 | Electronic measurements Instrumentation | CO1:Understand the different characteristics of electronic measuring instruments. |
| | | | | CO2:Make use of Signal generators to analyze a signal. |
| | | | | CO3:Understand the design and functioning of Oscilloscopes. |
| | | | | CO4:Utilize AC bridges for measurement of inductance. |
| | | | | CO5:Distinguish active transducers from passive transducers. |
| | | | | CO6:Develop the ability to use instruments for measurement of physical parameters. |
| IV-II | R1642043 | C423 | Satellite communications | CO1:Understand the basics of satellite communication and Ability to calculate the orbital determination and launching methods. |
| | | | | CO2:Demonstrate the Different Sub systems required in a satellite communication system. |
| | | | | CO3:Design satellite link system for specified C/N . |

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| | | | | CO4:Compare various types of multiple access techniques like TDMA, FDMA , CDMA and DAMA. |
| | | | | CO5:Illustrate the architecture of Earth station Technology and Ability to demonstrate the LEO and GEO satellite systems. |
| | | | | CO6:Outline the concepts of satellite navigation and the global positioning system |
| IV-II | R164204A | C424 | Wireless Switching Networks | CO1: to learn the basic fundamentals of wireless switching networks and different architecture |
| | | | | CO2:understanding the different network topologies |
| | | | | CO3:Able to distinguish of different MAC protocols for wireless switching networks |
| | | | | CO4:Understaning the different Routing protocols |
| | | | | CO5:Understnaing the concepts of Transport Layer And Security Protocols |
| | | | | CO6:Understanding the security and applications of wireless switching networks |
| IV-II | R1642045 | C425 | Seminar | Develop self-learning & time management skills to engage in continuous learning |
| IV-II | R1642046 | C426 | Project | Demonstrate the technical knowledge to identify problems in the field of Electronics & Communication Engineering and its allied areas |