



Annamacharya Institute of Technology and Sciences, Tirupati
Department of Electronics and Communication Engineering
Course Outcomes(COs)
AK-22 Regulations



Course Outcomes:

AK-22 Regulations	
Course Name	Course Outcomes:
Digital Communication Techniques (22DPC3801)	CO1: Understand the concepts of Random Variables and Random Processes
	CO2: Understand baseband signal concepts and different equalizers
	CO3: Analyze various coherent detection schemes.
	CO4: Understand receiver synchronization and properties of stationary random process
	CO5: Describe and analyze the Digital Communication systems with spread spectrum systems
Advanced Digital Signal Processing (22DPC3802)	CO1: Understand FFT Algorithms and Design and analyze Digital filters.
	CO2: Acquire the basics of Multirate Digital Signal Processing.
	CO3: Understand theory of prediction and solution of normal equations
	CO4: Analyze adaptive filter algorithms
	CO5: Implement power spectrum estimation techniques
Advanced Computer Architecture (22DPE3801)	CO1: Understand parallel processing and pipelining concepts and applications
	CO2: Understand vector processing and parallel algorithms for array processors.
	CO3: Analyze the high performance scalable multiprocessor systems
	CO4: Understand multithreaded architecture and parallel programming techniques
	CO5: Understand different parallel algorithms for multiprocessors
Low Power VLSI Design (22DPE3802)	CO1: Identify the sources of power dissipation in digital ICs systems.
	CO2: Understand different power estimation techniques.
	CO3: Demonstrate circuit level techniques for reducing power
	CO4: Illustrate behavioral level and logic level approaches for low power design
	CO5: Understand Low Power memory and Microprocessor design
Audio Video Coding and Compression (22DPE3803)	CO1: Understand image lossless compression systems and coding techniques
	CO2: Understand lossy compression systems and transform techniques
	CO3: Understand video coding concept & motion estimation algorithm
	CO4: Analyze various video coding standards
	CO5: Understand audio coding concept and multimedia synchronizations
Transform Techniques (22DPE3804)	CO1: Understand different 1D & 2D transforms, properties and applications
	CO2: Understand Short Time Fourier Transform and need for wavelets
	CO3: Understand scaling functions in multiresolution analysis and wavelet generation
	CO4: Analyze multirate systems, filter banks and Discrete Wavelet

	Transform
	CO5: Apply transform techniques to signal denoising, sub-band coding & signal compression
Data Networks (22DPE3805)	CO1: Know the network design concept and various network terminologies.
	CO2: Understand layered & layer less Communication and switching concepts
	CO3: Design Data Networks and analyze various protocols.
	CO4: Understand Queuing Models of Networks and Inter Networking concepts
	CO5: Understand End to End Protocols and Packet Scheduling Algorithms
Error Control Coding (22DPE3806)	CO1: Understand coding concepts for reliable digital transmission and storage
	CO2: Understands concepts involved in formulation and computation of linear block codes.
	CO3: Understands concepts involved in generation of cyclic codes and binary BCH codes.
	CO4: Get knowledge regarding block codes and relevant algorithms
	CO5: Get knowledge regarding convolutional codes and relevant algorithms
Research Methodology and IPR (22MBA0110)	CO1: To acquaint with basics of research problem formulation.
	CO2: Familiar with research related information and ethics.
	CO3: aware about research report writing and presentation.
	CO4: Understand and get knowledge of basic rights for protection of innovative.
	CO5: Understand different types of IPRs
English for Research Paper Writing (22DMC9901)	CO1: Improve writing skills and level of readability
	CO2: Learn what to write in each section, avoiding plagiarism
	CO3: Understand the review of research literature
	CO4: Apply skills in writing a title, abstract and literature
	CO5: Learn the skills of drafting summations
Disaster Management (22DMC2201)	CO1: Learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.
	CO2: Critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
	CO3: Develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.
	CO4: Critically understand the strengths and weaknesses of disaster management approaches, planning and programming in different countries, particularly their home country or the countries they work in
Sanskrit for Technical Knowledge (22DMC9902)	CO1: Understanding basic Sanskrit language
	CO2: Ancient Sanskrit literature about science & Technology can be understand
	CO3: Being a logical language will help to develop logic in students
	CO4: Analytical knowledge in illustrious Sanskrit, the scientific language in the world

	CO5: Understanding basic Sanskrit language
Value Education (22DMC9903)	CO1: Knowledge of self- development
	CO2: Learn the importance of human values
	CO3: Developing the overall personality
	CO4: Development of spiritual personality
	CO5: Developing of emotional personality for efficiency in work
Digital Communication Techniques Lab (22DPC3803)	CO1: Design Encoder and Decoder for single bit error correction.
	CO2: Simulate and Analyze Digital Signals.
	CO3: Generate and Detect Pass band modulation signals with Error controlling codes.
	CO4: Analyze Performance of M-ary Digital Communication Techniques.
	CO5: Analyze the error performance of Gaussian, Rician, and Rayleigh channels.
Advanced Digital Signal Processing Lab (22DPC3804)	CO 1: Design different digital filters in software.
	CO 2: Apply various transforms in time and frequency.
	CO 3: Perform decimation and interpolation
	CO 4: Able to realize different filters
	CO 5: Perform convolution and correlation.
Pattern Recognition (22DPC3805)	CO1: Understand the principles of Bayesian parameter estimation and apply them in relatively simple probabilistic models
	CO2: Understand various linear models.
	CO3: Understand Neural Network concepts related to pattern recognition.
	CO4: Apply and analyze various linear discriminant algorithms
	CO5: Apply and develop machine independent and unsupervised learning techniques.
Detection and Estimation of Signals (22DPC3806)	CO1: Understand the basic concepts of signal detection and estimation.
	CO2: Understand different hypotheses in detection and estimation problems.
	CO3: Understand the concepts of Stochastic Processes.
	CO4: Understand the conceptual basics of detection theory.
	CO5: Derive and apply filtering methods for parameter estimation
Wireless Communication and Networks (22DPE3807)	CO1: Understand the Cellular Concepts related to wireless communication systems
	CO2: Know about the mobile radio propagation related to large scale path loss.
	CO3: Know about the mobile radio propagation related to Small – Scale Fading and Multipath.
	CO4: Understand the concepts of Equalization and various diversities of wireless communication.
	CO5: Understand the different protocols used for wireless communication systems and networks.
Microcontrollers and Programmable Digital Signal Processors	CO1: Understand ARM Cortex – M3 Processor architecture and other features.
	CO2: Understand LPC 17XX Microcontroller various Input and output

(22DPE3808)	peripherals
	CO3: Understand the concepts of Programmable DSP Processors architecture and its features.
	CO4: Understand the TMS322C6000 series processor architecture and instructions.
	CO5: Able to Develop small applications by utilizing the ARM processor core and DSP processor-based platform using Code Composer Studio
Sensors and Actuators (22DPE3809)	CO1: Understand some basic principles and techniques of micro sensors and actuators.
	CO 2: Understand basic laws and phenomena on which operation of sensors and actuators transformation of energy.
	CO 3: Knowledge about of the working principles and architecture of a large number of sensors and their elements
	CO 4: Choose and use sensors and equipment for measuring mechanical quantities and temperature.
	CO 5: knowledge about the architecture and working principles of the most common electrical motor types.
Speech Processing (22DPE3810)	CO1. Express the speech signal in terms of its time domain and frequency domain representations and the different ways in which it can be modelled;
	CO2. Derive expressions for simple features used in speech classification applications;
	CO3. Explain the operation of example algorithms covered in lectures, and discuss the effects of varying parameter values within these;
	CO4. Synthesize block diagrams for speech applications, explain the urpose of the various blocks, and describe in detail algorithms that could be used to implement them;
	CO5. Implement components of speech processing systems, including speech recognition and speaker recognition, in MATLAB.
Network Security and Cryptography (22DPE3811)	CO1: Understand need for Network Security and various techniques related to security.
	CO2: Understand the concepts of number theory and private-key cryptography
	CO3: Understand the concept of Public key cryptography
	CO4: Understand various protocols for message authentication
	CO5: Understand various issues of network security.
Optical Communication Technology (22DPE3812)	CO1: Understand the concepts signal propagation in optical fibers.
	CO2: Understand fiber optic components for communication and networking.
	CO3: Understand the concepts modulation and demodulation of optical signal.
	CO4: Understand the concepts transmission system engineering
	CO5: Understand the concepts of Fiber Nonlinearities and System Design Considerations
Constitution of India	CO1: Discuss the growth of the demand for civil rights in India for the bulk

(22DMC9904)	of Indians before the arrival of Gandhi in Indian politics.
	CO2: Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
	CO3: Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
	CO4: Discuss the powers and functions of governor, president, and judiciary.
	CO5: Discuss the functions of local administration bodies.
Pedagogy Studies (22DMC5801)	CO1: What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
	CO2: What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
	CO3: How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy? Perspective.
	CO4: Review existing evidence on the review topic to inform programme design and policy making undertaken by the DfID, other agencies and researchers
	CO5: Identify critical evidence gaps to guide the development
Stress Management by Yoga (22DMC9905)	CO1: Develop healthy mind in a healthy body thus improving social health also
	CO2: Improve efficiency
	CO3: Understand the role of yoga in mental hygiene
	CO4: Develop strong mental health
	CO5: Understand the role of yoga in stress management
Personality Development through Life Enlightenment Skills (22DMC9906)	CO1: Study of Shrimad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life
	CO2: The person who has studied Geeta will lead the nation and mankind to peace and prosperity
	CO3: Study of Neetishatakam will help in developing versatile personality of students
	CO4: Understand their personality and achieve their highest goals of life
	CO5: Learn to build positive attitude, self-motivation, enhancing self-esteem and emotional intelligence
Pattern Recognition Lab (22DPC3807)	CO1: Develop and Design Machine Learning solutions to classification, regression and clustering problems.
	CO2: Evaluate and interpret the results of various algorithms.
Detection and Estimation of signals Lab (22DPC3808)	CO1: Simulate Signals and Noise
	CO 2: Detect signals in the presence of noise
	CO 3: Compare various estimation techniques
Remote Sensing (22DPE3813)	CO1: Understand basic concepts of remote sensing and its physics.
	CO2: Understand different platform for acquiring satellite images using

	remote sensing
	CO3: Understand various sensors used in Remote sensing to acquire data
	CO4: Analyze and apply thermal and hyper spectral remote sensing based on sensor characteristics.
	CO5: Understand and analyze remote sensing data processing
High Performance Networks (22DPE3814)	CO1: Apply knowledge of mathematics, probability, and statistics to model and analyze some networking protocols.
	CO2: Identify formulate and solve network protocol issues.
	CO3: Understand network routing and security issues
	CO4: Understand Traffic Modelling and network management and security
	CO5: Understand various standards in network management
MIMO Systems (22DPE3815)	CO1: Understand channel modelling and propagation, MIMO Concepts
	CO2: Understand cooperative and coordinated multi-cell MIMO,
	CO 3: Perform Mathematical modelling and analysis of MIMO systems.
	CO4: Understand MIMO in LTE and Time & frequency channel dispersion
	CO5: Understand channel Estimation and different channel estimation techniques
Business Analytics (22DOE5801)	CO1: Students will demonstrate knowledge of data analytics.
	CO2: Students will demonstrate the ability of think critically in making decisions based on data and deep analytics
	CO3: Students will demonstrate the ability to use technical skills in predicative and prescriptive modelling to support business decision-making
	CO4: Students will demonstrate the ability to translate data into clear, actionable insights
Industrial Safety (22DOE9001)	CO1: Analyze the basics of industrial safety.
	CO2: Understand the Fundamentals of maintenance engineering
	CO3: Apply the methods of prevention of corrosion and wear.
	CO4: Understand the Fault tracing and their applications
	CO5: Understand the methods of preventive measures and maintenance
Operations Research (22DOE9002)	CO1: Understand the characteristics and phases, types of models, allocation in linear programming
	CO2: Apply the concept of optimal solution, unbalanced problem, degeneracy and Transportation problem & sequencing.
	CO3: Understand the concept of replacement of items and related problems, theory of games related problems
	CO4: Apply the concept of the knowledge of queuing models, inventory management models.
	CO5: Apply the knowledge of dynamic programming, the concept of the simulation and simulation languages
Composite Materials (22DOE9004)	CO1: Understanding of basic concepts and characteristics of geometric and physical applications of composites.
	CO2: Explain different reinforcements and their properties
	CO3: Study of micromechanics and properties of composite material
	CO4: Study of coordinate transformations of stress and strain laws

	CO5: Study of elastic behaviour of unidirectional composites; Joining Methods and Failure Theories
Waste to Energy (22DOE2201)	CO1:Able to classify types of wastes
	CO2: Understand the method of pyrolysis
	CO3: Understand the use and application of Biomass gasifiers
	CO4: Design biomass combustors
	CO5: Analyze the properties of Biogas
Project Management (22DOE2202)	CO1:Able to understand the importance of construction project management, organization and leadership capabilities
	CO2: Able to apply theoretical and practical aspects of project management planning techniques to achieve project goals.
	CO3: Possess ideas on contract, tender and arbitration in construction projects.
	CO4: Understand to apply knowledge and skills of quality and safety management in construction.
	CO5: . Have necessary knowledge in resource planning, costing and accounting.