

## **Additional Information**

### **Sample COs for various programmes**

#### **1<sup>ST</sup> SEMESTER**

##### **1. C++ PROGRAMMING (261101CA)**

- CO1: Discuss the concepts of programming designing and get hands on with selection and iterative building blocks for coding
- CO2: Describe modular programming approach and learn user define derived data types
- CO3: Discuss object oriented programming concepts and features of OOPs by implementing using C++
- CO4: Describe pointers and their usage using C++ along with handling exception and command line arguments.
- CO5: Discuss file and file handling built-in functions.

##### **2. ADVANCED DATABASE MANAGEMENT SYSTEM (261102CA)**

- CO1: Discuss design a database based on the given requirements.
- CO2: Write Standard Query Language statements and Triggers.
- CO3: Apply normalization techniques on given database
- CO4: Design good database with knowledge of subject provided to them.
- CO5: Work with advanced databases and implementation.

##### **3. ADVANCED COMPUTER NETWORK (261103CA)**

- CO1: Discuss the structure and organization of computer networks role of each layer, functioning of physical layer.
- CO2: Describe data link layer and network layer concepts and protocol design.
- CO3: Discuss user support layers concepts and protocol design.
- CO4: Discuss how to host a website in the web server and maintenance.
- CO5: Discuss basic concepts of network security concepts; including authentication, integrity and system security design challenges.

##### **4. MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE (261104AM)**

- CO1: Discuss mathematical logic and Boolean algebra in switching circuits & logic circuits.
- CO2: Discuss the type of relationship and apply the knowledge using the Hass diagram.
- CO3: Discuss the set theory and recursive function. Also, they will construct the grammars.
- CO4: Describe graph theory and its applicability in various computer applications.
- CO5: Discuss problems in various fields in computer application using the basic concepts of group theory and coding.

##### **5. Professional Communication Skills (261105HM)**

- CO1: Discuss components of fundamental approaches to interpersonal, public, and organizational communication.
- CO2: Analyze communication problems effectively.
- CO3: Discuss potentially effective responses in inter personal/ intercultural, and organizational context.
- CO4: Discuss to draft several document of formal communication through interaction that takes place in various contexts along with developing a research project that engages with one or more theoretical models.

CO5: Discuss the different elements of a report along with their importance so as to draft it effectively and discuss how to speak, and write grammatically correct English.

**6. C++ LAB (261191CA)**

- CO1: Write program with all type of variables and statements of C/C++.
- CO2: Discuss modular approach by working with functions and derive data types.
- CO3: Discuss object oriented programming concepts
- CO4: Know different features of OOPs and implementing using C++
- CO5: Handle interrupts and working with files.

**7. DBMS LAB (261192CA)**

- CO1: Write query to create databases.
- CO2: Design complex query to perform various operation on databases
- CO3: Learn to perform joins operation.
- CO4: Implement PL using function and procedures.
- CO5: Design cursor and triggers.

**8. PYTHON LAB (261193CA)**

- CO1: Know basics of python to write Programs.
- CO2: Write program to handle String and List.
- CO3: Implement program related to tuples and dictionary.
- CO4: Design program related to objects and classes.
- CO5: Design good data handling program in Pandas.

**9. Communication Lab (261194HM)**

- CO1: Communicate through English including Listening, comprehending, speaking, reading and writing through the tutorial.
- CO2: Communicate effectively for enhancing performance
- CO3: Write grammatical English and essentials of language skills
- CO4: Identify the nuances of phonetics, intonation and flawless pronunciation.
- CO5: Work on Improving upon their power to persuade.

**Master of computer applications**

**2<sup>ND</sup> SEMESTER**

**1. Programming with Java (261201CA)**

- CO1: Write OOPs programs, be able to handle Strings.
- CO2: Handle runtime errors, and will be able to create multi-threads.
- CO3: Gain skills in network programming using Java network APIs, TCP / IP sockets, and distribute application development using RMI.
- CO4: Create I / O interfaces using even handling via the Swing API and AWT API and will be able to develop standalone software.
- CO5: Obtain the skill to develop the website using APPLET and Servlet.

**2. Data Structures and Algorithms (261202CA)**

- CO1: Make appropriate data structure and algorithm design decisions with respect to program size, execution speed, and storage efficiency.

- CO2: Know common data structures (such as arrays, linked lists, stacks, queues, priority queues, trees, heaps, hash tables, associative containers.
- CO3: Calculate the complexities of algorithms of tree
- CO4: Write and implement various sorting, searching, and hashing algorithms.
- CO5: Able to work with different advanced data structures.

### **3. Artificial Intelligence & Expert System (261203CA)**

- CO1: Visualize AI problems and importance of searching and control strategies.
- CO2: Learn various algorithms used in AI game playing and how to prune state space using heuristics.
- CO3: Know different knowledge representation structure and inference mechanism with ability to apply them in intelligent solutions of complex problem.
- CO4: Develop skills needed for processing of natural language at syntactic and semantic level using Grammar and also how important planning is while designing solution strategies.
- CO5: Know working of Expert system and importance of learning module in expert system.

### **4. Operating System with UNIX (261204CA)**

- CO1: Concepts relating to operating system, such as types of operating system, file system organization.
- CO2: Concepts and problem solutions related with CPU Scheduling, virtual memory and deadlocks.
- CO3: Operating system concepts in the context of Unix Operating system.
- CO4: Execute basic and advance commands of UNIX.
- CO5: Write shell scripts for new command to design and implement.

### **5. Behavioral perspectives in Management (261205MG)**

- CO1: Analyze and compare different models used to explain individual behavior related to personality and authority.
- CO2: Identify the various leadership styles and the role of leaders in a decision making process.
- CO3: Integrate interpersonal with relation and coordination.
- CO4: Exhibit stress management techniques in social and professional behavior.
- CO5: Identify the processes used in developing teams and resolving conflicts

### **6. Java Lab (261291CA)**

- CO1: Write OOPs programs, be able to handle Strings.
- CO2: Handle runtime errors, and will be able to create multi-threads.
- CO3: Gain skills in network programming using Java network APIs, TCP / IP sockets, and distribute application development using RMI.
- CO4: Create I / O interfaces using event handling via the Swing API and AWT A Pland will be able to develop stand alone software.
- CO5: Obtain the skill to develop the website using APPLET and Servlet.

### **7. Data Structure and Algorithms Lab (261292CA)**

- CO1: Write program to implement Stack, Queue.
- CO2: Write program to implement program related to Linked List.
- CO3: Design program related to sorting and searching.

- CO4: Implement Graph data structure.  
CO4: Design logic to work with trees data structure.

#### **8. Web Technology Lab (261293CA)**

- CO1: Learn to work with HTML editor to create personal and/or business websites following current professional and/or industry standards.  
CO2: Create cascading style-sheets (CSS) for device and browser integration  
CO3: Demonstrate the skills to design and create websites.  
CO4: Use JavaScript, data types, identify expressions and operators, know flow control, define functions and methods.  
CO5: To exhibit the ability to design and implement an internet database

#### **9. Personality Development (261294HM)**

- CO1: Demonstrate clear understanding about personality and personality traits  
CO2: Develop positive attitude and self-motivation.  
CO3: Demonstrate effective interpersonal skills  
CO4: Display efficient leadership skills  
CO5: Demonstrate productive employability skills

Course Outcomes:

3<sup>rd</sup> Semester:

#### **Probability & Random Variables 328352(28)**

Course Outcomes: After successful completion of the course, Students will be able to:

- C202.1 Convert a signal from time domain to frequency domain for spectrum analysis.  
C202.2 Explain role of probability and calculate probability by modeling sample spaces.  
C202.3 Calculate PDF& CDF of a random variable based on a real-world situation and Compute mean, variance, moments and expected values of probability distribution.  
C202.4 Model random processes in the communication systems in the time domain.  
C202.5 Analyze spectral characteristics of random processes.

#### **Industrial Instrumentation 328355(28)**

At the end of the course students will be able to-

- C205.1 Describe generalized measurement system and its functional elements.  
C205.2 Classify transducers and select appropriate one for particular application.  
C205.3 Explain the principles of operation and essential features of transducers and use them for the Measurement of nonelectrical quantities.  
C205.4 Measure temperature and pressure using different transducers.  
C205.5 Describe different flow measuring devices and photoelectric transducers.

#### **Course Name: Fluid Mechanics – I Subject Code: 320352(20)**

Course Outcomes

- C 202.1 Students are expected to identify different types of fluids.

- C 202.2 Students are expected to compare fluids flow condition.
- C 202.3 Students are expected to evaluate flow in pipes & losses.
- C 202.4 Students are expected to compare flow of fluids
- C 202.5 Students are expected to understand the applications of fluid mechanics.

**Course Name: Surveying – I Subject Code: 320353(20);**

**Course Outcomes**

- C 203.1 Students will be able to: Calculate the elevations by applying different techniques.
- C 203.2 Students will be able to: Categorize the minor instruments and illustrate their functioning.
- C 203.3 Students will be able to: Solve transverse computations, detect and rectify errors.
- C 203.4 To demonstrate the skill in plane table traversing.
- C 203.5 Students will be able to: To construct various curves in highways and Railways.

**CO ELECTRICAL MACHINE I SUBJECT CODE : 324352(24)**

- CO1 Understand the fundamentals and working of transformers
- CO2 Draw the equivalent circuit diagrams of various transformers
- CO3 Analyse the load profile, voltage regulations and efficiency under various operating conditions
- CO4 Understand the working principle and construction of direct current machines
- CO5 Understand the needs and requirements of various types of D.C. machine operations like starting, speed control, tests etc.

**CO BASIC ELECTRONICS SUBJECT CODE : 324353(25)**

- CO1 Understanding the basic concept of electronics devices their properties, behavior and applications.
- CO2 Student can predict and design rectifiers and filters as per circuit requirement.
- CO3 Learn to design transistor biasing circuit and calculating its stability.
- CO4 An ability to understand basic characteristics of FET and MOSFET.
- CO5 Learn to design Clipper – Clamper circuits and oscillator of desired frequency

**Software Engineering and Project Management (261301CA)**

- CO1: Familiarize themselves with the software engineering concept.
- CO2: Have comprehensive software requirement specifications.
- CO3: Familiarize themselves the depth understanding of software economics.
- CO4: Outline the process control.
- CO5: Demonstrate the structure of the project management plan.

**Cryptography and cyber Security (261302CA)**

- CO1: Demonstrate the cyber security fundamentals.
- CO2: Show the understanding of cryptography techniques and function.
- CO3: Identify the depth understanding of network security algorithms including Firewall.
- CO4: Familiarized themselves various advanced attacking techniques.
- CO5: Familiarized themselves the various cyber security policies.

**Machine Learning (261303CA)**

- CO1: Familiarize themselves with the machine learning goals and applications
- CO2: Identify the various classification techniques and their performance evaluation methods
- CO3: Demonstrate various clustering methodologies and evaluation process
- CO4: Familiarize themselves with the different Machine learning curves
- CO5: Show the Neural network and Deep Learning concepts

**1. Software Engineering and Project Management (261301CA)**

- CO1: Familiarize themselves with the software engineering concept.
- CO2: Have comprehensive software requirement specifications.
- CO3: Familiarize themselves the depth understanding of software economics.
- CO4: Outline the process control.
- CO5: Demonstrate the structure of the project management plan.

**2. Cryptography and cyber Security (261302CA)**

- CO1: Demonstrate the cyber security fundamentals.
- CO2: Show the understanding of cryptography techniques and function.
- CO3: Identify the depth understanding of network security algorithms including Firewall.
- CO4: Familiarized themselves various advanced attacking techniques.
- CO5: Familiarized themselves the various cyber security policies.

**3. Machine Learning (261303CA)**

- CO1: Familiarize themselves with the machine learning goals and applications
- CO2: Identify the various classification techniques and their performance evaluation methods
- CO3: Demonstrate various clustering methodologies and evaluation process
- CO4: Familiarize themselves with the different Machine learning curves
- CO5: Show the Neural network and Deep Learning concepts

**4th SEMESTER****Analog Communication 328452(28)**Course Outcomes:

After successful completion of the course, Students shall be able to:

- C213.1 Describe all types of analog modulation / demodulation techniques such as AM, DSB-SC, SSB-SC and VSB.
- C213.2 Design FM Modulation & demodulation systems.
- C213.3 Explain the effect of a filter on the power spectral density of noise.
- C213.4 Analyze noise characteristics in the AM and FM systems.
- C213.5 Compare FM and AM systems in terms of effect of noise.

**Analog Electronics 328453(28)**

Course Outcomes: After successful completion of the course students will be able to:

- C214.1 Analyze low frequency h-model of BJT in different CE, CB, CC configuration.
- C214.2 Perform high frequency analysis of BJT using  $\pi$ -model .
- C214.3 Analyze the effect of cascading of BJTs, and explain distortions in Power Amplifiers.
- C214.4 Analyze the effect of different topologies of negative feedback in amplifiers.
- C214.5 Analyze different sinusoidal oscillators.

**Course Name: Structural Analysis – I Subject Code: 320451 (20);**

Course Outcomes

- C 212.1 To be able to recall, explain and apply the basic concepts of Structural Analysis to determine the degree of indeterminacy of structures and to find member forces in pin jointed frames.
- C 212.2 To be able to explain and apply various methods of structural analysis to find slope and deflection in determinate beams.
- C 212.3 To be able to interpret the relation between strain energy, slope and deflection and to be able to analyze the rigid and pin jointed determinate plane frames.
- C 212.4 To be able to determine the effects of rolling load and to draw influence line diagram.
- C 212.5 To be able to analyze and evaluate stresses in complex determinate structures such as suspension bridges and arches.

**Course Name: Fluid Mechanics – II Subject Code: 320452 (20);**

Course Outcomes

- C 213.1 Students are expected to find turbulence flow in pipe.
- C 213.2 Students are expected to analyse flow of fluids in pipe network.
- C 213.3 Students are expected to evaluate flow in open channel.
- C 213.4 Students are expected to understand &analyse transmission of pressure waves.
- C 213.5 Students are expected to identify and describe hydraulic properties of Turbine & Pumps.

B.Tech 4th Sem

**CO ELECTROMAGNETIC THEORY SUBJECT CODE : 324452(24)**

- CO1 Students will acquire the knowledge of nature of electrostatic field developed by various charge distributions.
- C02 Students will be able to compute Electric flux and potential for various charge distributions.
- C03 Students will acquire the knowledge of nature of dielectric and the application of Laplace and Poisson's equations.
- C04 Students will acquire the knowledge of nature of Static Magnetic field and the application of Ampere's circuital Law and Stoke's theorem.
- C05 Students will acquire the knowledge of nature of time varying electric and magnetic field.

**CO NETWORK ANALYSIS & SYNTHESIS SUBJECT CODE : 324453(25)**

- CO1 Explain and analyze the different types of network functions with the applications of Laplace Transform in networks.
- CO2 Analyze the stability of network function and interpret time domain behavior of networks from pole zero plots of network function.
- CO3 To understand the different parameters of one port and two port networks.
- CO4 To develop the ability to identify and synthesize the impedance functions using various techniques of synthesis.
- CO5 An ability to design various types of filters.

**CLOUD COMPUTING (261401CA)**

- CO1: Identify the basic services offered by cloud computing and its benefits.
- CO2: Familiarize themselves securities offer by the cloud.
- CO3: Demonstrate others services provided by cloud.
- CO4: Show the services provided by Managed services.
- CO5: Outline the concepts of virtualization.

**BIG DATA ANALYTICS (261402CA)**

- CO1: Identify the concepts of Big Data Analytics and visualization techniques.
- CO2: Familiarized themselves the various techniques used for mining data stream.
- CO3: Familiarized themselves the Hadoop Concepts.
- CO4: Outline the Hadoop frameworks and big data enabling Technologies.
- CO5: Demonstrate the concepts of Open Source databases such as NOSQL, HBase etc.

**MAJOR PROJECT (261491CA)**

- CO1: Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
- CO2: Reproduce, improve and refine technical aspects of projects applying appropriate techniques, resources and IT tools.
- CO3: Work as an individual and as a member or leader in teams in development of projects.
- CO4: Follow management principle and value health, safety and ethical practices during project.
- CO5: Prepare project report and presentation to demonstrate the project.

**CLOUD COMPUTING (261401CA)**

- CO1: Identify the basic services offered by cloud computing and its benefits.
- CO2: Familiarize themselves securities offer by the cloud.
- CO3: Demonstrate others services provided by cloud.
- CO4: Show the services provided by Managed services.
- CO5: Outline the concepts of virtualization.

**BIG DATA ANALYTICS (261402CA)**

- CO1: Identify the concepts of Big Data Analytics and visualization techniques.
- CO2: Familiarized themselves the various techniques used for mining data stream.
- CO3: Familiarized themselves the Hadoop Concepts.
- CO4: Outline the Hadoop frameworks and big data enabling Technologies.



CO5: Demonstrate the concepts of Open Source databases such as NOSQL, HBase etc.

**MAJOR PROJECT (261491CA)**

- CO1: Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
- CO2: Reproduce, improve and refine technical aspects of projects applying appropriate techniques, resources and IT tools.
- CO3: Work as an individual and as a member or leader in teams in development of projects.
- CO4: Follow management principle and value health, safety and ethical practices during project.
- CO5: Prepare project report and presentation to demonstrate the project.

**5th SEMESTER**

**Antennas and Wave Propagation 328553(28)**

Course Outcomes :

After completion of this course students will be able to

- C303.1 Find and Calculate characteristic parameters of different modes and design a waveguide.
- C303.2 Compare different modes of wave propagation and apply field's concepts to find various parameters.
- C303.3 Demonstrate knowledge of short dipole and half wave dipole antennas to find various antenna characteristics.
- C303.4 Analyze and design antenna arrays.
- C303.5 Design and apply different antennas for different application.

**Advance Microprocessor & Interfacing 328555(28)**

Course Outcomes:

After successful completion of the course Students will be able to:

- C305.1 Describe the logical behavior of the digital circuits used in the architecture of 8086 microprocessor.
- C305.2 Apply organized set of instructions to implement the program algorithm.
- C305.3 Demonstrate interfacing of I/O, memory devices with 8086 processor.
- C305.4 Do interfacing of ADC/DAC, Keyboard and display devices.
- C305.5 Explain memory management used in advance microprocessors including segment translation and paging mechanism.

**Course Name: Structural Analysis – II Subject Code: 320551(20);**

Course Outcomes

- C 301.1 To be able to recall, explain and apply the basic concepts of principal of super position and three moment theorem to determine slope and deflection of indeterminate beams.
- C 301.2 To be able to interpret the relation between strain energy, slope and deflection and to be able to analyze the rigid and pin jointed indeterminate plane frames.
- C 301.3 To be able to explain and apply moment distribution method and analyze the indeterminate beams to find slope and deflection.
- C 301.4 To be able to explain and apply slope deflection method and analyze the indeterminate beams to find slope and deflection.
- C 301.5 To be able to analyze and evaluate stresses in indeterminate beams due to rolling loads by Muller Breslau Principle and to draw influence line diagram.

**Course Name: Structural Engineering Design – I Subject Code: 320552(20);**

**Course Outcomes**

- C 302.1 Student should be able to design concrete beam sections by working stress method.
- C 302.2 Student should be able to design concrete beam sections by limit state method.
- C 302.3 Student should be able to design concrete T-beams and slabs by limit state method.
- C 302.4 Student should be able to design concrete columns by limit state method.
- C 302.5 Student should be able to design staircases and footings by limit state method.

**CO ELECTRICAL MACHINE II SUBJECT CODE : 324551(24)**

- CO1 Understand the energy, force and torque of single and multi-excited systems.
- C02 Understand the construction, working principles, phasor diagram, equivalent circuit, voltage regulation and power equations of synchronous machines.
- C03 Understand the principles, phasor diagram, power equations and V-curves of salient pole synchronous machines
- C04 Understand the construction, working principles, phasor diagram, equivalent circuit and torque speed characteristics of Induction machines.
- C05 Understand the methods of speed control and starting of induction machines. Also will have idea about crawling, cogging, and double cage of induction machines.

**CO MICROPROCESSOR AND INTERFACING SUBJECT CODE : 324552(24)**

- CO1 Understand the history and basic architecture of microprocessor 8085.
- C02 Understand various instructions and their applications in programming of microprocessor 8085.
- C03 Understand the formats and modes of data transfer in microprocessor 8085.
- C04 Understand the interrupt structure and their applications in microprocessor 8085.
- C05 Understand about the peripheral interfacing devices of microprocessor 8085.

6th SEMESTER

**Electronic Circuit Design 328652(28)**

Course Outcomes:

After successful completion of the course, Students will be able to:

- C314.1 Design various linear & nonlinear wave shaping circuits.
- C314.2 Analyze the waveform at different nodes of the Multivibrator .
- C314.3 Design various electronic circuits using IC555 Timers.
- C314.4 Analyze and design various active filters using OP-AMP.
- C314.5 Analyze and design Butterworth & Chebsyhev filters.

**Information Theory and Coding 328655(28)**

Course Outcomes:

After successful completion of the course, Students will be able to:

- C317.1 Apply various source coding algorithms like Huffman, Lempel-Ziv & JPEG to perform compression & Understand some channel models.
- C317.2 Solve problems based on Block codes and Cyclic codes.
- C317.3 Explain the use of primitive elements and minimal polynomials in some advanced coding techniques like BCH and RS.
- C317.4 Design convolutional coder and Viterbi decoder.
- C317.5 Describe concepts of Trellis coded modulation, its advantages and its implementation.

**Course Name: Structural Engineering Design – II Subject Code: 320651(20);**

Course Outcomes

- C 313.1 Student should be able to describe the advantages to parallel flange sections and limit state method of design.
- C 313.2 Student should be able to compute the capacity of bolts and welds.
- C 313.3 Student should be able to design steel tension members by limit state method.
- C 313.4 Student should be able to design steel compression members by limit state method.
- C 313.5 Student should be able to design steel flexural members by limit state method.

**Course Name: Geotech Engineering – II Subject Code: 320652(20);**

Course Outcomes

- C 314.1 To define the stability of soil and study different methods for analysis of soil stability.
- C 314.2 To explain earth pressure on wall, and study different methods by different scientists, conducting analysis based on graphical method.
- C 314.3 Design of shallow foundation with respect to different parameter.
- C 314.4 To explain and design well and pile foundation.
- C 314.5 Characterize expansive soil problems, contaminated soils and identify remedial

measures.

**CO INSTRUMENTATION TECHNIQUES SUBJECT CODE : 324654(24)**

- CO1 Student can understand the use of CT and PT as a protective and measuring device.
- C02 Student would be able to select proper Transducer for measurement of various Electrical quantities.
- C03 Student can understand the DAS .
- C04 Student can understand the basics of PLC.
- C05 Student can write programs for different processes using PLC.

**CO FIBRE OPTICS SUBJECT CODE : 324671(24)**

- CO1 Know the components materials used for preparation of optical fibre.
- C02 Analyze the various characteristics to know the property of a signal or a system
- C03 Analyze a given optical fibre with different characteristics.
- C04 Design an economical Optical fibre for communication system.
- C05 Understand the advanced Optical fibre for communication system.

**7th SEMESTER**

**Wireless Communication 328733(28)**

Course Outcomes: After the completion of the course, students will be able to:

- C403.1 Explain the basic technology used in different types of wireless devices for communication and its evolution.
- C403.2 Describe basics of cellular system and frequency planning mechanism.
- C403.3 Explain basic working of GSM Architecture network.
- C403.4 Identify and compare advanced digital modulation technique which are practically used for GSM, CDMA and different wireless and wired modem.
- C403.5 Discuss various transmission problems and their counter measures.

**Microwave Communication & Engg 328731(28)**

Course Outcomes:

After completion of this course students will be able to-

- C401.1 Explain microwave system and compare it with previous low frequency system.
- C401.2 Describe the working of microwave tubes and their applicability in industrial and domestic purposes.
- C401.3 Explain functioning of microwave transistors and diodes.
- C401.4 Describe the microwave Solid State Devices such as TED and Transit Time Devices.
- C401.5 Apply microwave components to measure different parameters such as attenuation, impedance etc.

**Course Name: Structural Engineering Design-III Subject Code: 320731(20);**

## Course Outcomes

- C401.1 Student should be able to design plate girders using limit state method of design.
- C401.2 Student should be able to design members subjected to combined forces by limit state method of design.
- C401.3 Student should be able to design column based and gantry girders by limit state method of design.
- C401.4 Student should be able to design connections by limit state method of design.
- C401.5 Student should be able to apply the concepts of limit state method to design steel roof trusses.

## **Course Name: Water Resources Engineering-I Subject Code: 320732(20);**

### Course Outcomes

- C402.1 Students will be able to understand the different types of irrigation.
- C402.2 Students will be able to design the canal.
- C402.3 Students will be able to explain the effects of water logging.
- C402.4 Students will be able to understand the behavior of river.
- C402.5 Students will be able to plan the reservoir for different demands.

## **CO ELECTRICAL DRIVES SUBJECT CODE: 324733(24)**

- CO1 Classify different load torques, then understand the electric drive systems for different mode of operations.
- C02 To control the electric drive systems by closed loop method
- C03 Design of Motor power ratings on the basis of heating and cooling
- C04 Speed control of DC motor, Induction motor and synchronous motor using power electronic semiconductor devices.
- C05 Understand the operation of AC & DC traction drives and its control.

## **CO ENERGY AUDITING AND MANAGEMENT SUBJECT CODE: 324734(24)**

- CO1 Students will have a basic understanding about the overview of energy management.
- C02 Students will have a basic idea about the energy situation in India and across the world.
- C03 Students will learn the basics of energy auditing as applicable to an industry.
- C04 Students will learn the basics of energy auditing with application on different sectors.
- C05 Students will have a basic understanding of demand side management and mechanisms (technical, legal or financial) that influence energy consumption.

## 8th SEMESTER

## **Advanced Communication System 328831(28)**

### Course Outcome

At the end of this course students will be able to-

- C412.1 Describe the basic concept of Satellite Systems.
- C412.2 Develop a link budget of a Satellite System.
- C412.3 Analyze multiple access techniques of a Satellite System.
- C412.4 Identify and explain basic elements of Optical Fiber Transmission link.
- C412.5 Describe Optical Sources, Detectors and SONET/SDH networking.

### **Power Electronics 328813(28)**

Course Outcomes:

After completion of this course students will be able to-

- C414.1 Identify and explain different power semiconductor devices and operational principles and characteristics of SCR.
- C414.2 Describe Triggering and Commutation methods of SCRs and phase control operations of single phase half wave & full wave converters.
- C414.3 Analyze phase controlled operations of Semi, Full and Dual Converters.
- C414.4 Analyze the operation of Inverters & Choppers.
- C414.5 Illustrate the operation of AC Voltage Controller & Cyclo converters.

### **Course Name: Structural Engineering Design - IV Subject Code: 320831(20);**

Course Outcomes

- C 412.1 Student should be able to design RCC footings by limit state method.
- C 412.2 Student should be able to design retaining walls by limit state method.
- C 412.3 Student should be able to design simple water tanks by limit state method.
- C 412.4 Student should be able to design slab bridges by limit state method.
- C 412.5 Student should be able to analyze pre stressed concrete beams.

### **Course Name: Water Resources Engineering - II Subject Code: 320832(20);**

Course Outcomes

- C 413.1 Students will be able to design the dams.
- C 413.2 Students will be able to design the spillways.
- C 413.3 Students will be able to design the weir and barrage.
- C 413.4 Students will be able to design canal falls.
- C 413.5 Students will be able to design different types of cross drainage works.

### **CO HIGH VOLTAGE ENGINEERING SUBJECT CODE:324831(24)**

- CO1 Apply the knowledge of the basic gaseous dielectrics, their properties and behavior under high voltage stresses, physicochemical phenomena during breakdown and mechanisms during ionization.
- C02 Apply the knowledge of the basic liquid and solid dielectrics, their properties and behavior under high voltage stresses, physicochemical phenomena during

breakdown and mechanisms and aging effects.

C03 Understand fundamental concepts of high voltage AC, DC, and impulse generation.

C04 Learn the techniques employed in high voltage measurements.

C05 Apply the knowledge of the high voltage testing equipment and methods, requirements for high voltage testing procedures.

**CO INSTALLATION MAINTENANCE & TESTING OF ELECTRICAL EQUIPMENTS**  
**SUBJECT CODE:324833(24)**

C01 Students will learn about the overview of site management activities and safety of electrical equipment's.

C02 Students will learn about the maintenance procedures of Transformer and its testing.

C03 Students will learn about the maintenance procedures of Switchgear and Circuit Breaker and also its testing.

C04 Students will learn about the maintenance procedures of Rotating Machines and its testing.

C05 Students will learn about the maintenance procedure when the line is live (or hot) and also about the electrical fire safety.