



DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

PO1 : Engineering knowledge – Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis – Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/ development of solutions – Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex problems – Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage – Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6 : The engineer and society – Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment and sustainability – Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics – Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work – Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.



PO 10 : Communication – Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11: Project management and finance – Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning – Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

HOD/ECE

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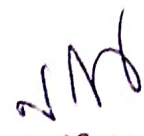
**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Electronic devices and circuits****Sem: I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Interpret various applications of diode like rectifiers, filters, diode as a switch, clippers and clampers.(K3)
2	CO2	Classify Common emitter, common base and common collector configurations and Fixed Bias, Self-biasing technique of BJT.(K2)
3	CO3	Discuss operation, biasing and applications of JFET and special purpose devices like SCR, Varactor diode, UJT, Zener diode.(K2)
4	CO4	Demonstrate CE, CB, CC low frequency BJT amplifiers.(K3)
5	CO5	Describe FET amplifier and MOSFET.(K2)

Course title: Network Analysis & Transmission lines**Sem: I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Compare circuit matrices of linear graphs and describe magnetic circuits. (k2)
2	CO2	Examine the Steady state and transient analysis of RLC Circuits. (k4)
3	CO3	Analyse the characteristics of two port network parameters. (k4)
4	CO4	Relate the transmission line parameters and configurations. (k2)
5	CO5	Integrate the wave propagation through transmission lines and compute the smith chart and impedance matching the device. (k2)


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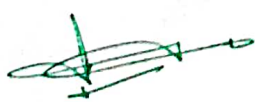

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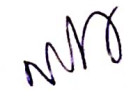
**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Digital System Design****Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Interpret the numeric information in different forms, e.g. different bases, Signed integers, various codes such as ASCII, Gray and BCD.L3
2	CO2	Explain the Combinational Logic Problem formulation and Logic Optimization. L2
3	CO3	Analyze synchronous and asynchronous sequential circuits. L4
4	CO4	Solve various engineering problems with finite state machine. L3
5	CO5	Explain the realization of logic gates Using Diodes & Transistors. L2

Course title: Signals and Systems**Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Differentiate various signal functions (Understand)
2	CO2	Represent any arbitrary signal in time and frequency domain((Understand)
3	CO3	Determine the response of linear Time Invariant (LTI) systems (Apply)
4	CO4	Analyze the signals with different transform technique (Analyze)
5	CO5	State and prove the sampling theorem (Analyze)


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**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Probability Theory and Stochastic Processes****Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Define probability and interpreted probability by modelling sample Spaces (K1)
2	CO2	Construct the probability distribution of a random variable, based on real world situation and use it to compute expectation and variance. K3
3	CO3	Solve the problems involving multiple random variable. K3
4	CO4	Apply the concepts of random process in communication and signal Processing. K3
5	CO5	Evaluate response of linear system and random process. K5

Course title: Electronic devices and circuits Lab**Sem:I**

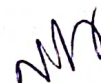
S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Measure the voltage, frequency and phase of any waveform using CRO. K5
2	CO2	Generate the sine, square and triangular waveforms with required frequency and amplitude using function generator. (K6)
3	CO3	Analyze the characteristics of different electronic devices such as diodes, transistors etc., and simple circuits like rectifiers, amplifiers etc.K4

Course title: Digital System Design Lab**Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Verify the Boolean Expressions using Logic gates
2	CO2	Design combinational logic circuits
3	CO3	Design sequential logic circuits



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**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Basic Simulation LAB****Sem:I**


S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Perform different operations on signals
2	CO2	Covert time domain signal to frequency domain signal
3	CO3	Verify the sampling theorem

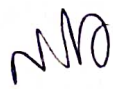
Course title: Laplace Transforms, Numerical Methods & Complex Variables Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Apply the Laplace transforms techniques for solving ODE's (K3)
2	CO2	Estimate the value for the given data using Interpolation . (K5)
3	CO3	Find the numerical solutions for a given ODE's (K3)
4	CO4	Analyze the complex function with reference to their analyticity, integration using Cauchy's integral and residue theorems. (K4)
5	CO5	Apply Taylor's and Laurent's series to complex Functions (K3)

Course title: Electromagnetic Fields and Waves**Sem:II**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Define electrostatic and magneto static laws (K1)
2	CO2	Derive the Maxwell's equations in static and dynamic fields (K5)
3	CO3	Describe energy density on electric/magnetic fields' and Poynting theorem (K2)
4	CO4	Analyze the EM wave propagation in different mediums (K4)
5	CO5	Relate the wave propagation through different mediums and compute the TE & TM modes along the rectangular wave guides (K3)


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Department of Electronics and Communication Engineering

Course Outcomes for the academic year 2021-22

Course title: Analog and Digital Communications

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Analyze and design of various forms of amplitude modulation and demodulation techniques (Analyze) (K4)
2	CO2	Analyze and design of various forms of angle modulation and demodulation techniques (Analyze) (K4)
3	CO3	
4	CO4	Explain the knowledge about AM, FM Transmitters and Receivers (Understand) (K2) Classify digital modulation techniques, baseband transmission and band pass transmission (Understand) (K2)
5	CO5	Compare the probability of errors in the Digital Modulation Techniques (Analyze) (K4)

Course title: Linear IC Applications

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	
2	CO2	Identify the significance and applications of Integrated Circuits (K3)
3	CO3	Apply various Mathematical and Circuit applications Using IC 741 (K3)
4	CO4	Design filters and Wave form generators using Op-Amp 741 (K6)
5	CO5	Explain applications of IC 555 QW and IC 565 (K2) Analyze various ADC's and DAC's (K4)

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Department of Electronics and Communication Engineering

Course Outcomes for the academic year 2021-22

Course title: Electronic Circuit Analysis

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Summarize multistage amplifiers and explain the concepts of High Frequency Analysis of Transistors. (K2)
2	CO2	Utilize the Concepts of negative feedback to improve the stability of amplifiers and positive feedback to generate sustained oscillations (K3)
3	CO3	Design different classes of power amplifiers for audio applications. (K5)
4	CO4	Design different classes of tuned amplifiers for radio applications. (K5)
5	CO5	Design Multivibrators and sweep circuits for various applications. (K5)

Course title: Analog and Digital Communications Lab

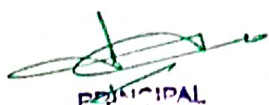
Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Analyze analog amplitude and frequency modulation techniques
2	CO2	Convert analog signal to Digital signal
3	CO3	Analyze the Pulse analog modulation techniques

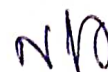
Course title: IC Applications Lab

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Verify the 741 Op-Amp applications.
2	CO2	Calculate Duration of pulse widths generated in various multivibrators of timer IC555
3	CO3	Examine IC 565 PLL operation and Perform Load and Line voltage Regulation using IC 723.


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**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Electronic Circuit Analysis Lab****Sem:II**

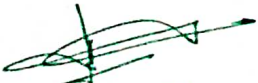
S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	
		Design and Analyze BJT amplifiers and JFET amplifiers. (K5)
2	CO2	
		Design and Analyze power amplifiers and tuned amplifiers. (K5)
3	CO3	
		Design and Analyze various types of oscillators and feedback amplifiers. (K5)


Course title: Microprocessors & Microcontrollers**Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Analyze the internal architecture and organization of 8086, 8051 and ARM processors/controllers. (K4)
2	CO2	Identify the significance of interrupts / serial communication, real time functionality in 8051 (K3)
3	CO3	
		Develop skill in simple program writing for 8051 & 8086 applications (K4)
4	CO4	
		Describe a typical I/O interface and to Discuss timing issues (K3)
5	CO5	Identify significance of interrupts/serial communication, real time functionality in ARM (K3)

Course title: Data Communications and Networks**Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	
		classify various types of data networks,OSI model(k4)
2	CO2	
		Design and analyze various error detection techniques.(k4)
3	CO3	
		Demonstrate the mechanism of routing the data in network layer(k5)
4	CO4	
		Describe the various Flow control and Congestion control Mechanisms(k5)


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Department of Electronics and Communication Engineering
Course Outcomes for the academic year 2021-22

Course title: Control Systems

Sem:I

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Explain the modeling of Linear time invariant systems using Transfer function and state space representations
2	CO2	Improve the system performance by selecting a suitable controller and/or a compensators for a specific application
3	CO3	Apply various time domain and frequency domain techniques to assess the system performance.
4	CO4	Apply various control strategies to different applications like power systems, electrical drives etc.
5	CO5	Test the Controllability and Observability using state space representation and applications of state space representation to various systems

Course title: Business Economics & Financial Analysis

Sem:I

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Identify the various types of Business entities in the Market
2	CO2	Examine the Elasticity of Demand in Decision making
3	CO3	Analyze the Market Structure for identifying the price- output relationship
4	CO4	Apply the knowledge of accounting principle for Financial Analysis.
5	CO5	Evaluate the performance of the organization through financial ratios



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Department of Electronics and Communication Engineering
Course Outcomes for the academic year 2021-22

Course title: Electronic Measurements and Instrumentation

Sem:I

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	
2	CO2	
3	CO3	
4	CO4	
5	CO5	

Describe the fundamental concepts and principle of instrumentation.K5
 Apply the measurement techniques for different types of tests.K4
 Analyze functioning, specification and application of signal analyzing instrument.K3
 Understanding of use of Bridges.
 Identify the importance of a transducer in physical parameters measurement and Differentiate types of transducer in instrumentation systems.

Course title: Microprocessors & Microcontrollers Lab

Sem:I

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	
2	CO2	
3	CO3	


Perform Arithmetical, Logical and String operations on 8086 microprocessors
 Perform Arithmetical, Logical operations on 8051 microcontrollers
 Interface various input-output devices with 8051 microcontrollers


Course title: Data Communications and Networks Lab

Sem:I

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	
2	CO2	
3	CO3	

Design and Analyze various data communications networks
 Evaluate the various types of protocols of data link layer
 Analyze different types of protocols


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**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Advanced Communication Skills Lab****Sem:I**


S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Acquire vocabulary and use it contextually
2	CO2	Listen and speak effectively.
3	CO3	Develop proficiency in academic reading and writing


Course title: Antennas and Propagation**Sem:II**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Describes basic parameters of antenna design
2	CO2	Interpret various antennas and solve their parameters
3	CO3	Illustrate antenna measurements.
4	CO4	Explain antenna arrays
5	CO5	Summarize different wave propagations and infer their characteristics

Course title: Digital Signal Processing**Sem:II**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Construct time, frequency and Z -transform analysis on signals and systems and analyse LTI system characteristics and multirate signal processing
2	CO2	Compare the inter-relationship between DFT and various transforms.
3	CO3	Describe the significance of various filter structures.
4	CO4	Design a digital filter for a given specification.
5	CO5	Identify the tradeoffs between normal and multi rate DSP techniques and finite length word effects.


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Course Outcomes for the academic year 2021-22

Course title: VLSI Design

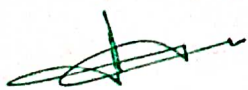
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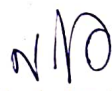
S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Explain the fabrication process (K2)
2	CO2	Design the layout of logic circuit which helps to understand and estimate parasitic of any logic circuit (K5)
3	CO3	Design circuits using alternative design styles and calculate area, capacitance and delay (K5)
4	CO4	Design simple memories using MOS transistors and can understand design of large memories (K5)
5	CO5	Design simple logic circuit using PLA, PAL, FPGA, CPLD (K5)

Course title: Embedded System Design

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Choose an embedded systems for specific application. (K3)
2	CO2	Analyse the types of core, memory and interfacing to external hardware. (K4)
3	CO3	Summarise embedded firmware design approaches. (K2)
4	CO4	Identify the significance of Real Time Operating Systems. (K2)
5	CO5	Evaluate the issues for development of task communication techniques and device drivers (K4)


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**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Scripting Languages Lab****Sem:II**


S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Construct the Ruby scripts for executing various integer and string operations(K3)
2	CO2	Examine the TCL scripts for ARRAY and Translate operations (K4)
3	CO3	Develop the pearl scripts for Integers and Multiplication of Arrays (K3)

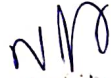
Course title: Microwave and Optical Communications**Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Categorize Microwave tubes and Describe working of Klystron, TWT. (K4)
2	CO2	Distinguish Microwave tubes and Explain working of Magnetron, Gunn diode (K4)
3	CO3	Interpret the applications of Wave guide components (K2)
4	CO4	Examine Frequency, Impedance, VSWR, and Attenuation using Microwave Bench (K4)
5	CO5	Summarize concepts of Optical Fiber Transmission Media (K2)

Course title: Scripting Languages**Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Explain the basic commands of Linux operating system and can write shell scripts (K2)
2	CO2	Discuss in detail Linux networking services, pearl and TCL concepts (K2)
3	CO3	Implement using TCL/TK, Basics of PERL Scripting (K3)
4	CO4	Implement control flow and exception handling using python (K3)
5	CO5	Discuss in detail Python concepts (K2)


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Department of Electronics and Communication Engineering
Course Outcomes for the academic year 2021-22

Course title: Database Management Systems


Sem:I

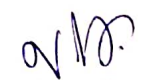
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1	CO1	understand the DDL,DML commands Examine the syntax commands (K4)
2	CO2	Apply the methods for fundamentals of sql retrieval and management data (K2)
3	CO3	Implement the fundamentals database design and Categorize normal forms (K4)
4	CO4	Apply the rules of basics of transaction processing and concurrency control (K2)
5	CO5	Implement the accessing the techniques of database storage structures (K2)

Course title: Python Programing

Sem:I

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Examine Python syntax and semantics and be fluent in the Apply of Python flow control and functions. (K4)
2	CO2	Explain methods in handling Strings, Exceptions and File Systems. (K6)
3	CO3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and Apply Regular Expressions. (K6)
4	CO4	Interpret the concepts of Object-Oriented Programming as Applied in Python.(K5)
5	CO5	Implement exemplary applications related to Network Programming, Web Services and Databases in Python(K3)


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**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Professional Practice, Law & Ethics****Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Analyze the need for professional practice and ethics. (k4)
2	CO2	Describe the nature of contract and its Laws.(k3)
3	CO3	Analyze alternative dispute resolution system and distinguish between the law.(k4)
4	CO4	Identify the importance of Labour rolls and acts.(k3)
5	CO5	Describe laws relating to intellectual properties, patents and patent

Course title: Industrial Oriented Mini Project/ Summer Internship**Sem:I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Apply the conceptual skills to a given problem in diverse fields of engineering.
2	CO2	Identify the needs of society and formulate sustainable solution.
3	CO3	Able to interact effectively with the members associated with project and work as a part of team with professionalism.
4	CO4	Evaluate the possible environmental hazards of the project and take appropriate actions to circumvent them.
5	CO5	Evaluate the challenges and risks involved in the execution of the project and handle them effectively.

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N/O


Head of the Department
Electronics & Communication Engineering
AVN Institute of Engineering & Technology
Ibrahimpattanam (M) R.R. Dist-501 511, A.P.


**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Seminar****Sem: I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Present the complex technical concepts effectively in public/professional context.
2	CO2	Deliver well rehearsed and interactive presentations by using modern tools and technologies.
3	CO3	Develop audience – centered presentations satisfying professional objectives.
4	CO4	Enhance one's own intellectual skills by utilizing available technical resources
5	CO5	Demonstrate effective writing skills by employing techniques of academic writing, including invention, research, critical analysis and evaluation, and revision.

Course title: Project Stage - I**Sem: I**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Apply relevant knowledge and skills to a given problem in diverse fields of engineering.
2	CO2	Identify the needs of society and formulate sustainable solution.
3	CO3	Interact effectively with the members associated with project and work as a part of team with professionalism.
4	CO4	Evaluate the possible environmental hazards of the project and take appropriate actions to circumvent them.
5	CO5	Evaluate the challenges and risks involved in the execution of the project and handle them effectively.


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Head of the Department
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AVN Institute of Engineering & Technology
Ibrahimpattam (M), R.R. Dist-501510, Andhra Pradesh



Department of Electronics and Communication Engineering

Course Outcomes for the academic year 2021-22

Course title: Satellite Communications

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Explain the principles, concepts and operation of satellite communication systems.[K2]
2	CO2	Describe the concepts of signal propagation affects, link design, rain fading and link availability and perform interference calculations[K2]
3	CO3	Analyze modulation techniques and error correction codes for satellite communication systems[K4]
4	CO4	Identify the importance and functions of space segment equipment's and earth segment equipment used in satellite systems.[K3]
5	CO5	Analyze the design requirements and the performance of satellite communication system[K4]

Course title: Wireless Sensor Networks

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Analyze and compare various architectures of Wireless Sensor Networks(K4)
2	CO2	Examine and understand the issues and challenges in wireless sensor networks(K4)
3	CO3	Analyze and compare various data gathering and data dissemination methods.(K4)
4	CO4	Distinguish the performance of various routing and MAC protocol(K4)
5	CO5	Compare the performance of various routing and MAC protocol(K5)

Course title: System on Chip Architecture

Sem:II

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Analyse SOC Architectural features(k4).
2	CO2	Identify selection criteria and limitations for processor selection(k3).
3	CO3	Classify memory architectures on SOC(k3).
4	CO4	Discuss in detail the interconnection strategies(k2).
5	CO5	Explain customization and reconfigurable technologies(k2).

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 Ibrahimpatnam (M) R.R. Dist. T.S.

**Department of Electronics and Communication Engineering****Course Outcomes for the academic year 2021-22****Course title: Low Power VLSI Design****Sem:II**

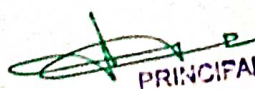
S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Analyse the fundamental concepts of Low power VLSI for circuit desinging in Sub threshold region of operation
2	CO2	Apply various low power techniques to reduce power consumption while designing VLSI Digital / Analog circuits in Near Threshold / Sub threshold / Deep subthreshold region of operations
3	CO3	Illustrate Low Power low voltage adders using technology scaling
4	CO4	Apply logic-level, architecture-level and system-level techniques in various designs to optimize power consumption of the VLSI circuits.
5	CO5	Implement practical and state of the art Low Power VLSI design, suitable for real life and Industry applications.

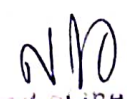
Course title: Environmental Impact Analysis**Sem:II**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Identify the Environmental Attributes to Be Considered For The Environmental Impact Assessment Study
2	CO2	Formulate Objectives of the Environmental Impact Assessment Studies
3	CO3	Identify the Methodology to Prepare Rapid Environmental Impact Assessment
4	CO4	Prepare Environmental Impact Assessment Reports and Environmental Management Plans

Course title: Project Stage - II**Sem:II**

S.No	Course Code	Course Outcome – Upon completion of the course, the student will be able to
1	CO1	Apply relevant knowledge and skills to a given problem in diverse fields of engineering.
2	CO2	Identify the needs of society and formulate sustainable solution.
3	CO3	Interact effectively with the members associated with project and work as a part of team with professionalism.
4	CO4	Evaluate the possible environmental hazards of the project and take appropriate actions to circumvent them.
5	CO5	Evaluate the challenges and risks involved in the execution of the project and handle them effectively.


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AVN INSTITUTE OF ENGINEERING & TECHNOLOGY

PATEL GUDA, IBRAHIMPATNAM (M), R.R. Dist 501510, T.S

Ph.No. 08415-201345, www.avniet.ac.in, Email: avn.principal@gmail.com



Department of Computer Science and Engineering

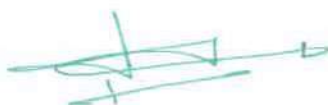
Programme and Course Outcomes

A.Y 2021-22

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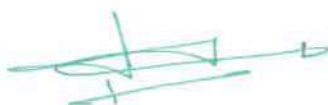


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2. CO Statements (R18) Regulation

I YEAR I SEM

1. MATHEMATICS-I(MA101BS)

C111.1	Able to write the matrix representation of a set of linear equations and analyze the solution of systems (TL1)
C111.2	Able to find the eigen values and eigen vectors under linear transformation(TL1)
C111.3	Able to test the convergence and divergence of the term series (TL3)
C111.4	Able to test the convergence of alternating series and test for absolute c (TL3)
C111.5	Able to find surface area and volume using integration(TL1)
C111.6	Able to apply partial differentiation and calculate maxima and minima of a function (TL3)

2. ENGINEERING CHEMISTRY(CH102BS)

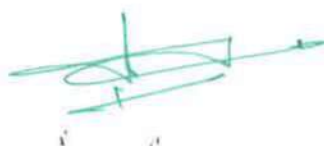
C112.1	Experiment, analyze and report the level of hardness in water and select appropriate method to solve water related problems.(TL6)
C112.2	Experiment and apply the principles of electrochemical changes and choose better designs to solve problems related to it. (TL6)
C112.3	Identify engineering materials with distinguished properties to construct high rated products. (TL5)
C112.4	Test and rate the fuels comparing calorific values and observe fuels at different combustion conditions. (TL6)
C112.5	Identify basic construction material and composite engineering materials with typical properties to develop high quality products. (TL5)

3. BEEE(EE103ES)

C113.1	Understand the basic concepts of electric circuits, solve the problems of electric circuits by using network laws & some network reduction techniques(TL3)
C113.2	The students will be able to analyze the circuits by using network theorems & study about their applications. (TL4)
C113.3	Understand the basic semiconductor devices and Analyze them on the basis of characteristic curves(TL4)
C113.4	Describe the construction and basic principles of transistors like BJT's, FET's etc (TL3)
C113.5	The ability to analyze & design simple biasing circuits using transistors. (TL4)

4. ENGINEERING WORKSHOP(ME105ES)

C114.1	The ability to use the basic tools(TL1)
C114.2	The ability to apply suitable tools for different manufacturing operations such as materials removal carpentry, fitting ,tin – smithy, (TL3)
C114.3	To develop the right attitude and team work and the ability to connect electrical wirings between input and output source(TL3)
C114.4	The ability to Apply Different weldings to prepare joints(TL3)
C114.5	The ability to prepare the Different Castings and black smithy (TL2)



2. CO Statements (R18) Regulation

I YEAR I SEM

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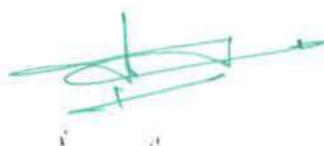
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C114.5	The ability to prepare the Different Castings and black smithy (TL2)



5. ENGLISH(EN105HS)

C115.1	Relate listening skills for effective communication comprehend literary text and enrich vocabulary. (TL3)
C115.2	Comprehend technical correspondence, learn reading techniques and use grammar structures appropriately.(TL3)
C115.3	Revise and apply the right format of formal letter writing, drafting Resumes' and know the contextual knowledge of vocabulary used.(TL3)
C115.4	Compose the literary text, basic grammatical aspects and learning the etymology of words.(TL3)
C115.5	Employ information transfer intelligibly and express effectively in spoken and written communication.(TL3)

6. ENGINEERING CHEMISTRY LAB(CH106BS)

C116.1	Able to estimate the hardness of water using EDTA. (TL6)
C116.2	Able to evaluate the strength of strength of acids using conductometry and potentiometry.(TL6)
C116.3	Able to measure the concentration of iron and copper in samples using photo colorimeter. (TL6)
C116.4	To estimate the viscosity of a given liquid using Ostwald Viscometer.(TL6)
C116.5	Able to measure the concentration of copper by iodometry. (TL6)

7. ELCS Lab(EN107HS)

C117.1	Recognise English speech sounds and understand formal and informal communication.(TL3)
C117.2	Construct required dialogues in Role Plays and express effectively in Non-verbal communication.(TL3)
C117.3	Differentiate the influence of their mother tongue while speaking English in JAM sessions and Telephonic conversations.(TL4)
C117.4	Develop professional communication and effective writing skills(TL3)
C117.5	Remember the usage of intensive listening for better comprehension.(TL2)

8. BEE LAB(EE108ES)

C118.1	Understand and remember the technical's involved in functioning and operations of instruments, power supplies and tools identification of components and values of devices (TL2)
C118.2	The student will analyze the concept of ohm's law , Kirchhoff's laws and resonance circuits(TL4)
C118.3	Observe the transient response of first order RL,RC,RLC network for D.C. excitation (TL3)
C118.4	Understand and performance of single phase transformer and its characteristics(TL2)
C118.5	To understand the operating principles and characteristics of D.C machine(TL2)
C118.6	To understand the operating principles and characteristics of A.C machine(TL2)

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C118.6	To understand the operating principles and characteristics of A.C machine(TL2)

I YEAR II SEM

1. MATHEMATICS- II(MA201BS)

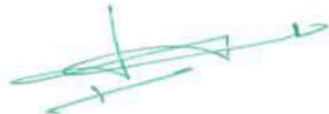
C121.1	Identify whether the given differential equation of first order is exact or not (TL2)
C121.2	Solve higher differential equation (TL3)
C121.3	Apply the concept of differential equation to real world problems(TL3)
C121.4	Evaluate the multiple integrals (TL4)
C121.5	Apply the concept to find areas and volumes ,centre of mass(TL3)
C121.6	Evaluate the line,surface and volume integralsand converting them from one to another(TL4)

2. APPLIED PHYSICS(AP202BS)

C122.1	The fundamental concepts on quantum behavior of matter(TL2)
C122.2	Gain the fundamental knowledge of semiconductor physics(TL2)
C122.3	Gain the fundamental knowledge of optoelectronics(TL2)
C122.4	Apply optoelectronic devices like solar cells, PIN and APD(TL3)
C122.5	Apply optoelectronic devices like LASER,LED in fiber optics communication(TL2)
C122.6	Learn the fundamental concepts of electromagnetism, dielectric and magnetic materials(TL2)

3. PROGRAMMING FOR PROBLEM SOLVING(CS203ES)

C123.1	Understand various steps in Program development and basic concepts in C Programming Language.(TL2)
C123.2	Understand arrays, strings, pointers and apply them for sorting, searching techniques and Differentiate structures and union concepts.(TL2)
C123.3	Ability to make use of preprocessor directives for file inclusion, macro definition conditional compilation.(TL1)
C123.4	Able to create, read and write to and from simple text and binary files.(TL3)
C123.5	Able to develop structured programs using functions and able to implement the concept of dynamic memory allocations.(TL3)
C123.6	Able to analyze the problem and their requirement for writing the algorithms.TL4


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I YEAR II SEM

1. MATHEMATICS- II(MA201BS)

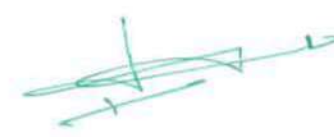
C121.1	Identify whether the given differential equation of first order is exact or not (TL2)
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C121.6	Evaluate the line,surface and volume integralsand converting them from one to another(TL4)

2. APPLIED PHYSICS(AP202BS)

C122.1	The fundamental concepts on quantum behavior of matter(TL2)
C122.2	Gain the fundamental knowledge of semiconductor physics(TL2)
C122.3	Gain the fundamental knowledge of optoelectronics(TL2)
C122.4	Apply optoelectronic devices like solar cells, PIN and APD(TL3)
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3. PROGRAMMING FOR PROBLEM SOLVING(CS203ES)

C123.1	Understand various steps in Program development and basic concepts in C Programming Language.(TL2)
C123.2	Understand arrays, strings, pointers and apply them for sorting, searching techniques and Differentiate structures and union concepts.(TL2)
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C123.4	Able to create, read and write to and from simple text and binary files.(TL3)
C123.5	Able to develop structured programs using functions and able to implement the concept of dynamic memory allocations.(TL3)
C123.6	Able to analyze the problem and their requirement for writing the algorithms.TL4


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4. ENGINEERING GRAPHICS(ME204ES)

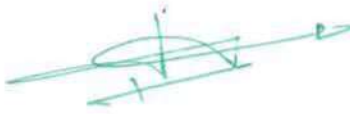
C124.1	Apply simple geometrical construction methods to construct various engineering curves and scales using the methods described in literature. (TL3)
C124.2	Apply principles of orthographic projections to draw two dimensional views of points, lines and planes considered in any angle.(TL3)
C124.3	Construct two dimensional views of prism and cylindrical solids considered in any position with respect to reference planes.(TL6)
C124.4	Construct two dimensional views of pyramid and cone considered in any position with respect to reference planes.(TL6)
C124.5	Sketch sectional views and development of surface of sectioned solids that are cut by various positions of section planes.(TL2)
C124.6	Outline various features of solid by viewing them from front, top & sides and also apply principles of isometric projections to draw three dimensional view of solids (TL2)

5. APPLIED PHYSICS LAB(AP205BS)

C125.1	Learn the laboratory course concept, analysis(TL1)
C125.2	Allows the students to develop experimental skills(TL1)
C125.3	Allows the students to design new experiments(TL1)
C125.4	Compare the theoretical and experimental results(TL4)
C125.5	Think to design experiments with latest technology (TL1)
C125.6	Estimate the errors and to minimize(TL4)

6. PROGRAMMING FOR PROBLEM SOLVING LAB(CS206ES)

C126.1	Able to formulate the algorithms for simple problems.(TL3)
C126.2	Able to translate given algorithms to a working and correct program.(TL3)
C126.3	Able to correct syntax errors as reported by the compilers and identify and correct logical errors encountered during execution.(TL3)
C126.4	Able to represent and manipulate data with arrays, strings and structures.(TL3)
C126.5	Able to demonstrate the use of pointers of different types and able to create, read and write to and from simple text and binary files.(TL3)
C126.6	Able to write the code to implement functions.(TL3)


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II YEAR I SEM

1. ANALOG AND DIGITAL ELECTRONICS(CS301ES)

COURSE NAME	COURSE OUTCOMES
C211.1	Ability to Analyze the characteristics of various components.(TL4)
C211.2	Understand the utilization of components.(TL2)
C211.3	Design and analyze small signal amplifier circuits.(TL3)
C211.4	Learn Postulates of Boolean algebra and to minimize combinational functions(TL1)
C211.5	Design and analyze combinational and sequential circuits(TL3)
C211.6	To Know about the logic families and realization of logic gates.(TL1)

2. DATA STRUCTURES (CS302PC)

COURSE NAME	COURSE OUTCOMES
C212.1	Understand the basic concepts of learn data structures to represent data items in real world problems. (TL1)
C212.2	Ability to Analyze the time and space complexities of algorithms.(TL1)
C212.3	Design programs using a variety of data structures such as stacks, queues .(TL6)
C212.4	Implement binary trees, Priority Queues, Heap data structure .(TL3)
C212.5	Analyze and implement various kinds of searching and sorting techniques. .(TL4)
C212.6	Understand graphs and balanced search trees.(TL2)

3. COMPUTER ORIENTED STATISTICAL METHODS (MA303BS)

COURSE NAME	COURSE OUTCOMES
C213.1	Apply mathematic logic to solve problems(TL3)
C213.2	Understand sets, relations, functions, and Discrete structures. .(TL2)
C213.3	Apply the concepts of probability and distributions to some case studies(TL2)
C213.4	Formulate problems and solve recurrence relations.(TL3)
C213.5	Model and solve real-world problems using graphs and trees.(TL3)
C213.6	Use logical notations to define fundamental mathematical concepts(TL1)

4. COMPUTER ORGANIZATION AND ARCHITECTURE (CS304PC)

COURSE NAME	COURSE OUTCOMES
C214.1	Apply knowledge of number system, codes and Boolean Algebra to the analysis and design of digital logic circuits.(TL3)
C214.2	Recognize and manipulate representations of numbers stored in digital computers.(TL2)
C214.3	Understand the basics of instructions sets and their impact on processor design (TL6)
C214.4	Evaluate cost performance and design trade-offs in designing and constructing a computerprocessor including memory. (TL2)
C214.5	Understand the basics of various memories. (TL1)
C214.6	Design a pipeline for consistent execution of instructions with minimum hazards. (TL2)

II YEAR I SEM

1. ANALOG AND DIGITAL ELECTRONICS(CS301ES)

COURSE NAME	COURSE OUTCOMES
C211.1	Ability to Analyze the characteristics of various components.(TL4)
C211.2	Understand the utilization of components.(TL2)
C211.3	Design and analyze small signal amplifier circuits.(TL3)
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C212.5	Analyze and implement various kinds of searching and sorting techniques. .(TL4)
C212.6	Understand graphs and balanced search trees.(TL2)

3. COMPUTER ORIENTED STATISTICAL METHODS (MA303BS)

COURSE NAME	COURSE OUTCOMES
C213.1	Apply mathematic logic to solve problems(TL3)
C213.2	Understand sets, relations, functions, and Discrete structures. .(TL2)
C213.3	Apply the concepts of probability and distributions to some case studies(TL2)
C213.4	Formulate problems and solve recurrence relations.(TL3)
C213.5	Model and solve real-world problems using graphs and trees.(TL3)
C213.6	Use logical notations to define fundamental mathematical concepts(TL1)

4. COMPUTER ORGANIZATION AND ARCHITECTURE (CS304PC)

COURSE NAME	COURSE OUTCOMES
C214.1	Apply knowledge of number system, codes and Boolean Algebra to the analysis and design of digital logic circuits.(TL3)
C214.2	Recognize and manipulate representations of numbers stored in digital computers.(TL2)
C214.3	Understand the basics of instructions sets and their impact on processor design (TL6)
C214.4	Evaluate cost performance and design trade-offs in designing and constructing a computerprocessor including memory. (TL2)
C214.5	Understand the basics of various memories. (TL1)
C214.6	Design a pipeline for consistent execution of instructions with minimum hazards. (TL2)

5. OBJECT ORIENTED PROGRAMMING USING C++ (CS305PC)

COURSE NAME	COURSE OUTCOMES
C215.1	solve real world problems using OOP techniques(TL3)
C215.2	Understand the use of packages and abstract classes.(TL2)
C215.3	Able to create user defined exceptions and handle them develop multithreaded applications with synchronization.(TL3)
C215.4	Able to solve problems using java collection framework and i/o classes.(TL3)
C215.5	Design applets for web applications and GUI based applications(TL6)
C215.6	Design GUI based applications(TL6)

6. DATA STRUCTURES LAB (CS307PC)

COURSE NAME	COURSE OUTCOMES
C216.1	Design programs using a variety of data structures such as stacks, queues. .(TL6)
C216.2	Implement binary trees, Priority Queues, heap data structures. .(TL3)
C216.3	Analyze various kinds of searching and sorting techniques. .(TL4)
C216.4	Implement graphs and balanced search trees. .(TL3)
C216.5	Implement time and space complexities of algorithms.(TL3)
C216.6	Implement hash table to solve various computing problems(TL3)

7. IT WORKSHOP (CS308PC)

COURSE NAME	COURSE OUTCOMES
C217.1	Apply knowledge for computer assembling and software installation(TL3)
C217.2	Solve trouble shooting problems(TL3)
C217.3	Learn tools for preparation of ppts(TL1)
C217.4	Learn tools for preparation of documentation(TL1)
C217.5	Learn tools for preparation of budget sheets(TL1)
C217.6	Learn installation of OS(TL1)

8. ANALOG AND DIGITAL ELECTRONICS LAB (CS306ES)

COURSE NAME	COURSE OUTCOMES
C218.1	Know the characteristics of various components.
C218.2	Understand the utilization of components.
C218.3	Design and analyze small signal amplifier circuits.
C218.4	Postulates of Boolean algebra and to minimize combinational functions
C218.5	Design and analyze combinational and sequential circuits
C218.6	Known about the logic families and realization of logic gates

5. OBJECT ORIENTED PROGRAMMING USING C++ (CS305PC)

COURSE NAME	COURSE OUTCOMES
C215.1	solve real world problems using OOP techniques(TL3)
C215.2	Understand the use of packages and abstract classes.(TL2)
C215.3	Able to create user defined exceptions and handle them develop multithreaded applications with synchronization.(TL3)
C215.4	Able to solve problems using java collection framework and i/o classes.(TL3)
C215.5	Design applets for web applications and GUI based applications(TL6)
C215.6	Design GUI based applications(TL6)

6. DATA STRUCTURES LAB (CS307PC)

COURSE NAME	COURSE OUTCOMES
C216.1	Design programs using a variety of data structures such as stacks, queues. .(TL6)
C216.2	Implement binary trees, Priority Queues, heap data structures. .(TL3)
C216.3	Analyze various kinds of searching and sorting techniques. .(TL4)
C216.4	Implement graphs and balanced search trees. .(TL3)
C216.5	Implement time and space complexities of algorithms.(TL3)
C216.6	Implement hash table to solve various computing problems(TL3)

7. IT WORKSHOP (CS308PC)

COURSE NAME	COURSE OUTCOMES
C217.1	Apply knowledge for computer assembling and software installation(TL3)
C217.2	Solve trouble shooting problems(TL3)
C217.3	Learn tools for preparation of ppts(TL1)
C217.4	Learn tools for preparation of documentation(TL1)
C217.5	Learn tools for preparation of budget sheets(TL1)
C217.6	Learn installation of OS(TL1)

8. ANALOG AND DIGITAL ELECTRONICS LAB (CS306ES)

COURSE NAME	COURSE OUTCOMES
C218.1	Know the characteristics of various components.
C218.2	Understand the utilization of components.
C218.3	Design and analyze small signal amplifier circuits.
C218.4	Postulates of Boolean algebra and to minimize combinational functions
C218.5	Design and analyze combinational and sequential circuits
C218.6	Known about the logic families and realization of logic gates

9. C++ PROGRAMMING LAB (CS309PC)

COURSE NAME	COURSE OUTCOMES
C218.1	Ability to develop applications for a range of problems using object-oriented programming techniques
C218.2	Understand object-oriented programming concepts using the C++ language.
C218.3	Implement the principles of data abstraction, inheritance and polymorphism;
C218.4	Implement the principles of virtual functions and polymorphism
C218.5	Implement handling formatted I/O and unformatted I/O
C2186	Implement exception handling

10. GENDER SENSITIZATION LAB (MC309)

COURSE NAME	COURSE OUTCOMES
C218.1	To developed a better understanding of important issues related to gender in contemporary India.
C218.2	To sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender.
C218.3	will attain a finer grasp of how gender discrimination works in our society and how to counter it.
C218.4	will acquire insight into the gendered division of labour and its relation to politics and economics.
C218.5	To develop a sense of appreciation of women in all walks of life.
C2186	Men and women students and professionals will be better equipped to work and live together as equals.

II YEAR II SEM**1. DISCRETE MATHEMATICS (CS401PC)**

COURSE NAME	COURSE OUTCOMES
C221.1	Ability to understand and construct precise mathematical proofs
C221.2	Ability to use logic and set theory to formulate precise statements
C221.3	Ability to analyze and solve counting problems on finite and discrete structures
C221.4	Ability to describe and manipulate sequences
C221.5	Ability to apply graph theory in solving computing problems
C221.6	Ability to learn the elementary discrete mathematics for computer science and engineering.

9. C++ PROGRAMMING LAB (CS309PC)

COURSE NAME	COURSE OUTCOMES
C218.1	Ability to develop applications for a range of problems using object-oriented programming techniques
C218.2	Understand object-oriented programming concepts using the C++ language.
C218.3	Implement the principles of data abstraction, inheritance and polymorphism;
C218.4	Implement the principles of virtual functions and polymorphism
C218.5	Implement handling formatted I/O and unformatted I/O
C2186	Implement exception handling

10. GENDER SENSITIZATION LAB (MC309)

COURSE NAME	COURSE OUTCOMES
C218.1	To developed a better understanding of important issues related to gender in contemporary India.
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C218.3	will attain a finer grasp of how gender discrimination works in our society and how to counter it.
C218.4	will acquire insight into the gendered division of labour and its relation to politics and economics.
C218.5	To develop a sense of appreciation of women in all walks of life.
C2186	Men and women students and professionals will be better equipped to work and live together as equals.

II YEAR II SEM**1. DISCRETE MATHEMATICS (CS401PC)**

COURSE NAME	COURSE OUTCOMES
C221.1	Ability to understand and construct precise mathematical proofs
C221.2	Ability to use logic and set theory to formulate precise statements
C221.3	Ability to analyze and solve counting problems on finite and discrete structures
C221.4	Ability to describe and manipulate sequences
C221.5	Ability to apply graph theory in solving computing problems
C221.6	Ability to learn the elementary discrete mathematics for computer science and engineering.

2. BUSINESS ECONOMICS & FINANCIAL ANALYSIS (SM402MS)

COURSE NAME	COURSE OUTCOMES
C222.1	To learn business types(TL1)
C222.2	Learn impact of the economy on business and firms specifically(TL1)
C222.3	To analyze the business from the financial perspective(TL2)
C222.4	To understand various forms of business(TL2)
C222.5	To understand the impact of economic variable on business(TL2)
C222.6	To analyze the financial statements of a company(TL2)

3. OPERATING SYSTEMS(CS403PC)

COURSE NAME	COURSE OUTCOMES
C223.1	Apply optimization techniques for the improvement of system performance. (TL3)
C223.2	list the synchronous and asynchronous communication mechanisms in their respective OS(TL1)
C223.3	Illustrate different Memory Management Techniques(TL3)
C223.4	Generating different page replacement algorithms(TL3)
C223.5	Designing File system Structure and compiling different Disk scheduling Algorithms(TL6)
C223.6	Distinguish between Deadlock Prevention, Avoidance and Recovery from Deadlock(TL4)

4. DATA BASE MANAGEMENT SYSTEMS (CS404PC)

COURSE NAME	COURSE OUTCOMES
C224.1	Demonstrate the basic elements of a relational database management system(TL3)
C224.2	Design entity relationship model and convert entity relationship diagrams into RDBMS and formulate SQL queries on the data(TL6)
C224.3	Identify need of schema refinement and Apply normalization techniques for the development of application software's.(TL3)
C224.4	Identify and apply the basics of Transaction management and Concurrency control.(TL2)
C224.5	Understanding various indexing techniques and basic database storage structures (TL2)
C224.6	Learn access techniques(TL1)

5. JAVA PROGRAMMING (CS405PC)

COURSE NAME	COURSE OUTCOMES
C225.1	Ability to solve real world problems using OOP techniques.(TL3)
C225.2	To understand the use of abstract classes.(TL2)
C225.3	Ability to solve problems using java collection framework and I/o classes.(TL2)
C225.4	Ability to develop multithreaded applications with synchronization.(TL3)
C225.5	Ability to develop applets for web applications.(TL3)
C225.6	Ability to design GUI based applications(TL3)

6.DBMS LAB(CS407PC)

COURSE NAME	COURSE OUTCOMES
C227.1	Design Data Base requirement specification with Entity Relationship Model.(TL6)
C227.2	Design Data Base schema using Relational Model.(TL6)
C227.3	Apply normalization techniques for development of application software to realistic problems (TL3)
C227.4	Formulate queries using SQL DML/DDDL/DCL commands.(TL3)
C227.5	Formulate simple triggers.(TL3)
C227.6	Create stored procedures and cursors.(TL3)

7.OS LAB(CS406PC)

COURSE NAME	COURSE OUTCOMES
C226.1	implement system that minimizes turnaround time, waiting time and response time and also maximize throughput by keeping CPU as busy as possible(TL3)
C226.2	create access controls to protect files (Directory Level)(TL3)
C226.3	Apply optimization techniques for the improvement of secondary memory allocation(TL3)
C226.4	design different memory management techniques (Main Memory)(TL6)
C226.5	Implement the virtual memory concepts(TL3)
C226.6	implementing the concepts of Deadlock prevention, occurrence and avoidance(TL3)

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8. JAVA PROGRAMMING LAB(CS408PC)

COURSE NAME	COURSE OUTCOMES
C228.1	Able to write programs for solving real world problems using java collection frame work.(TL3)
C228.2	Able to write programs using abstract classes.(TL3)
C228.3	Ability to write multithreaded programs.(TL3)
C228.4	To write GUI programs using swing controls in Java.(TL3)
C228.5	To introduce java compiler and eclipse platform.(TL1)
C228.6	To impart hands on experience with java programming.(TL2)


9. CONSTITUTION OF INDIA(MC409)

COURSE NAME	COURSE OUTCOMES
C228.1	Understand the meaning of the constitution law and constitutionalism(TL2)
C228.2	Learn Historical perspective of the Constitution of India(TL1)
C228.3	To know Salient features and characteristics of the Constitution of India(TL1)
C228.4	Understand the Scheme of the fundamental rights(TL2)
C228.5	Learn the scheme of the Fundamental Duties and its legal status(TL1)
C228.6	Learn the Directive Principles of State Policy – Its importance and implementation(TL1)

III YEAR I SEM

1. FORMAL LANGUAGES AND AUTOMATA THEORY (CS501PC)

COURSE NAME	COURSE OUTCOMES
C311.1	Able to understand the concept of abstract machines and their power to recognize the
C311.2	languages.(TL2)
C311.3	Able to employ finite state machines for modeling and solving computing problems.(TL1)
C311.4	Able to design context free grammars for formal languages.(TL3)
C311.5	Able to distinguish between decidability and undecidability.(TL4)
C311.6	To understand the differences between decidability and undecidability.(TL2)


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2. SOFTWARE ENGINEERING (CS502PC)

COURSE NAME	COURSE OUTCOMES
C312.1	Explain software engineering process, including view of process and process models methodologies and work flows.(TL2)
C312.2	Identify the requirements and differentiate functional requirements and nonfunctional requirements.(TL2)
C312.3	Make use of different system models through analysis of requirements and develop an appropriate software design.(TL1)
C312.4	Implement system design, domain model, architectural design and component level design using DFD and OOAD diagrams.(TL3)
C312.5	Identify different testing strategies and know more about product metrics.(TL2)
C312.6	Identify risk in the product by using different techniques and know how to maintain the quality of the product (TL2)

3. COMPUTER NETWORKS(CS503PC)

COURSE NAME	COURSE OUTCOMES
C313.1	Gain the knowledge of the basic computer network technology.(TL1)
C313.2	Gain the knowledge of the functions of each layer in the OSI and TCP/IP reference model.(TL1)
C313.3	Obtain the skills of subnetting and routing mechanisms.(TL1)
C313.4	Familiarity with the essential protocols of computer networks.(TL1)
C313.5	Apply in network design and implementation.(TL3)
C313.6	To understand the standard models for the layered approach to communication between machines in a network and the protocols of the various layers.(TL2)

4. WEB TECHNOLOGIES(CS504PC)

COURSE NAME	COURSE OUTCOMES
C314.1	Gain knowledge of client-side scripting, validation of forms and AJAX programming.(TL1)
C314.2	Understand server-side scripting with PHP language.(TL2)
C314.3	Understand what is XML and how to parse and use XML Data with Java.(TL2)
C314.4	To introduce Server-side programming with Java Servlets and JSP.(TL1)
C314.5	To introduce Server-side programming with Java Servlets and JSP.(TL1)
C314.6	To introduce Client-side scripting with Javascript and AJAX.(TL1)

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5. PRINCIPLES OF PROGRAMMING LANGUAGES(CS515PE)

COURSE NAME	COURSE OUTCOMES
C315.1	Introduce important paradigms of programming languages(TL1)
C315.2	To provide conceptual understanding of high-level language design and implementation(TL2)
C315.3	To understand the topics that include programming paradigms(TL2)
C315.4	To learn syntax and semantics; data types, expressions and statements; subprograms and blocks(TL1)
C315.5	Understand abstract data types; concurrency; functional and logic programming languages(TL2)
C315.6	Ability to learn the scripting languages(TL1)

6. INFORMATION RETRIEVAL SYSTEMS(CS523PE)

COURSE NAME	COURSE OUTCOMES
C316.1	Ability to apply IR principles to locate relevant information large collections of data(TL3)
C316.2	Ability to design different document clustering algorithms(TL3)
C316.3	Implement retrieval systems for web search tasks.(TL3)
C316.4	Design an Information Retrieval System for web search tasks(TL3)
C316.5	To learn the important concepts and algorithms in IRS(TL1)
C316.6	To understand the data/file structures that are necessary to design, and implement information(TL2)

7. SOFTWARE ENGINEERING LAB(CS505PC)

COURSE NAME	COURSE OUTCOMES
C317.1	Ability to develop a software project by using various software(TL3) engineering principles
C317.2	Understand methods in each of the phases of software development (TL2)
C317.3	Ability to translate end-user requirements into system and software requirements(TL2)
C317.4	Ability to generate a high-level design of the system from the software requirements(TL2)
C317.5	experience and/or awareness of testing problems(TL1)
C317.6	Able to develop a simple testing report(TL3)


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NAAC

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Subject: DYNAMICS OF MACHINERY

A.C.Y.2021-2022

Faculty Name: PRASANNA . P

Branch/Year: MECH/III.B.Tech-I-Sem

COURSE OUTCOMES:-

CO1: Understanding precession and gyroscopic effect on circular objects

CO2: Having knowledge on turning moment of the flywheel

CO3: knowledge on clutches, pivots, collars and brakes and dynamometers.

CO4: understanding the concept of governor and balancing

CO5: After understanding the various vibrations the shafts and beam how it
Deflect due to various loads.

MAPPING OF COURSE OUTCOMES WITH DEPARTMENT PROGRAM OUTCOMES

Sl.no	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS01	PS02
CO1	3	3	3	2	-	-	2	3	-	3	3	-	3	2
CO2	3	3	2	-	3	1	3	3	3	3	3	2	3	2
CO3	3	2	3	3	3	-	1	3	-	-	3	3	3	2
CO4	2	-	3	-	-	3	-	-	-	-	-	-	3	3
CO5	1	-	2	3	3	-	3	-	3	3	-	-	2	3
AVG	2.4	2.66	2.6	2.66	3	2	2.25	3	3	3	3	2.5	2.80	2.40

Faculty Signature

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AVN Institute of Engineering & Technology
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Ibrahimpattam (M), R.R. Dist., T.S.



Subject: DESIGN OF MACHINE MEMBERS-I

A.C.Y.2021-2022

Faculty Name: Dr A V HARI BABU

Branch/Year: MECH/III B.Tech-I-Sem

COURSE OUTCOMES:-

CO1: The student acquires the knowledge about the principles of design, material selection, component behavior subjected to loads, and criteria of failure. Able to understand the basic of designing of machine elements,

CO2: Understands the concepts of principal stresses, stress concentration in machine members and fatigue loading. Stresses occurring and overcoming the failure of the machine parts

CO3: Able to understand the fastening of the elements by means of rivets bolts and welded joints

CO4: analyze and able to understand the axially loaded parts such as keys, cotter joints and knuckle joints. Design on the basis of strength and rigidity and analyze the stresses and strains induced in a machine element.

CO5: Analysis of the loaded shafts and able to understand the types of stresses occurring in the shafts and couplings

MAPPING OF COURSE OUTCOMES WITH DEPARTMENT PROGRAM OUTCOMES

Sl.no	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
1	3	3	3	1	3	2	1	1	2	-	-	3
2	3	2	3	2	2	2	2	1	-	2	2	3
3	2	3	3	-	2	-	-	-	2	-	-	2
4	3	2	3	3	3	-	1	-	2	-	-	2
5	3	2	3	2	3	2	1	-	2	-	-	2
Avg	2.8	2.4	3	2	2.6	2	1.25	1	2	2	2	2.12

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Sub : English for Engineers

Subject code : EN105HS

Year/ Branch: I-I Sem

Regulation : R-18

COURSE OUTCOMES (COS):

	After learning the contents of this paper the student must be able to :
CO-1	Developing the language proficiency of students in English with an emphasis on vocabulary, grammar and pronunciation .
CO-2	Understand the given texts and respond appropriately.
CO-3	Communicate and integrate confidently in various contexts and different.
CO-4	Acquire basic proficiency in English in describing, reading, listening comprehension, writing and speaking skills.
CO-5	use English language effectively in spoken and written forms in both formal and informal situations

Mapping Matrix of CO's and PO's with PSO's

Course Outcome	Program Outcomes												Program specific Outcomes	
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2
CO1	1	3	2	2	1	3	3	3	2	3	2	2	3	3
CO2	1	3	3	3	1	2	3	2	3	3	2	3	-	-
CO3	2	2	2	2	1	2	2	2	3	3	2	3	3	3
CO4	1	3	3	2	1	3	2	3	2	3	2	3	-	3
CO5	1	2	2	3	1	3	3	3	3	3	2	2	-	
AVG	1.4	2.6	2.4	2.4	1	2.6	2.6	2.6	2.8	3	2	2.6	2.4	2.6

1: Slight(low)

2: Moderate(Medium)

3: Substantial

(-) : None


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Tirumala (M), P.R. Dist., T.S.



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NAAC

NATIONAL ASSOCIATION OF
ACADEMIC COUNCILS

Accredited with 'B++' Grade by NAAC

Subject: FINITE ELEMENT METHODS

A.C.Y.2021-2022

Faculty Name: PRASANNA . P

Branch/Year: MECH/III.B.Tech-II-Sem

COURSE OUTCOMES:-

CO1: Understand the meaning of FEM and solving of one dimensional problem

CO2: Analysis of Trusses and Beams by using Stiffness matrix

CO3: Analysis of Two Dimensional Stress and Axi-symmetric Solid subjected to Axi-symmetric loading

CO4: Analysis of steady state heat transfer of slab, fin and thin plate

CO5: Dynamic analysis and solving the problems using Eigen value and Eigen vector

MAPPING OF COURSE OUTCOMES WITH DEPARTMENT PROGRAM OUTCOMES

Sl.no	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	-	3	3	-	-	2	-	3	3	-
CO2	2	3	3	2	3	2	3	3	-	3	-	-
CO3	1	3	1	2	3	3	3	-	3	-	3	3
CO4	3	1	-	3	2	-	-	2	-	2	-	3
CO5	3	3	3	1	-	-	-	-	3	-	2	-
AVG	2.4	2.4	2.33	2.2	2.75	2.5	3	2.33	3	2.66	2.66	3

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NAAC

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Subject: KINEMATICS OF MACHINERY

A.C.Y.2021-2022

Faculty Name: Dr A V HARI BABU

Branch/Year: MECH/II B.Tech-II-Sem

COURSE OUTCOMES:-

CO1: Able to understand the types, relative motion between the elements of a machine

CO2: Analyse the velocity and acceleration of the machine member and able to understand the motion of the machine parts or elements

CO3: Analyse and able to understand different types of mechanism between a machine parts

CO4: Able to understand the motion of cams (angular) and follower (reciprocating and oscillating)

CO5: Analysis of the gears and using it for applying the motion on different machines.

MAPPING OF COURSE OUTCOMES WITH DEPARTMENT PROGRAM OUTCOMES

Sl.no	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	Pso1	Pso2
1	3	2	2	1	1	2	1	2	2	1	2	3	2	3
2	3	2	2	2	3	2	1	2	2	2	2	2	2	3
3	3	3	3	2	3	-		3	3	1	3	3	3	3
4	3	3	3	3	3	-	2	2	3	1	3	3	2	2
5	3	3	3	2	2	2	2	2	3	1	3	3	2	2
Avg	3	2.6	2.6	2	2.4	2	1.2	2.2	2.6	1.2	2.6	2.8	2.2	2.6

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Ibrahimpattam (M), R.R. Dist., T.S.



Subject: Metallurgy & Material Science

A.C.Y.2021-2022

Faculty Name: Mr.K.Kiran Kumar

Branch/Year: MECH/II B.Tech-I-Sem

UNIT WISE COURSE OUTCOMES:-

CO1: Know the fundamental science and engineering principles relevant to materials.

CO2: Understand the relationship between nano/microstructure, characterization, properties and processing and design of materials.


CO3: Have the experimental and computational skills for a professional career or graduate study in materials.

CO4: Expectation and capacity to undertake lifelong learning.

CO5: Possess knowledge of the significance of research, the value of continued learning and environmental/social issues surrounding materials.

MAPPING OF COURSE OUTCOMES WITH DEPARTMENT PROGRAM OUTCOMES

CO	DEPARTMENT PROGRAM OUTCOMES												PSO's	
	1	2	3	4	5	6	7	8	9	10	11	12	Ps01	Ps02
1	3	3	2	3	1	3	-	-	3	-	-	3	3	3
2	3	2	3	3	2	3	-	-	-	2	-	3	3	3
3	1	2	3	-	3	-	3	-	3	-	1	3	3	3
4	2	3	1	3	2	-	-	-	2	-	3	3	3	2
5	3	1	2	3	3	2	-	-	-	2	-	3	3	2
AVG	2.4	2.2	2.2	3.00	2.2	2.66	3.00	-	2.66	2.00	2.00	3.00	3.00	2.60


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DEPARTMENT OF CIVIL ENGINEERING

DEPARTMENT PROGRAM OUT COMES:-

At the end of the programme the students will have

1. An ability to apply knowledge of Mathematics, Science and Engineering Principles to the problems of Civil Engineering.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
4. An ability to identify, formulate and solve the problems in the field using modern engineering tools, software and equipment
5. An ability to function on multidisciplinary teams enabling them to pursue entrepreneurial ambitions.
6. An ability to identify, formulate, and solve engineering problems.
7. An understanding of professional and ethical responsibility.
8. An ability to communicate effectively.
9. A skill necessary to understand the impact of engineering solutions in a global and societal context.
10. Recognition of the need for and an ability to engage in life-long learning to become experts in the relevant fields and thereby becoming a successful entrepreneur or employee.
11. Knowledge of contemporary issues.
12. Ability to manage the projects and enhance research through engineering and management fundamentals.

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : BUILD MATERIAL AND CONSTRUCTION PLANING

UNIT WISE COURSE OUTCOMES:-

- CO1: To know basic idea about construction materials and their uses
- CO2 : To understand the importance of cement in construction field and manufacturing of cement. To understand the usage of admixtures and their key role in concrete.
- CO3: To learn about the main parts of a building and their internal and external functions
- CO4: To get general ideas about masonry works, formworks etc.
- CO5: : To understand the basic planning of a building and their rules and regulations while constructing a building.

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : CONCRETE TECHNOLOGY

UNIT WISE OUTCOMES:

CO 1. Explain the properties of the constituent materials of concrete and describe the physical & mechanical properties of aggregates

CO2. Study the behavior of concrete at its fresh state and carry out tests relevant to the use of concrete on site.

CO 3. Study the behavior of concrete at its hardened state, describe and carry out tests relevant to the use of concrete on site and explain factors affecting strength of concrete

CO4. Understand the factors influencing concrete mix & know the BIS method of mix design

CO5. Define special concretes, their application for practical purpose.

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : ENVIRONMENTAL ENGINEERING

UNIT WISE OUTCOMES:

- CO1: Forecast the population for designing of distribution system. Calculate the sufficient quantity of water for fire fighting in a town.
- CO2: Know the design considerations of intakes and infiltration galleries. Find optimum dosage of coagulant in sedimentation process
- CO3: Design water treatment plant units such as sedimentation tank and clarifiers and Filters.
- CO4: Understand various troubles in operation of filters and control measures. Design and analysis of distribution system and appurtenances in distribution system
- CO5: Estimate storm water and sewage and characteristics of sewage. Design skimming tank, grit chambers, sedimentation tank and trickling filters. Design sludge digestion tank, oxidation pond and working principles of septic tanks.

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NAAC
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ACCREDITATION COUNCIL

DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : ESTIMATION AND COSTING

UNIT WISE OUTCOMES:

- CO1: To understand the processes of estimation and methods of estimation
- CO2: To calculate estimation of buildings using long wall and short wall methods and also students will understand the concept of estimation of rec.
- CO3: To calculate the estimation of canals and roads.
- CO4: To analysis the rate of different constructions.
- CO5: To know the concept of contractor and valuation of buildings.

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : FLUID MECHANICS

UNIT WISE OUTCOMES:

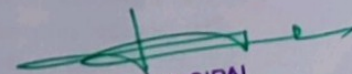
CO1: Apply conservation laws to derive governing equations of fluid flows.

CO2: Compute hydrostatic and hydrodynamic forces

CO3: Analyze and design simple pipe systems

CO4: Apply principles of dimensional analysis to design experiments

CO5: Compute drag and lift coefficients


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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : STRENGTH OF MATERIAL-II

UNIT WISE OUTCOMES:

CO1: Understand the Torsion of Circular Shafts and springs and Design

CO2: Understanding and Analyzing the Columns and Struts and Designing the columns for safe load

CO3: Compute the Direct and Bending Stresses in beams and introduction to curved beams

CO4: Understand and compute the stresses in Thin and Thick Cylinders

CO5: Concept of Unsymmetrical bending in beams and shear centre

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : WATER RESOURCES ENGINEERING

UNIT WISE OUTCOMES:

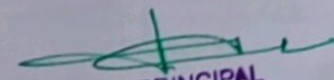
CO1: Understanding of theories and principles governing the hydrologic process.

CO2: Develop unit hydrograph and synthetic hydrograph

CO3: To ability to determine aquifer parameters and yield of wells.

CO4: : Estimate irrigation water requirements

CO5: Design irrigation canals, canal network and canal structures


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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : DISASTER MANAGEMENT

UNIT WISE COURSE OUTCOMES:-

CO1: To understand the concept of hazard and disaster and difference between them and major approaches to disaster management

CO2: To understand types of hazard- manmade and natural, types of disaster- manmade and natural, endogenous hazard, exogenous hazards

CO3: To understand the concept of endogenous hazard. Concept of earthquakes volcanoes landslides-formation global distribution, human adjustments and mitigation measures.

CO4: To ability to understand the exogenous hazard and their control measures mitigation and their outcomes.

CO5: To ability to understand the precautionary stages of disaster and how to overcome hazards and disasters and complete awareness about their mitigation measures.

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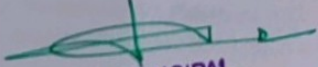
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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : ENGINEERING GEOLOGY

UNIT WISE COURSE OUTCOMES:-

- CO1: Understand the effects of weathering on dams, reservoirs and tunnels
- CO2: Identify the minerals based on their physical properties
- CO3: Understand the importance of various associated geological structures like folds, faults, joints and unconformities present at site for foundations.
- CO4: Select a suitable site for dams and reservoirs to avoid seepage, silting and tilting.
- CO5: Understand the structural and lithological considerations for tunnel construction to avoid leakage and falling of rock parts


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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : FOUNDATION ENGINEERING

UNIT WISE COURSE OUTCOMES:-

- CO1: To get Basic Idea about Soil Exploration.
- CO2: To Get General Idea of Slope Stability.
- CO3: To understand Earth Pressure Theories: Rankine's theory of earth pressure Coulomb's earth pressure theory, Retaining Walls.
- CO4: To get knowledge On Shallow Foundations And Pile Foundation.
- CO5: To understand the Well Foundations.

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : GROUND IMPROVEMENT TECHNIQUES

1. UNIT WISE COURSE OUTCOMES:-

COI. Apply knowledge on ground improvement techniques such as reinforced earth, drainage and dewatering and grouting techniques on stabilization of expansive soils.

COII. Impart knowledge of mechanical modification techniques such as deep compaction, blasting, vibro-compaction, dynamic tamping and compaction Piles.

COIII. Design of dewatering system which is treated as one of the ground improvement technique.

COIV. Familiarize with different ground improvement techniques for cohesive and granular soil.

COV. Understand the concept of reinforced earth, geo synthetics and soil reinforcement in ground improvement.

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : GROUND IMPROVEMENT TECHNIQUES

UNIT WISE COURSE OUTCOMES:-

CO1: To get Basic idea about sources of Pollution.

CO2: To Get General Idea of Primary Treatments of Wastewater

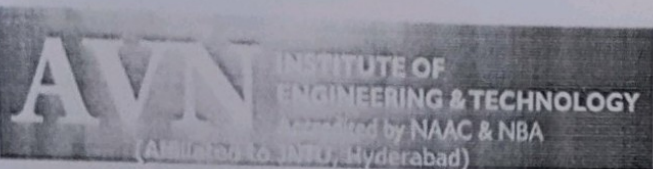
CO3: To understand the Treatment methods as given in Objective.

CO4: To get knowledge in Manufacturing process of Industries.

CO5: To ability to understand the Characteristics and Composition of Industries

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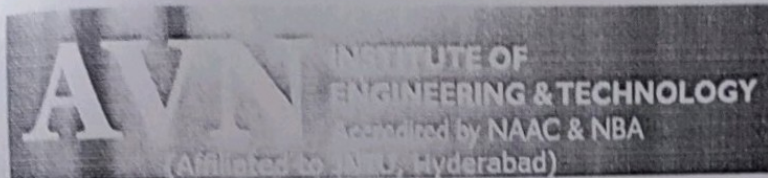
SUBJECT: PRESTRESSED CONCRETE TECHNOLOGY

UNIT WISE COURSE OBJECTIVES:-

- CO1:** Understand the concept of pre-stressing and the behavior of concrete structures.
- CO2:** Recognize the general principles, methods of pre-stressing, and pre-stressing devices for pre-tensioning and post tensioning.
- CO3:** Determine losses of prestress in pre-stressed concrete structures.
- CO4:** Apply the provisions of IS-1343(1980) code to the design of pre-stressed concrete structures for flexure and shear.
- CO5:** Design the shear reinforcements for pre-stressed concrete beams.

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SUBJECT: REINFORCED CONCRETE TECHNOLOGY

UNIT WISE COURSE OBJECTIVES:-

CO1: Be able to perform analysis and design of reinforced concrete members and connections..

CO2: . Able to analyze and design for shear, torsion and bond for structural members

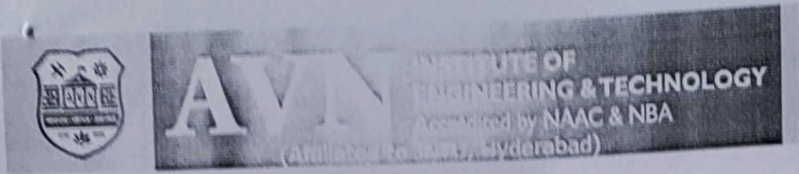
CO3: Able to identify and apply the applicable industry design codes relevant to the design of reinforced concrete members..

CO4: Able to analyze and design with detailing of reinforced concrete flexural members.

CO5: Able to analyze and design with detailing for footings and able to analyze transfer and development length of concrete reinforcement

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DEPARTMENT OF CIVIL ENGINEERING
STRUCTURAL ANALYSIS

UNIT WISE COURSE CONTENTS

CO1 : Moment distribution method, kani's methods of applications to portal frames, inclined frames with sway and non sway analysis.

CO2 : Slope deflection method, two hinged arches & their applications for frames with secondary stress

CO3 : Approximate methods of analysis are used to analysis the multi-storey frames with gravity loads

CO4 : Matrix methods of analysis are used to find the displacement and deflection of the frames and continuous beams

CO5 : Influence lines for indeterminate beams with variable moments & indeterminate trusses to determine static and kinematic indeterminacy

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DEPARTMENT OF CIVIL ENGINEERING

STRUCTURAL STRENGTH OF MATERIAL-I

UNIT WISE COURSE OBJECTIVES:-

CO1: To Compute Simple Stresses & Strains

CO2: To Analyze the beam stresses by drawing Shear Force & Bending Moment

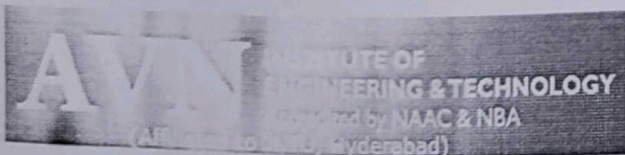
CO3: Computing the Shear Stresses in various Cross sections such as I, T, Circular, Angle Sections

CO4: To Compute the Slopes & Deflections in beams using Different methods

CO5: To compute the principal Stresses and Strains and Various theories of Failure

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DEPARTMENT OF CIVIL ENGINEERING

SUBJECT : SURVEYING

UNIT WISE COURSE OUTCOMES:

- CO1: To ability to understand the different concepts of surveying
- CO2: To ability to understand the different concepts of levelling, and measuring the areas
- CO3: To know the idea about theodolite and also finding the angles.
- CO4: finding the angles.
- CO5: to know the advanced technology in surveying.



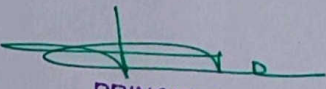
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DEPARTMENT OF CIVIL ENGINEERING
SUBJECT: TRANSPORTATION ENGINEERING

UNIT WISE COURSE OBJECTIVES

- CO1: An ability to apply the knowledge of mathematics, science and engineering in the areas of traffic engineering, highway development and maintenance
- CO2: An ability to design and conduct experiments to assess the suitability of the highway materials like soil, bitumen, aggregate, and a variety of bituminous mixtures. Also the students will develop the ability to interpret the results and assess the suitability of these materials for construction of highways.
- CO3: An ability to design flexible and rigid highway pavements for varying traffic compositions as well as soil sub grade and environmental conditions using the standards stipulated by Indian Roads Congress.
- CO4: An ability to evaluate the structural and functional conditions of in-service highway pavements and provide solution in the form of routine maintenance measures or designed overlays using Indian Roads Congress guidelines.
- CO5: An ability to assess the issues related to road traffic and provide engineering solutions supported with an understanding of road user psychological and behavioural patterns.


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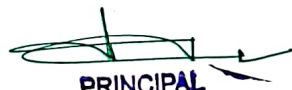
PATEL GUDA, IBRAHIMPETNAM (M), R.R.Dist. 501502, TS

WOMEN EMPOWERMENT CELL




PROGRAM OUTCOMES(POs):

S.NO	Graduate Attributes	PO Statements
PO1	Engineering knowledge	Apply the knowledge of mathematics and science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems
PO2	Problem analysis	Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO3	Design/ development of solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural social and environmental considerations
PO4	Conduct Investigations of complex problems	Use research-based knowledge and research methods including design of experiments analysis and implementation of data and synthesis of the information to provide valid conclusions
PO5	Modern tool usage	Create, select and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO6	The engineer and society	Apply reasoning informed by the contextual knowledge to assess social, health, safety, legal and culture issues and the consequent responsibilities relevant to the professional engineering practice
PO7	Environmental and Sustainability	Understand the importance of professional engineering solutions in social and environmental contexts, and demonstrate the knowledge of, and need for sustainable development


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PO8	Ethics	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO9	Individual and team work	Function can effectively as an individual and as a member or leader in diverse teams and multidisciplinary settings
PO10	Communication	Communications effectively on complex engineering activities with the engineering community and with society at large such as being able to comprehend and write effective reports and design documentation make effective presentation, and give and receive clear instructions
PO11	Project management and finance	Demonstrative knowledge and understanding the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and multidisciplinary environments
PO12	Lifelong learning	Recognize the need for and gave the preparation and ability to engage in independent and life- long learning in the broadcast context of technological change


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Name of the Subject : Business Economics & Financial Analysis

Subject Code : SM306MS

Year/Sem : II-I

Regulation : R18

Branch : AI&ML

CO1	Understand the relative importance of Business Economics and structure of Business Firms ranging from types, formation, entry and exit from markets and output decisions.
CO2	Be equipped with the tools for analyzing Demand and costs as well as in forecasting product demand and to develop critical and integrative thinking in the Analysis of consumer behavior
CO3	Able to identify key domestic as well as global economic factors and analyze the impact of fast changing global economic factors with domestic macroeconomic policies
CO4	To develop the students to understand the accounting language and to have a basic understanding of preparation of financial statement.
CO5	To assess the company profitability and financial position by using financial tools and techniques and to explore opportunities for future merger and acquisition and expansion

Name of the Subject: Computer Organization and Architecture


Subject Code: CS304PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(AI&ML)

CO1	Ability to Demonstrate and understanding of the design of the functional units of a digital computer system
CO2	Ability to design of control unit and Explain the instruction set, instruction formats
CO3	Addressing modes of CPU
CO4	Ability to Recognize and manipulate representations of numbers stored in digital computers and perform Basic arithmetic Operations.
CO5	Ability to analyze memory hierarchy and its impact on computer Cost/performance.


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Name of the Subject : Discrete Mathematics

Subject Code : CS401PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(AI&ML)

CO1	Illustrate various formal proof methods for validating the arguments
CO2	Discuss various types of relations, functions and algebraic structures
CO3	Apply counting techniques to solve computational problems
CO4	List various techniques to solve the recurrence relations
CO5	Justify the graph theory techniques to solve real world problems

Name of the Subject : Data Structure

Subject Code: CS302PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(AI&ML)

CO1	Understand the concept of ADT.
CO2	Ability to select the data structures that efficiently model the information in a problem.
CO3	Ability to assess efficiency trade-offs among different data structure implementations or combinations.
CO4	Implement and know the application of algorithms for sorting and pattern matching.
CO5	Design programs using a variety of data structures, including hash tables, binary and general tree structures, search trees, tries, heaps, graphs, and AVL-trees.

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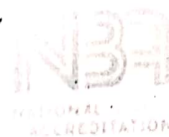
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Name of the Subject: Python Programming

Subject Code: CS311PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(AI&ML)

CO1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
CO2	Demonstrate proficiency in handling Threads, File and Exceptions.
CO3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions
CO4	Interpret the concepts of GUI and WEB Programming as used in Python.
CO5	Implement exemplary applications related to Database Programming with ORMin Python.

Name of the Subject: Mathematical and Statistical Foundations

Subject Code: MA313BS

Year/Sem : II-I

Regulation : R18

Branch : CSE(AI&ML)

CO1	Apply the number theory concepts to cryptography domain
CO2	Apply the concepts of probability and distributions to some case studies
CO3	Correlate the material of one unit to the material in other units
CO4	Resolve the potential misconceptions and hazards in each topic of study.

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PATEL GUDA, BHARHIMPATNAM (M), R.R. Dist. 501510, TS

Ph: 9449101201, 9449101202, Email: avnprincipal@gmail.com



Name of the Subject: Python Programming Lab

Subject Code : CS312PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(AI&ML)

CO1	Students should be able to understand the basic concepts of scripting and the contribution of scripting language
CO2	Examine the core data structures like lists, dictionaries, tuples and set in Python to store, process and sort the data.
CO3	Identify the external modules and import specific methods from them.
CO4	Demonstrate proficiency in handling Strings and File Systems.
CO5	Ability to explore Python especially the object oriented concepts, and the built-in objects of Python.

Name of the Subject: Data Structures Lab

Subject Code: CS307PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(AI&ML)

CO1	Appreciate the importance of structure and Abstract datatype, and their basic usability in different applications.
CO2	Able to implement linear and non-linear data structures using linked lists.
CO3	Able to understand and apply various data structures such as stacks, queues, trees, graphs etc. To solve various computing problems.
CO4	Able to implement various kinds of searching and sorting techniques, and decide when to choose which technique.
CO5	Able to identify and use a suitable data structure and algorithm to solve a real world problem.


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Ph No: 0875 20114 www.avn.ac.in Email: avn@prn.in@gmail.com



Name of the Subject : DatabaseManagementSystems

Subject Code : CS404PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(AI&ML)

CO1	Define the basic concepts of database management systems
CO2	Ability to design entity relationship model and convert entity relationship diagrams into RDBMS and formulate SQL queries on the data.
CO3	Able to demonstrate transaction processing and concurrency control
CO4	Able to apply normalization technique for schema refinement
CO5	Ability to compare different storage structures

Name of the Subject: Object Oriented Programming using Java

Subject Code :CS405PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(AI&ML)

CO1	Able to Define OOPs concepts & basics of java programming
CO2	Able to Identify the use of classes, interface, packages in solving specific problems
CO3	Able to Analyze the use of Single threading and multithreading programs using synchronization and handle the exceptions to increase the performance of program.
CO4	Able to know the importance of collection framework in developing effective programs.
CO5	Analyseand Design GUI based applications using swings and applets

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Name of the Subject :OperatingSystem

Subject Code :CS403PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(AI&ML)

CO1	Able to explain the basic concepts of operating systems
CO2	Able to compare different process scheduling algorithms and interpret the concurrency problem to overcome it by using different solutions
CO3	Able to estimate the memory allocated for a process
CO4	Able to interpret the structure of a file system and disk and also able to manage them
CO5	Able to analyze sharing of resources among multiple processes in order to detect, prevent and avoid a deadlock

Name of the Subject:SoftwareEngineering

Subject Code:CS417PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(AI&ML)

CO1	Able to define software engineering process and practices, and demonstrate various process models
CO2	Able to identify different types of risks in software development
CO3	Able to distinguish different testing strategies and it's working
CO4	Able to Estimate the quality of software process
CO5	Able to develop the SRS document for project.


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Bharhimpattam (M), R.R. Dist., T.S.



AVN INSTITUTE OF ENGINEERING & TECHNOLOGY

PATEL GUDA, IBRAHIMPATNAM (M), R.R.Dist. 501510, TS

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Name of the Subject : Formal Languages and Automata Theory

Subject Code : CS416PC

Year/Sem : II-II

Regulation : R18

Branch : CSE(AI&ML)

CO1	Able to understand the concept of abstract machines and their power to recognize the languages.
CO2	Able to employ finite state machines for modeling and solving computing problems.
CO3	Able to design context free grammars for formal languages
CO4	Able to distinguish between decidability and undecidability.
CO5	Able to gain proficiency with mathematical tools and formal methods.

Name of the Subject : Database Management Systems Lab

Subject Code : CS407PC

Year/Sem : II-II

Regulation : R18

Branch : CSE(AI&ML)

CO1	Able to choose appropriate database schema for a given problem
CO2	Able to design an E-R model for real world problem
CO3	Able to develop relational model for schema refinement
CO4	Able to build a database for roadway travels and formulate queries using DDL, DML, DCL commands
CO5	Able to create triggers, cursors for given problem

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Ibrahimpattam (M), R.R. Dist., T.S.

Name of the Subject :Operating System Lab

Subject Code : CS406PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(AI&ML)

CO1	Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management. .
CO2	Able to implement C programs using Unix system calls

Name of the Subject :JavaProgrammingLab

Subject Code :CS408PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(AI&ML)

CO1	Able to apply OOP in problem solving and develop basic programs.
CO2	Able to develop basic programs on multithreading and exception handling
CO3	Able to implement code for accessing the information from files
CO4	Able to implement code for data structures and sorting techniques
CO5	Able to create GUI based applications using swings and applets



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AVN Institute of Engineering & Technology
Mangalagiri (V), Patalguda (MP),
Tirumalpatnam (M), R.R. Dist., T.S.



DEPARTMENT OF CYBER SECURITY

Name of the Subject: Computer Organization and Architecture

Subject Code: CS304PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(CS)

CO1	Ability to Demonstrate and understanding of the design of the functional units of a digital computer system
CO2	Ability to design of control unit and Explain the instruction set, instruction formats
CO3	Addressing modes of CPU
CO4	Ability to Recognize and manipulate representations of numbers stored in digital computers and perform Basic arithmetic Operations.
CO5	Ability to analyze memory hierarchy and its impact on computer Cost/performance.

Name of the Subject: Data Structure

Subject Code: CS302PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(CS)

CO1	Understand the concept of ADT.
CO2	Ability to select the data structures that efficiently model the information in a problem.
CO3	Ability to assess efficiency trade-offs among different data structure implementations or combinations.
CO4	Implement and know the application of algorithms for sorting and pattern matching.
CO5	Design programs using a variety of data structures, including hash tables, binary and general tree structures, search trees, tries, heaps, graphs, and AVL-trees.

Name of the Subject : Analog and Digital Electronics

Subject Code :CS301ES

Year/Sem : II-I

Regulation : R18

Branch :CSE(CS)

CO1	Differentiate various components and devices with characteristics.
CO2	Analyze and design various transistor amplifiers using BJTs and FETs.
CO3	Utilize the postulates of the Boolean Algebra to minimize the Combinational circuits.
CO4	Design and Analyze Combinational and Sequential circuits.
CO5	Design the logic gates using different Logic families.

Name of the Subject: Python Programming

Subject Code: CS311PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(CS)

CO1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
CO2	Demonstrate proficiency in handling Threads, File and Exceptions.
CO3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions
CO4	Interpret the concepts of GUI and WEB Programming as used in Python
CO5	Implement exemplary applications related to Database Programming with OR Min Python.

Name of the Subject:Mathematical and Statistical Foundations

Subject Code: MA313BS

Year/Sem :II-I

Regulation : R18

Branch :CSE(CS)

CO1	Apply the number theory concepts to cryptography domain
CO2	Apply the concepts of probability and distributions to some case studies
CO3	Correlate the material of one unit to the material in other units
CO4	Resolve the potential misconceptions and hazards in each topic of study.

Name of the Subject: Python Programming Lab

Subject Code : CS312PC

Year/Sem : II-I

Regulation : R18

Branch :CSE(CS)

CO1	Student should be able to understand the basic concepts scripting and the contributions of scripting language
CO2	Examine the core data structures like lists, dictionaries, tuples and set in Python to store, process and sort the data.
CO3	Identify the external modules and import specific methods form them
CO4	Demonstrate proficiency in handling Strings and File Systems.
CO5	Ability to explore python especially the object oriented concepts, and the built in objects of Python.

Name of the Subject : Analog and Digital Electronics Lab

Subject Code :CS301ES

Year/Sem : II-I

Regulation : R18

Branch :CSE(CS)

CO1	Design and test rectifiers with filters
CO2	Design, construct and test amplifier circuits and interpret the results.
CO3	Utilize the postulates of the Boolean Algebra to minimize the Combinational circuits.
CO4	Design and Analyze Combinational and Sequential circuits and verify the functionality.
CO5	Realize the logic gates using different Logic families and verify the functionality.

Name of the Subject: Data Structures Lab

Subject Code: CS307PC

Year/Sem : II-I

Regulation : R18

Branch :CSE(CS)

CO1	Appreciate the importance of structure and Abstract data type, and their basic usability in different applications.
CO2	Able to implement linear and non-linear data structures using linked lists.
CO3	Able to understand and apply various data structures such as stacks, queues, trees, graph setc. To solve various computing problems.
CO4	Able to implement various kinds of searching and sorting techniques, and decide when to choose which technique.
CO5	Able to identify and use a suitable data structure and algorithm to solve a real world problem.

Name of the Subject: IT Workshop

Subject Code: CS308PC

Year/Sem : II-I

Regulation : R18

Branch :CSE(CS)

CO1	Apply knowledge for computer assembling and software installation and solve trouble shooting problems
CO2	Ability to effectively use of internet and World Wide Web
CO3	Ability to effectively use of internet, and web browsers
CO4	Apply the tools for documentation
CO5	Apply the tools for ppt, Budget sheet etc

Name of the Subject: Business Economics & Financial Analysis Subject Code : SM402MS

Year/Sem: II-II

Regulation : R18

Branch : CSE(CS)

CO1	Understand the relative importance of Business Economics and structure of Business Firms ranging from types, formation, entry and exit from markets and output decisions.
CO2	Be equipped with the tools for analyzing Demand and costs as well as in forecasting product demand and to develop critical and integrative thinking in the Analysis of consumer behavior
CO3	Able to identify key domestic as well as global economic factors and analyze the impact of fast changing global economic factors with domestic macroeconomic policies
CO4	To develop the students to understand the accounting language and to have a basic understanding of preparation of financial statement.
CO5	To assess the company profitability and financial position by using financial tools and techniques and to explore opportunities for future merger and acquisition and expansion

Name of the Subject : Discrete Mathematics

Subject Code : CS401PC

Year/Sem : II-II

Regulation : R18

Branch : CSE(CS)

CO1	Illustrate various formal proof methods for validating the arguments
CO2	Discuss various types of relations, functions and algebraic structures
CO3	Apply counting techniques to solve computational problems
CO4	List various techniques to solve the recurrence relations
CO5	Justify the graph theory techniques to solve real world problems

Name of the Subject :OperatingSystem

Subject Code :CS403PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(CS)

C01	Able to explain the basic concepts of operating systems
C02	Able to compare different process scheduling algorithms and interpret the concurrency problem to overcome it by using different solutions
C03	Able to estimate the memory allocated for a process
C04	Able to interpret the structure of a file system and disk and also able to manage them
C05	Able to analyze sharing of resources among multiple processes in order to detect, prevent and avoid a deadlock

Name of the Subject:Object Oriented Programming using Java

Subject Code :CS412PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(CS)

C01	Able to Define OOPs concepts & basics of java programming
C02	Able to Identify the use of classes, interface, packages in solving specific problems
C03	Able to Analyze the use of Single threading and multithreading programs using synchronization and handle the exceptions to increase the performance of program.
C04	Able to know the importance of collection framework in developing effective programs.
C05	Analyze and Design GUI based applications using swings and applets

Name of the Subject : ComputerNetworks

Subject Code : CS414PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(CS)

CO1	Define Network and its components
CO2	Illustrate the functionality of OSI and TCP/IP reference models
CO3	Compare different network layer protocols
CO4	Evaluate Architecture for Application layer protocols
CO5	Choose appropriate protocol for desired communication service

Name of the Subject : ComputerNetworksLab

Subject Code : CS415PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(CS)

CO1	Ability to implement error detection techniques.
CO2	Ability to apply appropriate algorithm for finding of shortest route.
CO3	Ability to configure the routing table.
CO4	Ability to understand the encryption and decryption concepts in Linux environment
CO5	Ability to implement client/server communication

Name of the Subject :JavaProgrammingLab

Subject Code :CS408PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(CS)

C01	Able to apply OOP in problem solving and develop basic programs.
C02	Able to develop basic programs on multithreading and exception handling
C03	Able to implement code for accessing the information from files
C04	Able to implement code for data structures and sorting techniques
C05	Able to create GUI based applications using swings and applets

Name of the Subject :Operating System LabSubject Code : CS406PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(CS)

C01	Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management. .
C02	Able to implement C programs using Unix system calls



DEPARTMENT OF DATA SCIENCE

Name of the Subject :Business Economics &Financial Analysis

Subject Code : SM306MS

Year/Sem :II-I

Regulation : R18

Branch :CSE(DS)

CO1	Understand the relative importance of Business Economics and structure of Business Firms ranging from types, formation, entry and exit from markets and output decisions.
CO2	Be equipped with the tools for analyzing Demand and costs as well as in forecasting product demand and to develop critical and integrative thinking in the Analysis of consumer behavior
CO3	Able to identify key domestic as well as global economic factors and analyze the impact of fast changing global economic factors with domestic macroeconomic policies
CO4	To develop the students to understand the accounting language and to have a basic understanding of preparation of financial statement.
CO5	To assess the company profitability and financial position by suing financial tools and techniques and to explore opportunities for future merger and acquisition and expansion

Name of the Subject: Computer Organization and Architecture

Subject Code: CS304PC

Year/Sem : II-I

Regulation : R18

Branch :CSE(DS)

CO1	Abilityto Demonstrateand understandingof thedesign of the functional units of a digital computersystem
CO2	Abilityto designofcontrol unit and Explain the instructionset,instructionformats
CO3	Addressingmodes ofCPU
CO4	Abilityto Recognize andmanipulate representations of numbersstored in digitalcomputersandperformBasicarithmeticOperations.
CO5	Abilitytoanalyze memoryhierarchyand its impact on computerCost/performance.

Name of the Subject :DiscreteMathematics

Subject Code :CS310PC

Year/Sem :II-I

Regulation : R18

Branch :CSE(DS)

CO1	Illustrate various formal proof methods for validating the arguments
CO2	Discuss various types of relations, functions and algebraic structures
CO3	Apply counting techniques to solve computational problems
CO4	List various techniques to solve the recurrence relations
CO5	Justify the graph theory techniques to solve real world problems

Name of the Subject : DataStructure

Subject Code: CS302PC

Year/Sem : II-I

Regulation : R18

Branch :CSE(DS)

CO1	Understand theconceptofADT.
CO2	Abilityto select thedatastructures that efficientlymodel the information in a problem.
CO3	Abilitytoassess efficiencytrade-offs amongdifferent datastructureimplementations orcombinations.
CO4	Implementand know theapplication of algorithms forsorting andpatternmatching.
CO5	Designprogramsusing avarietyof datastructures, includinghash tables,binary andgeneraltreestructures, searchtrees, tries, heaps,graphs,andAVL-trees.

Name of the Subject: Python Programming

Subject Code: CS311PC

Year/Sem : II-I

Regulation : R18

Branch : CSE(DS)

CO1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
CO2	Demonstrate proficiency in handling Threads, File and Exceptions.
CO3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions
CO4	Interpret the concepts of GUI and WEB Programming as used in Python
CO5	Implement exemplary applications related to Database Programming with ORMin Python.

Name of the Subject: Mathematical and Statistical Foundations

Subject Code: MA313BS

Year/Sem : II-I

Regulation : R18

Branch : CSE(DS)

CO1	Apply the number theory concepts to cryptography domain
CO2	Apply the concepts of probability and distributions to some case studies
CO3	Correlate the material of one unit to the material in other units
CO4	Resolve the potential misconceptions and hazards in each topic of study.

Name of the Subject: PythonProgrammingLab

Subject Code : CS312PC

Year/Sem : II-I

Regulation : R18

Branch :CSE(DS)

CO1	Studentshouldbeabletounderstandthebasicconceptsscriptingandthecontributionsofscriptinglanguage
CO2	Examinethecoredata structureslikelists,dictionaries,tuplesandsetin Pythontostore,processand sort the data.
CO3	Identifythe external modulesand import specificmethods formthem
CO4	Demonstrate proficiency in handlingStringsand File Systems.
CO5	Abilitytoexplorepython especiallythe object oriented concepts, and thebuilt in objects of Python.

Name of the Subject:Data Structures Lab

Subject Code: CS307PC

Year/Sem : II-I

Regulation : R18

Branch :CSE(DS)

CO1	Appreciate the importance ofstructure and Abstract datatype, and their basic usabilityin differentapplications.
CO2	Ableto implementlinearandnon-linear data structures using linked lists.
CO3	Able to understandandapplyvarious data structures such asstacks,queues,trees,graphsetc.Tosolve variouscomputingproblems.
CO4	Ableto implementvarious kinds ofsearching and sortingtechniques, anddecide when to choosewhichtechnique.
CO5	Ableto identifyand useasuitable datastructureandalgorithm to solve areal world problem.

Name of the Subject : DatabaseManagementSystems

Subject Code : CS404PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(DS)

CO1	Define the basic concepts of database management systems
CO2	Ability to design entity relationship model and convert entity relationship diagrams into RDBMS and formulate SQL queries on the data.
CO3	Able to demonstrate transaction processing and concurrency control
CO4	Able to apply normalization technique for schema refinement
CO5	Ability to compare different storage structures

Name of the Subject:Object Oriented Programming using Java

Subject Code :CS412PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(DS)

CO1	Able to Define OOPs concepts & basics of java programming
CO2	Able to Identify the use of classes, interface, packages in solving specific problems
CO3	Able to Analyze the use of Single threading and multithreading programs using synchronization and handle the exceptions to increase the performance of program.
CO4	Able to know the importance of collection framework in developing effective programs.
CO5	Analyze and Design GUI based applications using swings and applets

Name of the Subject :OperatingSystem

Subject Code :CS403PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(DS)

CO1	Able to explain the basic concepts of operating systems
CO2	Able to compare different process scheduling algorithms and interpret the concurrency problem to overcome it by using different solutions
CO3	Able to estimate the memory allocated for a process
CO4	Able to interpret the structure of a file system and disk and also able to manage them
CO5	Able to analyze sharing of resources among multiple processes in order to detect, prevent and avoid a deadlock

Name of the Subject:SoftwareEngineering

Subject Code:CS417PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(DS)

CO1	Able to define software engineering process and practices, and demonstrate various process models
CO2	Able to identify different types of risks in software development
CO3	Able to distinguish different testing strategies and it's working
CO4	Able to Estimate the quality of software process
CO5	Able to develop the SRS document for project.

Name of the Subject : Formal Languages and Automata Theory

Subject Code : CS416PC

Year/Sem : II-II

Regulation : R18

Branch : CSE(DS)

CO1	Able to understand the concept of abstract machines and their power to recognize the languages.
CO2	Able to employ finite state machines for modeling and solving computing problems.
CO3	Able to design context free grammars for formal languages
CO4	Able to distinguish between decidability and undecidability.
CO5	Able to gain proficiency with mathematical tools and formal methods.

Name of the Subject : Database Management Systems Lab

Subject Code : CS407PC

Year/Sem : II-II

Regulation : R18

Branch : CSE(DS)

CO1	Able to choose appropriate database schema for a given problem
CO2	Able to design an E-R model for real world problem
CO3	Able to develop relational model for schema refinement
CO4	Able to build a database for roadway travels and formulate queries using DDL, DML, DCL commands
CO5	Able to create triggers, cursors for given problem

Name of the Subject :Operating System Lab

Subject Code : CS406PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(DS)

CO1	Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management. .
CO2	Able to implement C programs using Unix system calls

Name of the Subject :JavaProgrammingLab

Subject Code :CS408PC

Year/Sem :II-II

Regulation : R18

Branch :CSE(DS)

CO1	Able to apply OOP in problem solving and develop basic programs.
CO2	Able to develop basic programs on multithreading and exception handling
CO3	Able to implement code for accessing the information from files
CO4	Able to implement code for data structures and sorting techniques
CO5	Able to create GUI based applications using swings and applets

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DEPARTMENT OF HUMANITIES AND SCIENCES**Subject: Basic Electrical Engineering(BEE)****Academic Year: 2021-2022****Faculty Name: Mr.Syed Moinuddin****Branch/Year:CSE/I.B.Tech-I-Sem****DEPARTMENT PROGRAM OUT COMES:**

At the end of the program the students will have

1. Ability to apply knowledge of and engineering principles to the problems in Electrical and Electronics Engineering domain.
2. Ability to design and conduct experiments, as well as to analyze and interpret data.
3. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
4. Ability to design a system, component, or process to meet desired goals in their domain considering environmental, social and ethical aspects.
5. Ability to function on multidisciplinary teams.
6. Ability to identify, formulate and solve engineering problems.
7. Understanding of professional and ethical responsibility.
8. Ability to communicate effectively.
9. Ability to understand the impact of software solutions in a global, environmental and societal context.
10. Ability to realize the need to engage in life-long learning.
11. Knowledge of contemporary issues.
12. Ability to manage the projects in the relevant areas of Electrical and Electronics Engineering and enhance research through engineering and management principles.

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AVN Institute of Engineering & Technology

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Ibrahimpattanam (M), R.R. Dist., T.S.

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UNIT WISE COURSE OUTCOMES:-**CO1:**

At the end of this unit, the students gets knowledge To analyze and solve electrical circuits using network laws and theorems.

CO2:

After completion of unit-2, the student understands the process To understand and analyze basic Electric and Magnetic circuits

CO3:

At the end of the unit, the student will be able to .To study the working principles of Electrical Machines, transformers operation and principles

CO4:

The student understands the study the working working principles of Electrical Machines, like dc generator ,3-phase induction motor, 1-phase induction motor

CO5:

In this unit the fundamentals introduce components of Low Voltage Electrical Installations

MAPPING OF COURSE OUTCOMES WITH DEPARTMENT PROGRAM OUTCOMES

Sl.no	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	1	1	3	1	1	1	3	1	3
CO2	3	2	3	2	2	1	1	1	1	2	1	3
CO3	3	2	2	3	3	1	1	1	1	3	1	2
CO4	3	3	3	2	3	1	1	1	1	3	1	2
CO5	- 3	2	3	2	3	1	1	1	1	2	1	3
AVG	3	2.6	2.6	2	2.4	1.4	1	1	1	2.6	1	2.6

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Ibrahimpattam (M), R.R. Dist., T.S.

Head of the Department
Humanities & Sciences
AVN Institute of Engineering & Technology
Mangalpally (V), Patelguda (MP),
Ibrahimpattam (M), R.R. Dist., T.S.

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Sub : MATHEMATICS-1**Subject code :MA101BS****Year/ Branch: I-I Sem****Regulation :R-18****DEPARTMENT PROGRAM OUT COMES:****At the end of the program the students will have**

1. Ability to apply knowledge of and engineering principles to the problems in Department Of Humanities And Sciences domain.
2. Ability to design and conduct experiments, as well as to analyze and interpret data.
3. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
4. Ability to design a system, component, or process to meet desired goals in their domain considering environmental, social and ethical aspects.
5. Ability to function on multidisciplinary teams.
6. Ability to identify, formulate and solve engineering problems.
7. Understanding of professional and ethical responsibility.
8. Ability to communicate effectively.
9. Ability to understand the impact of software solutions in a global, environmental and societal context.
10. Ability to realize the need to engage in life-long learning.
11. Knowledge of contemporary issues.
12. Ability to manage the projects in the relevant areas of Electrical and Electronics Engineering and enhance research through engineering and management principles.

COURSEOUTCOMES (COS):

	After learning the contents of this paper the student must be able to
CO-1	At the end of this unit, the students will be able to write the matrix representation of a set of linear equations and to analyze the solution of the system of equations.
CO-2	At the end of this unit, the students gets knowledge to find the Eigen values and Eigen vectors and also reduce the quadratic form to canonical form using orthogonal Transformation.
CO-3	After completion of 3 rd unit the student understands the process of sequences and series.
CO-4	Knowledge of mean value theorems, and evaluate improper integrals using Beta and Gamma function
CO-5	To find extreme values of functions of two variables

Mapping Matrix of CO's and PO's

COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

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Bhopal, Madhya Pradesh, India. Distt. T.S.

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National Assessment and
Accreditation Council

CO-1	3	2	3	3	-	-	-	-	-	-	-	2
CO-2	2	3	3	3	-	-	-	-	-	-	-	-
CO-3	3	3	3	3	-	-	-	-	-	-	-	-
CO-4	2	3	3	3	-	-	-	-	-	-	-	-
CO-5	2	2	2	3	-	3	-	-	3	-	-	2
AVG	2.4	2.6	2.8	3	-	0.6	-	-	0.6	-	-	0.8

1: Slight(low)**2: Moderate(Medium)****3:Substantial****(-) :None**

Head of the Department
Humanities Sciences
AVN Institute of Engineering & Technology
Mangalpally (V), Patalguda (MP),
Ibrahimpatnam (M), R.R. Dist., T.S.

Sub : ODE And Vector Calculus**Subject code : MA201BS****Year/ Branch: I-II Sem****Regulation :R-18****COURSEOUTCOMES (COS):**

	After learning the contents of this paper the student must be able to
CO-1	Analyse the solutions of ode's of first order having first degree and higher degree
CO-2	Analyse the solutions of ode's of first order but not first degree
CO-3	Obtain the general and particular solutions of homogenous and non homogenous higher order ode's
CO-4	Determine the multiple integrals and can apply these concepts to find areas, volumes , mass and centre of gravity etc of regions on a plane or in space
CO-5	Demonstrate an understanding of vector differentiation

Mapping Matrix of CO's and PO's with PSO's

COURSE OUTCOMES	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	3	2	3	2	3	-	-	-	-	-	-	2
CO-2	3	3	3	3	2	-	-	-	-	-	-	-

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CO-3	3	2	2	3	3	-	-	-	-	-	-	1
CO-4	2	3	2	3	3	-	-	-	1	-	-	-
CO-5	2	2	3	2	2	-	-	-	-	-	-	1
AVG	2.6	2.4	2.6	2.6	2.6	-	-	-	0.2	-	-	0.8

1: Slight(low)

2: Moderate(Medium)

3:Substantial

(-) :None

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