



DADI INSTITUTE OF ENGINEERING & TECHNOLOGY

An Autonomous Institute

Approved by AICTE & Permanently affiliated to JNTU GV

Accredited by NAAC with 'A' Grade and Inclusion u/s 2(f) & 12(B) of UGC Act

An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Institute.

NH-16, Anakapalle - 531002, Visakhapatnam, A.P.

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EVEN SEM 2024-25

COMPUTER NETWORKS

- Demonstrate different network models for networking links OSI, TCP/IP, B-ISDN, N-BISDN and get knowledge about various communication techniques, methods and protocol standards.
- Discuss different transmission media and different switching networks.
- Analyze data link layer services, functions and protocols like HDLC and PPP.
- Compare and Classify medium access control protocols like ALOHA, CSMA, CSMA/CD, CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols

DEEP LEARNING

- Demonstrate the fundamental concepts learning techniques of Artificial Intelligence, Machine
- Discuss the Neural Network training, various random models.
- Explain the Techniques of Keras, TensorFlow, Theano and CNTK
- Classify the Concepts of CNN and RNN
- Implement Interactive Applications of Deep Learning.

DESIGN & ANALYSIS OF ALGORITHMS

- Analyze the performance of a given algorithm, denote its time complexity using the asymptotic notation for recursive and non-recursive algorithms
- List and describe various algorithmic approaches and Solve problems using divide and conquer & greedy Method
- Synthesize efficient algorithms dynamic programming approaches to solve in common engineering design situations.
- Organize important algorithmic design paradigms and methods of analysis: backtracking, branch and bound algorithmic approaches
- Demonstrate NP- Completeness theory ,lower bound theory and String Matching

SOFTWARE PROJECT MANAGEMENT

- Apply the process to be followed in the software development life-cycle models
- Apply the concepts of project management & planning
- Implement the project plans through managing people, communications and change
- Conduct activities necessary to successfully complete and close the Software projects
- Implement communication, modeling, and construction & deployment practices in software

DATA COMMUNICATIONS

- **Understand the Fundamentals of Data Communication:** Gain knowledge about data representation, data flow, network types, OSI and TCP/IP models, and networking standards.
- **Analyze Data Link Layer Operations:** Learn about error detection and correction techniques, flow control mechanisms, and different MAC layer protocols like ALOHA and HDLC.
- **Explain Network Layer Functions:** Understand IP addressing, packet forwarding, routing algorithms, and the role of protocols like IPv4, ICMP, and RIP.
- **Comprehend Transport Layer Mechanisms:** Explore UDP and TCP functionalities, connection-oriented and connectionless communication, congestion control, and reliable data transfer.
- **Apply Networking Principles to Real-World Applications:** Study email protocols (SMTP, POP, IMAP), file transfer protocols (FTP, TFTP), HTTP-based communication, and DNS operations.

PROBABILITY & STATISTICS (Basic Science)

- Acquire knowledge in finding the analysis of the data quantitatively
- Develop skills in designing mathematical Models involving probability random variables and the critical thinking in the theory of probability and it's applications in real life problems
- Apply the theoretical probability distribution like binomial, Poisson and normal in the relevant application areas
- Analyze to test various hypothesis included in theory and types of errors for large samples
- Apply the different testing tools like t_test, F_test, chi_square test to analyze the relevant real life problems

MANAGERIAL ECONOMICS & FINANCIAL ANALYSIS (Management Course-I)

- Understood the fundamentals of Economics, Demand, production, cost revenue and markets
- Apply the Concept of Production , cost and revenues for Effective business
- Apply how to Invest and capital and Maximize revenue
- Evaluate Capital budget techniques
- Develop the Accounting statements and Evaluate the Financial performance of Business entity.

DATABASE MANAGEMENT SYSTEMS (Professional core)

- Understand the basic concepts of database management systems
- Analyze a given database application scenario to use ER model for conceptual design of the database
- Utilize SQL proficiently to address diverse query challenges
- Employ normalization methods to enhance database structure
- Assess and implement transaction processing, concurrency control and database recovery protocols in databases

MACHINE LEARNING (Professional core)

- Understand the features of machine learning to apply on real world problems
- Design and evaluate intelligent expert models for perception and prediction from intelligent environment
- Formulate valid solutions for problems involving uncertain inputs or outcomes by using decision making techniques
- Solve the classification problem using Bayesian Learning Model
- Understand the concepts of clustering, Fuzzy C Means

DIGITAL LOGIC & COMPUTER ORGANIZATION (Professional core)

- Boolean algebra to simplify and analyze digital circuits.
- Ability to design and implement combinational circuits and encoders.
- flip-flops, registers, counters, and state machines.
- Knowledge of Computer Organization and Architecture
- Assembly Language Programming

PROBABILITY & STATISTICS (Management course-1)

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- Develop skills in designing mathematical Models involving probability random variables and the critical thinking in the theory of probability and its applications in real life problems
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DATA ENGINEERING (Professional core)

- Explain basic concepts of Data Engineering
- Discuss about Data Engineering Life Cycle
- How to design Good Data Architecture

DATABASE MANAGEMENT SYSTEMS (Professional core)

- Understand the basic concepts of database management systems
- Analyze a given database application scenario to use ER model for conceptual design of the database
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- Employ normalization methods to enhance database structure
- Assess and implement transaction processing, concurrency control and database recovery protocols in databases

STATISTICAL METHODS FOR DATA SCIENCE (Engineering Science/Basic Science)

- Understand the basic concepts of Statistics
- Analyze the data and draw conclusion about collection of data under study using point estimation
- Analyze to test various hypotheses included in theory and types of errors for large samples
- Analyze the data and draw conclusion about collection of data under study using interval estimation
- Apply the different testing tools like T-test, F-test, chi-square test to analyze the relevant real life problems

DIGITAL LOGIC & COMPUTER ORGANIZATION (Professional core)

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- Ability to design and implement combinational circuits and encoders.
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- Discuss different transmission media and different switching networks.
- Analyze data link layer services, functions and protocols like HDLC and PPP.
- Compare and Classify medium access control protocols like ALOHA, CSMA, CSMA/CD, CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols
- Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and SNMP etc.

DEEP LEARNING

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BIG DATA AND ANALYTICS

- illustrate big data challenges in different domains including social media, transportation, finance and medicine
- Use various techniques for mining data stream
- Design and develop Hadoop
- Identify the characteristics of datasets and compare the trivial data and big data for various applications
- Explore the various search methods and visualization techniques

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Data Structures

- Understand the significance of linear data structures in problem-solving and basic time/space complexity analysis.
- Create and manage linked lists to efficiently organize and manipulate data, emphasizing memory efficiency.
- Implement and apply stacks to manage program flow and solve problems involving expression evaluation and backtracking.
- Impart basic understanding of non-linear data structures such as trees.
- Explore basic concepts of hashing and apply it to solve problems requiring fast data retrieval and management.



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ODD SEM 2024-25

COMPILER DESIGN

- Demonstrate phases in the design of compiler
- organize syntax analysis, Top Down and LL(1) grammar
- Design Bottom up parsing and construction of LR parsers
- Analyze synthesized inherited attributes and syntax directed translation schemes
- Determine algorithms to generate code for a target machine

OPERATING SYSTEMS

- Describe various generations of Operating System and functions of Operating System
- Describe the concept of program, process and thread and analyze various CPU Scheduling Algorithms and compare their performance
- Solve Inter Process Communication problems using Mathematical Equations by various methods
- Compare various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques
- Outline File Systems in Operating System like UNIX/Linux and Windows]

MACHINE LEARNING

- the fundamental usage of the concept Machine Learning system
- Skills to design, implement, and execute test cases at the Unit and Integration level
- Analyze the Ensemble Learning Methods
- Illustrate the Clustering Techniques and Dimensionality Reduction Models in Machine Learning.
- Discuss the Neural Network Models and Fundamentals concepts of Deep Learning

SOFTWARE ENGINEERING

- Ability to transform an Object-Oriented Design into high quality, executable code
- Skills to design, implement, and execute test cases at the Unit and Integration level
- Compare conventional and agile software methods

INTERNET OF THINGS AND APPLICATIONS

- Understand internet of Things and its hardware components.
- Understand internet of Things and its software components.
- Interface I/O devices, sensors & communication modules.
- Remotely monitor data and control devices.
- Design real time IoT based applications.

Social Network Analysis (Professional elective-V)

- Know basic notation and terminology used in network science
- Be able to visualize, summarize and compare networks
- Illustrate basic principles behind network analysis algorithms
- Develop practical skills of network analysis in R programming language
- Be capable of analyzing real work networks

Cloud Computing (Professional elective-IV)

- Illustrate the key dimensions of the challenge of Cloud Computing
- Classify the Levels of Virtualization and mechanism of tools.
- Analyze Cloud infrastructure including Google Cloud and Amazon Cloud.
- Create Combinatorial Auctions for cloud resource and design scheduling algorithms for computing cloud
- Assess control storage systems and cloud security, the risks involved its impact and develop cloud

Block Chain Technologies (Professional elective-III)

- Demonstrate the block chain basics, Crypto currency
- To compare and contrast the use of different private vs. public block chain and use cases
- Design an innovative Bit coin Block chain and scripts, Block chain Science on various coins
- Classify Permission Block chain and use cases – Hyper ledger, Corda
- Make Use of Block-chain in E-Governance, Land Registration, Medical Information Systems and others

Fundamental Electrical Vehicles (Open Elective-III)

- To familiarize the students with the need and advantages of electric and hybrid electric vehicles.
- To understand various power converters used in electric vehicles.
- To know various architecture of hybrid electric vehicles.
- To be familiar all the different types of motors suitable for electric vehicles.
- To have knowledge on latest developments in strategies and other storage systems.

Consumer Electronics (Open Elective-IV)

- Understand the various type of microphones and loud speakers.
- To identify the various digital and analog signal.
- Describe the basis of television and composite video signal.
- Describe the various kind of colour TV standards and system.
- Compare the various types of digital TV system.

Universal Human Values 2: Understanding Harmony(HS)

- Define the terms like Natural Acceptance, Happiness and Prosperity
- Identify one's self and one's surroundings (family, society, nature)
- Apply what they have learnt to their own self in different day-to-day setting in real life
- Relate human values with human relationships and human society
- Justify the need for universal human values and harmonious existence

OBJECT ORIENTED PROGRAMMING through JAVA (Professional core)

- Identify the syntax and semantics of java programming language and basic concepts of Java.
- Understand the basic concepts of object-oriented programming
- Develop reusable programs using the concepts of inheritance, Polymorphism and interfaces.
- Apply the concepts of packages, exception handling & I/O streams to develop secure, error free, and efficient applications
- Design multithreaded and GUI based applications which mimic the real word scenarios.

Principles of Artificial Intelligence (Professional core)

- Knowledge in Computer Programming
- A course on "Mathematical Foundations of Computer Science
- Background in linear algebra, data structures and algorithms, and probability\

Discrete Mathematics and Graph Theory (Basic Science)

- Recall the concepts of combinatorics, set theory, posets and lattices
- Recall the concepts of algebraic structures, recurrence relations and generating functions
- use and interpret the concepts of mathematical logic and statement & predicate calculus
- use and interpret the concepts of combinatory, set theory, pose and lattices
- use and interpret the concepts of algebraic structures, recurrence relations and generating functions

Universal Human Values - Understanding harmony and ethical Human Conduct (Management Studies)- open elective-IV

- By the end of the course, students are expected to become more of themselves, and their surroundings (family, society, nature); they would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature mind.
- they would have better critical ability.
- they would also become sensitive to their commitment towards what they have understood (human values, human relationships and human society)
- it is hoped that they would be able to apply what they have learnt to their own self in different day to day settings in real life, at least a beginning would be made in this direction.

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Introduction to Data Science (Professional core)

- identify the key components of the data science process
- acquire and clean data from various sources'
- perform exploratory data analysis using visualization techniques
- apply basic statistical methods, build and evaluate simple predictive models
- understanding the ethical considerations involved in data science practices

Advanced Data Structures and Algorithm Analysis (Professional core)

- Illustrate several sub-quadratic sorting algorithms.
- Demonstrate recursive methods
- Apply advanced data structures such as balanced search trees, hash tables, priority queues and the disjoint set union/find data structure

Discrete Mathematics and Graph Theory (Basic Science)

- Recall the concepts of combinatorics, set theory, posets and lattices
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Introduction to Programming

- To impart adequate knowledge on the need of programming languages and problem-solving techniques and develop programming skills.
- To enable effective usage of Control Structures and Implement different operations on arrays.
- To demonstrate the use of Strings and Functions.
- To impart the knowledge of pointers and understand the principles of dynamic memory allocation.
- To understand structures and unions and illustrate the file concepts and its operations.

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