MEENAKSHI SUNDARARAJAN ENGINEERING COLLEGE
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Approved by AICTE & Affiliated to Anna University
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Email Id: principal@msec.edu.in
Website : www.msec.edu.in
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REGULATION-2021
COURSE OUTCOMES

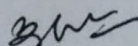### MA3354 - Discrete Mathematics - [C201]

C201.1	Make use of propositions, predicates and flow of logical proofs.
C201.2	Acquire knowledge on induction and counting principles and to solve recurrence relation.
C201.3	Perceive the knowledge of various types and characteristics of graphs.
C201.4	Interpret concepts and properties of groups, rings and fields.
C201.5	Comprehense the ideas of lattices and Boolean algebra.

CS3351 - Digital Principles and Computer Organization - [C202]

C202.1	Design various combinational digital circuits using logic gates.
C202.2	Design sequential circuits and analyze the design procedures.
C202.3	State the fundamentals of computer systems and analyze the execution of an instruction.
C202.4	Analyze different types of control design and identify hazards.
C202.5	Identify the characteristics of various memory systems and I/O communication.

CS3352 - Foundations of Data Science- [C203]

C203.1	Define the data science process.
C203.2	Understand different types of data description for data science process.
C203.3	Gain knowledge on relationships between data.
C203.4	Use the Python Libraries for Data Wrangling.
C203.5	Apply visualization Libraries in Python to interpret and explore data.

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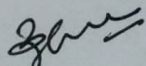### CS3301- Data Structures - [C204]

C204.1	Define linear and non-linear data structures.
C204.2	Implement linear and non–linear data structure operations.
C204.3	Use appropriate linear/non–linear data structure operations for solving a given problem.
C204.4	Apply appropriate graph algorithms for graph applications.
C204.5	Analyze the various searching and sorting algorithms.

CS3391 - Object Oriented Programming - [C205]

C205.1	Apply the concepts of classes and objects to solve simple problems.
C205.2	Develop programs using inheritance, packages and interfaces.
C205.3	Make use of exception handling mechanisms and multithreaded model to solve real world problems.
C205.4	Build Java applications with I/O packages, string classes, Collections and generics concepts.
C205.5	Integrate the concepts of event handling and JavaFX components and controls for developing GUI based applications.

CS3311 - Data Structures Laboratory– [C206]

C206.1	Implement Linear data structure algorithms.
C206.2	Implement applications using Stacks and Linked lists.
C206.3	Implement Binary Search tree and AVL tree operations.
C206.4	Implement graph algorithms.
C206.5	Analyze the various searching and sorting algorithms.

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CS3381 - Object Oriented Programming Laboratory – [C207]
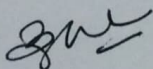
C207.1	Design and develop java programs using object oriented programming concepts.
C207.2	Develop simple applications using package, exceptions, Inheritance.
C207.3	Implement multithreading, and generics concepts, file operations.
C207.4	Create GUIs and event driven programming applications for real world problems.
C207.5	Implement and deploy web applications using Java.

CS3361 - Data Science Laboratory– [C208]

C208.1	Make use of the python libraries for data science.
C208.2	Make use of the basic Statistical and Probability measures for data science.
C208.3	Perform descriptive analytics on the benchmark data sets.
C208.4	Perform correlation and regression analytics on standard data sets.
C208.5	Present and interpret data using visualization packages in Python.

GE3361 - Professional Development– [C209]

C209.1	Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements.
C209.2	Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding.
C209.3	Use MS PowerPoint to create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects.

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CS3452 - Theory of Computation– [C210]

C210.1	Construct automata theory using Finite Automata.
C210.2	Write regular expressions for any pattern.
C210.3	Design context free grammar and Pushdown Automata.
C210.4	Design Turing machine for computational functions.
C210.5	Differentiate between decidable and undecidable problems.

CS3491 Artificial Intelligence and Machine Learning – [C211]

C211.1	Use appropriate search algorithms for problem solving.
C211.2	Apply reasoning under uncertainty.
C211.3	Build supervised learning models.
C211.4	Build ensembling and unsupervised models.
C211.5	Build deep learning neural network models.

CS3492 Database Management Systems– [C212]

C212.1	Construct SQL Queries using relational algebra.
C212.2	Design database using ER model and normalize the database.
C212.3	Construct queries to handle transaction processing and maintain consistency of the database.
C212.4	Compare and contrast various indexing strategies and apply the knowledge to tune the performance of the database.
C212.5	Appraise how advanced databases differ from Relational Databases and find a suitable database for the given requirement.

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CS3401 - Algorithms – [C213]

C213.1	Analyze the efficiency of algorithms using various frameworks.
C213.2	Apply graph algorithms to solve problems and analyze their efficiency.
C213.3	Make use of algorithm design techniques like divide and conquer, dynamic programming and greedy techniques to solve problems.
C213.4	Use the state space tree method for solving problems.
C213.5	Solve problems using approximation algorithms and randomized algorithms.

CS3451 - Introduction to Operating Systems– [C214]

C214.1	Explain the basic concepts ,functions of Operating Systems and system calls.
C214.2	Analyse various scheduling algorithms, process synchronization and Explain deadlock prevention and avoidance algorithms.
C214.3	Compare and contrast various memory management schemes.
C214.4	Explain the functionality of file systems, I/O systems, and Virtualization.
C214.5	Compare iOS and Android Operating Systems.

GE3451 - Environmental Sciences and Sustainability– [C215]

C215.1	Understand how interactions between organisms and their environments drive the dynamics of individuals, populations, communities, and ecosystems.
C215.2	Able to understand the offensive effects of pollution in the day-to-day life.
C215.3	Able to understand the need of new renewable energy resources - its management and conservation.
C215.4	Explore the problems we face in understanding our natural environment and in living sustainability.
C215.5	Understand the Importance and also the the techniques to protect natural Resources.

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CS3461 - Operating Systems Laboratory– [C216]

C216.1	Install windows operating system, Define and implement UNIX Commands and shell programming.
C216.2	Compare the performance of various CPU Scheduling Algorithms. To implement Deadlock Avoidance and Deadlock Detection Algorithms.
C216.3	Implement the paging Technique ,Compare and contrast various Memory Allocation Methods and various Page Replacement Algorithms.
C216.4	Define File Organization and File Allocation Strategies.
C216.5	Implement various Disk Scheduling Algorithms.

CS3481- Database Management Systems Laboratory– [C217]

C217.1	Create databases with different types of key constraints.
C217.2	Construct simple and complex SQL queries using DML and DCL commands.
C217.3	Use advanced features such as stored procedures and triggers and incorporate in GUI based application development.
C217.4	Create an XML database and validate with meta-data (XML schema).
C217.5	Create and manipulate data using NOSQL database.

CS3591 - Computer Networks – [C301]

C301.1	Illustrate the functionality of OSI models and discuss the working of various application layer protocols.
C301.2	Understand the transport layer protocols.
C301.3	Explain the different services of the network layer.
C301.4	Analyze routing algorithms.
C301.5	Evaluate the performance of the data link layer and physical layer.

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CS3501 - Compiler Design– [C302]

C302.1	Understand the techniques in different phases of a compiler & Design a lexical analyser for a sample language and learn to use the LEX tool.
C302.2	Apply different parsing algorithms to develop a parser and learn to use YACC tool.
C302.3	Understand semantics rules (SDT - SYNTAX DIRECTED TRANSLATION) and intermediate code generation.
C302.4	Understand run-time environment and implement code generation techniques.
C302.5	Apply code optimization techniques.

CB3491 - Cryptography and Cyber Security – [C303]

C303.1	Understand the fundamentals of networks security, security architecture,threats and vulnerabilities.
C303.2	Apply the different cryptographic operations of symmetric cryptographic algorithms.
C303.3	Apply the different cryptographic operations of public key cryptography.
C303.4	Apply the various Authentication schemes to simulate different applications.
C303.5	Understand various cybercrimes and cyber security.

CS3551 - Distributed Computing– [C304]

C304.1	Explain the foundations of distributed systems.
C304.2	Solve synchronization and state consistency problems.
C304.3	Use resource sharing techniques in distributed systems.
C304.4	Apply working model of consensus and reliability of distributed systems.
C304.5	Explain the fundamentals of cloud computing.

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CCS369 -Text and Speech Analysis– [C305]

C305.1	Understand the basics of Natural Language Processing.
C305.2	Apply deep learning techniques for NLP tasks, language modelling and machine translation.
C305.3	Build question-answering systems, chatbots and dialogue systems.
C305.4	Apply deep learning models for building text-to-speech systems.
C305.5	Apply deep learning models for building speech recognition systems.

CCS375- Web Technologies– [C306]

C306.1	Construct a basic website using HTML and Cascading Style Sheets.
C306.2	Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
C306.3	Develop server side programs using Servlets and JSP.
C306.4	Construct simple web pages in PHP and to represent data in XML format.
C306.5	Develop interactive web applications.

MX3084 - Disaster Risk Reduction and Management– [C307]

C307.1	To impart knowledge on the concepts of Disaster, Vulnerability and Disaster Risk reduction (DRR).
C307.2	To enhance understanding on Hazards, Vulnerability and Disaster Risk Assessment prevention and risk reduction.
C307.3	To develop disaster response skills by adopting relevant tools and technology.
C307.4	Enhance awareness of institutional processes for Disaster response in the country.
C307.5	Develop rudimentary ability to respond to their surroundings with potential Disaster response in areas where they live, with due sensitivity.

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