



VIGNAN'S INSTITUTE OF MANAGEMENT AND TECHNOLOGY FOR WOMEN

Sponsored by Lavu Educational Society, Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad.
Kondapur (V), Ghatkesar (M), Medchal - Malkajgiri (D) - 501 301 Phone: +91 96529 10002/3



INSTITUTIONAL PROGRAM BROCHURE, CIRCULAR, SYLLABUS, REPORT-2021-22

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DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

VMTW/BSH/AOC/CIR/2021-22/II/1

Date: 01.06.2022

CIRCULAR

We are delighted to introduce an add-on course titled "Algorithmic Problem Solving in Complex Scenarios," exclusively tailored for our esteemed B. Tech. Information Technology and Data Science students. This course has been designed to supplement your ongoing studies in "Programming for Problem Solving" and further enhance your problem-solving skills through advanced algorithmic approaches. The Add on course is organizing by the department of Information Technology.

We are pleased to inform you that **Mr. G. Rajesh**, Assistant Professor, Department of CSE (AI&ML), VMTW, Hyderabad have been identified by the department advisory committee as the esteemed resource person for this course. We are delighted to share that **Mr. G. Rajesh** have graciously accepted our invitation to conduct the classes, providing you with a comprehensive and enriching learning experience. The course is scheduled to run for 32 days from 04.06.2022 to 20.07.2022. Participating students will be awarded Certificates of Course Completion. Throughout the duration, you will have the opportunity to engage with the speaker and other participants through case study discussions, fostering interactive learning.

If you are interested in joining this course, kindly fill out the registration form and secure your spot for this exciting learning opportunity.


HOD

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Head of the Department:
Basic Sciences and Humanities
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ABOUT THE COURSE

"Algorithmic Problem Solving in Complex Scenarios" refers to a course or educational program that focuses on developing advanced problem-solving skills using algorithms in complex and challenging scenarios. It builds upon the foundational knowledge of computational thinking and programming and delves into more complex problem domains.

In this course, participants learn how to tackle problems that involve large datasets, intricate constraints, and sophisticated algorithms. They are exposed to various real-world scenarios where algorithmic thinking and problem-solving skills are crucial.

COURSE OBJECTIVES

1. Develop a deep understanding of advanced algorithms and data structures.
2. Enhance problem-solving skills in complex programming scenarios.
3. Apply algorithm analysis techniques to evaluate algorithm efficiency.
4. Design and implement efficient algorithms for various complex problems.
5. Explore optimization techniques for problem-solving scenarios.

EXPECTED OUTCOMES

Develop Advanced Algorithmic Knowledge: Students will gain a deep understanding of advanced algorithms, including their design principles, analysis techniques, and efficient implementation.

Apply Advanced Data Structures: Students will be able to select and implement advanced data structures suitable for solving complex programming problems efficiently.

- Solve Complex Problems: Students will acquire the ability to analyze complex problem scenarios, design algorithmic solutions, and implement those using appropriate programming languages.
- Evaluate Algorithm Efficiency: Students will learn to analyze and evaluate the efficiency of algorithms, considering factors such as time complexity, space complexity, and optimization techniques.
- Design Optimized Algorithms: Students will develop skills in designing efficient and optimized algorithms for a variety of complex problem domains, applying advanced algorithmic techniques.

Resource Person:

Mr. G. Rajesh,

Assistant Professor,

Department of CSE (AI&ML).

Co-ordinator:

Mrs. K. Helini Reddy,

Assistant Professor,

Department of IT,

Contact No: +91 99089 85556

LAST DATE FOR REGISTRATION: 5TH JUNE, 2022



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ADD-ON COURSE ON

“ALGORITHMIC PROBLEM SOLVING IN COMPLEX SCENARIOS”

6TH JUN 2022 TO 20TH JUL, 2022

DURATION OF THE COURSE: 32 HRS

VENUE:

**A-BLOCK SEMINAR HALL,
VMTW**

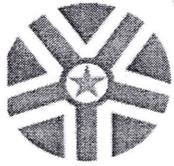
ORGANIZED BY:

**DEPARTMENT OF
INFORMATION TECHNOLOGY**



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DEPARTMENT OF INFORMATION TECHNOLOGY

ADD ON COURSE SYLLABUS: ALGORITHMIC PROBLEM SOLVING IN COMPLEX SCENARIOS

Academic Year: 2021-22

B. Tech. I - II SEM

SYLLABUS

Course Overview:

This course aims to provide students with advanced knowledge and skills in algorithmic problem-solving techniques for complex scenarios. Students will learn to analyze complex problems, design efficient algorithms, and implement solutions using programming languages. The course will cover a range of advanced topics, including algorithm analysis, data structures, optimization techniques, and specialized problem-solving approaches.

COURSE OBJECTIVES:

1. Develop a deep understanding of advanced algorithms and data structures.
2. Enhance problem-solving skills in complex programming scenarios.
3. Apply algorithm analysis techniques to evaluate algorithm efficiency.
4. Design and implement efficient algorithms for various complex problems.
5. Explore optimization techniques for problem-solving scenarios.

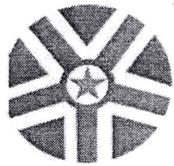
COURSE OUTCOME:

Upon successful completion of the course "Algorithmic Problem Solving in Complex Scenarios," students will achieve the following course outcomes:

1. Develop Advanced Algorithmic Knowledge: Students will gain a deep understanding of advanced algorithms, including their design principles, analysis techniques, and efficient implementation.
2. Apply Advanced Data Structures: Students will be able to select and implement advanced data structures suitable for solving complex programming problems efficiently.
3. Solve Complex Problems: Students will acquire the ability to analyze complex problem scenarios, design algorithmic solutions, and implement those using appropriate programming languages.




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4. Evaluate Algorithm Efficiency: Students will learn to analyze and evaluate the efficiency of algorithms, considering factors such as time complexity, space complexity, and optimization techniques.

5. Design Optimized Algorithms: Students will develop skills in designing efficient and optimized algorithms for a variety of complex problem domains, applying advanced algorithmic techniques.

Course Outline:

Unit 1: Approximation Algorithms

- Approximation techniques for optimization problems
- Greedy approximation algorithms
- Randomized approximation algorithms

Unit 2: Advanced Dynamic Programming

- Memoization techniques
- Bitmasks in dynamic programming
- Multidimensional dynamic programming
- Advanced applications of dynamic programming

Unit 3: Advanced Graph Algorithms

- Topological sorting
- Strongly connected components
- Minimum spanning trees
- Shortest path algorithms

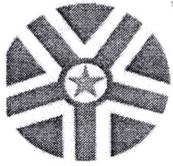
Unit 4: Network Flows in Complex Networks

- Maximum flow and minimum cut algorithms
- Network flow optimization problems
- Applications of network flows in real-world scenarios



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Unit 5: Advanced Problem-Solving Strategies

- Divide and conquer algorithms
- Greedy algorithms
- Backtracking algorithms
- Advanced problem-solving techniques for specific domains

Reference:

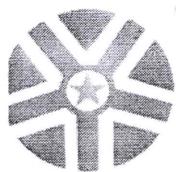
1. "Introduction to Algorithms" by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein (Publication Year: 2009)
2. "Algorithm Design Manual" by Steven S. Skiena (Publication Year: 2008)
3. "Data Structures and Algorithms in Java" by Robert Lafore (Publication Year: 2017)


COORDINATOR


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DEPARTMENT OF INFORMATION TECHNOLOGY

ADD ON COURSE NAME: ALGORITHMIC PROBLEM SOLVING IN COMPLEX SCENARIOS

Academic Year: 2021-22

Date: 01.06.2022

B. Tech. I-II SEM

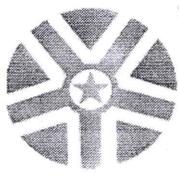
DAY WISE SCHEDULE SHEET

Venue: A-Block –Seminar Hall

Sl. No.	DAY	Topic	Timings	Duration
1	06.06.2022	Introduction to Approximation Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
2	07.06.2022	Approximation Techniques for Optimization Problems	09.00 a.m. to 10.00 a.m.	01 hour
3	08.06.2022	Greedy Approximation Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
4	09.06.2022	Randomized Approximation Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
5	10.06.2022	Approximation Algorithms for Scheduling Problems	09.00 a.m. to 10.00 a.m.	01 hour
6	13.06.2022	Approximation Algorithms for Vertex Cover Problems	09.00 a.m. to 10.00 a.m.	01 hour
7	14.06.2022	Approximation Algorithms for Traveling Salesman Problems	09.00 a.m. to 10.00 a.m.	01 hour
8	15.06.2022	Approximation Algorithms for Knapsack Problems	09.00 a.m. to 10.00 a.m.	01 hour
9	16.06.2022	Advanced Dynamic Programming Concepts	09.00 a.m. to 10.00 a.m.	01 hour
10	17.06.2022	Memoization Techniques in Dynamic Programming	09.00 a.m. to 10.00 a.m.	01 hour
11	20.06.202	Bitmasks in Dynamic Programming	09.00 a.m. to 10.00 a.m.	01 hour
12	21.06.2022	Multidimensional Dynamic Programming	09.00 a.m. to 10.00 a.m.	01 hour
13	22.06.2022	Advanced Applications of Dynamic Programming	09.00 a.m. to 10.00 a.m.	01 hour

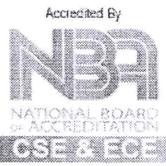



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14	23.06.2022	Dynamic Programming for String Manipulation	09.00 a.m. to 10.00 a.m.	01 hour
15	24.06.2022	Dynamic Programming for Subset Sum Problems	09.00 a.m. to 10.00 a.m.	01 hour
16	27.06.2022	Dynamic Programming for Matrix Chain Multiplication	09.00 a.m. to 10.00 a.m.	01 hour
17	28.06.2022	Introduction to Advanced Graph Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
18	29.06.2022	Topological Sorting and Applications	09.00 a.m. to 10.00 a.m.	01 hour
19	30.06.2022	Strongly Connected Components and Applications	09.00 a.m. to 10.00 a.m.	01 hour
20	01.07.2022	Minimum Spanning Trees and Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
21	04.07.2022	Shortest Path Algorithms and Variants	09.00 a.m. to 10.00 a.m.	01 hour
22	05.07.2022	Graph Algorithms for Network Routing	09.00 a.m. to 10.00 a.m.	01 hour
23	06.07.2022	Graph Algorithms for Social Network Analysis	09.00 a.m. to 10.00 a.m.	01 hour
24	08.07.2022	Graph Algorithms for Clustering Problems	09.00 a.m. to 10.00 a.m.	01 hour
25	11.07.2022	Introduction to Network Flows in Complex Networks	09.00 a.m. to 10.00 a.m.	01 hour
26	12.07.2022	Maximum Flow and Minimum Cut Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
27	13.07.2022	Network Flow Optimization Problems	09.00 a.m. to 10.00 a.m.	01 hour
28	14.07.2022	Applications of Network Flows in Transportation Networks	09.00 a.m. to 10.00 a.m.	01 hour
29	15.07.2022	Applications of Network Flows	09.00 a.m. to 10.00 a.m.	01 hour
30	18.07.2022	Applications of Network Flows in Supply Chain Networks	09.00 a.m. to 10.00 a.m.	01 hour
31	19.07.2022	Applications of Network Flows	09.00 a.m. to 10.00 a.m.	01 hour
32	20.07.2022	Advanced Problem-Solving Techniques	09.00 a.m. to 10.00 a.m.	01 hour
				Total – 32 hours



COORDINATOR

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Head of the Department
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DEPARTMENT OF INFORMATION TECHNOLOGY PROGRAM REPORT

The add-on course on "**Algorithmic Problem Solving in Complex Scenarios**" was conducted from 06.06.2022 to 20.07.2022, with Mr. G. Rajesh serving as the resource person and Mrs. K. Helini Reddy as the course coordinator. We are pleased to present the conclusion report summarizing the course's outcomes and achievements.

Course Details:

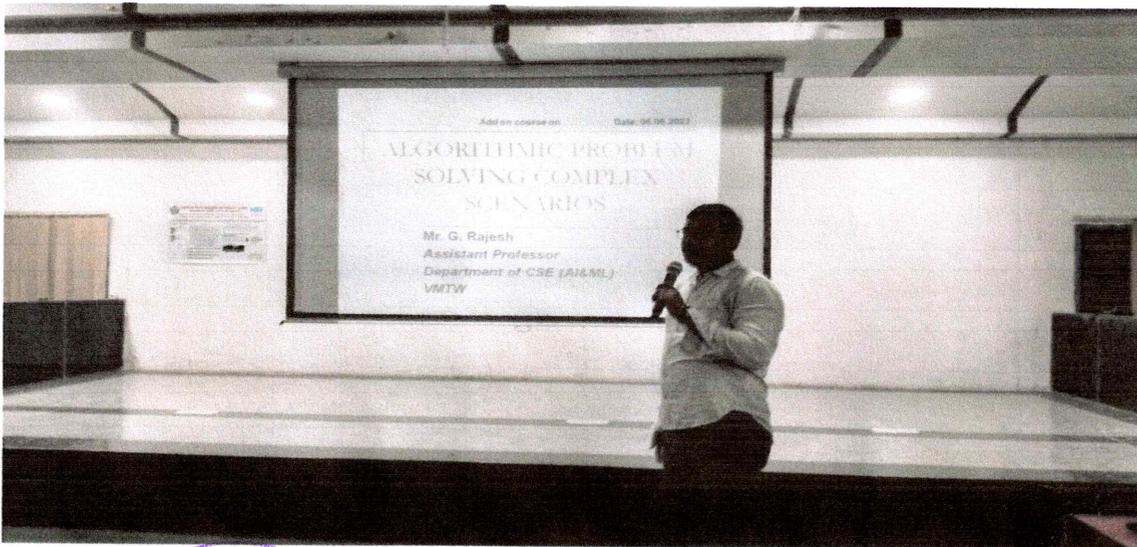
- **Course Title:** Algorithmic Problem Solving in Complex Scenarios
- **Duration:** 04.06.2022 to 20.07.2022 (32 days)
- **Time** : 09.00 a.m. to 10.00 a.m.
- **Resource Person:** Mr. G. Rajesh
- **Course Coordinator:** Mrs. K. Helini Reddy

Participants:

99 students from the B.Tech 1st year IInd semester participated in the course. Among them, 46 students were from the IT branch, and 53 students were from the Data Science branch. The participants showed enthusiasm and commitment throughout the duration of the course.

Course Content:

The course covered various topics, including approximation algorithms, advanced dynamic programming, advanced graph algorithms, network flows in complex networks, and advanced problem-solving strategies. The participants were exposed to theoretical concepts, practical implementations, and problem-solving exercises related to each topic.

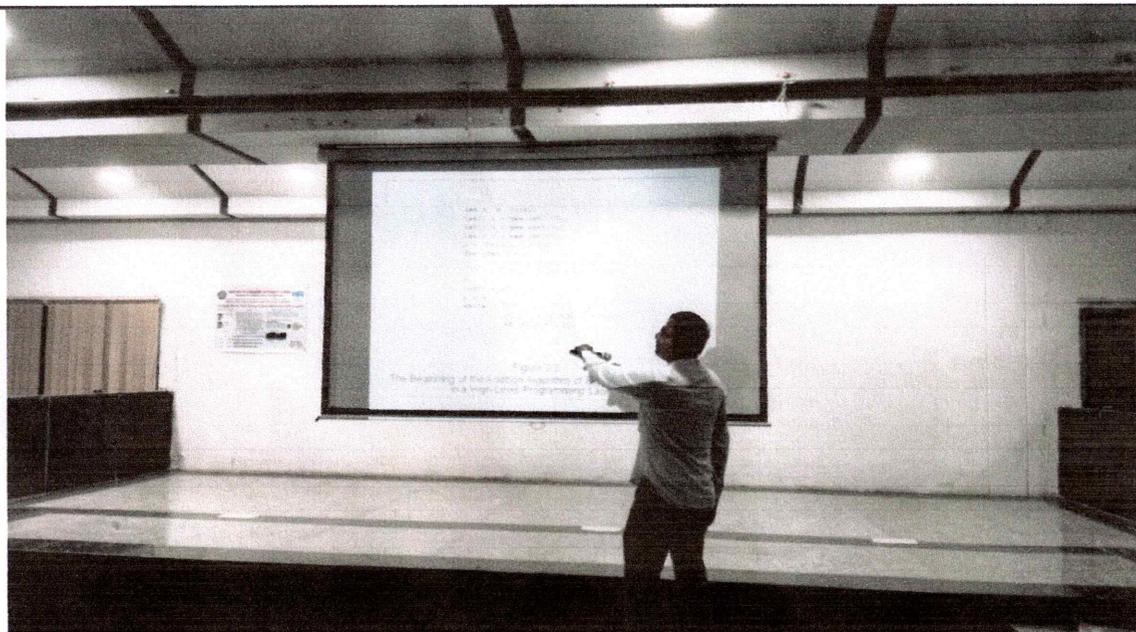



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Course Activities:

The course consisted of a combination of lectures, interactive discussions, hands-on programming exercises, and problem-solving sessions. Participants actively engaged in group activities, case studies, and real-world problem-solving exercises to reinforce their understanding of the course concepts.

Course Outcome:

Course Outcome (CO)	Program Outcome (PO)	Strength of Mapping
CO1: Develop advanced algorithmic knowledge	PO1: Apply mathematical foundations PO5: Use modern tools and technologies	5
CO2: Apply advanced data structures	PO1: Apply mathematical foundations	3
CO3: Solve complex problems	PO1: Apply mathematical foundations PO4: Design and conduct experiments	5
CO4: Evaluate algorithm efficiency	PO1: Apply mathematical foundations PO5: Use modern tools and technologies	4
CO5: Design optimized algorithms	PO1: Apply mathematical foundations PO4: Design and conduct experiments	4



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Course Completion Certificate:

We are pleased to announce that all 99 participants successfully completed the "Algorithmic Problem Solving in Complex Scenarios" course. The participants demonstrated exceptional dedication, active participation, and impressive problem-solving skills throughout the course.

Certificate Distribution:

Certificates of completion will be distributed to the 46 IT students and 53 Data Science students who successfully fulfilled the course requirements. The certificate distribution ceremony will take place on **20-07-2022** in the A- Block Seminar Hall. Participants are requested to attend the ceremony to receive their certificates.

Acknowledgments:

We extend our heartfelt gratitude to **Mr. G. Rajesh** for his expert guidance, valuable insights, and effective teaching methods that made the course highly enriching.

We appreciate the dedication and commitment shown by all the participants in enhancing their algorithmic problem-solving skills. Their active involvement contributed to the success of the course.


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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

VMTW/ECE/AOC/CIR//2021-22/II/02

Date: 02-06-2022

CIRCULAR

This is to inform all the I B.Tech ECE students that there will be an Add on course on "Emerging Electronic Devices and Systems "in association with VMTW on 06-06-2022 to 10-06-2022. All students are invited to take part in this course. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form. This course is organized by Department of Electronics and Communication Engineering.

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Head of the Department
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ABOUT THE COURSE

Electronics Devices and systems can be pursued by candidates who wish to make a career in development and production of electronic systems and parts. They must demonstrate effective technical skills and project management skills in order to present their designs in the most efficient way and must be innovative in order to develop unique electronic products. Apart from it, they must meet the standard educational requirements which varies from college to college. They must be effective problem-solvers and quick and agile in terms of testing and identifying loopholes in the electronics systems

COURSE OBJECTIVES

- The course is designed to be a broad introduction to electronic systems for students from diverse engineering disciplines. Completing the course will provide the necessary foundation to understand the role, capabilities and constraints of electronics in contemporary engineering systems.
- This course develops a basic understanding of the fundamentals and principles of analog and digital circuits and electronic devices. This understanding is a critical step towards being able to design new electronic circuits or use them appropriately as part of a larger engineering system.

EXPECTED OUTCOMES

1. Knowledge on understanding operation of semiconductor devices.

2. Design and analyze of electronic circuits
3. Problem analysis for dc circuits and relate ac models of semiconductor devices with their physical Operation.
4. To verify the theoretical concepts through laboratory and simulation experiments using hands-on.
5. Implement mini projects based on concept of electronics circuit concepts.

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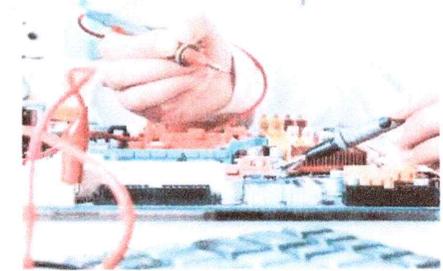
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ADD-ON COURSE ON

“EMERGING ELECTRONIC DEVICES AND SYSTEMS”

6TH TO 10TH JUNE, 2022

Duration of the Course : 35 Hrs

VENUE: **BFF-6, VMTW**

ORGANIZED BY:

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

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Resource Person:

Dr. Masthan Basha Shaik,

Associate Professor,
Department of ECE.

Co-ordinator:

Dr. M. Kaalya Hikal,
Assistant Professor,
Department of ECE,

Contact No: +91 9676943133

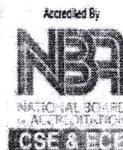


LAST DATE FOR REGISTRATION: 4TH JUNE, 2022



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Emerging Electronic Devices and Systems

SYLLABUS

Academic Year : 2021-2022

B.Tech I-II SEM

SECTION : ECE

Course Objectives:

- To designed to be a broad introduction to electronic systems for students from diverse engineering disciplines.
- To Completing the course will provide the necessary foundation to understand the role, capabilities and constraints of electronics in contemporary engineering systems.
- To develops a basic understanding of the fundamentals and principles of analog and digital circuits and electronic devices.
- To understanding is a critical step towards being able to design new electronic circuits
- To use electronic circuits appropriately as part of a larger engineering systems

UNIT-I: Semiconductor Diodes, Diode Applications

Semiconductor Physics, Semiconductor Diode and analysis, Zener Diodes, Light-Emitting Diodes, realization of logic gates using diodes, rectifier circuits.

UNIT – II: Bipolar Junction Transistors, Field-Effect Transistors

Transistor Construction and characteristics, Construction and Characteristics of JFETs, MOSFET

UNIT – III: DC Biasing—BJTs. BJT AC Analysis, FET Biasing , FET Amplifiers , BJT and

JFET Frequency Response

Load-Line Analysis, Operating Point, biasing techniques, AC analysis of BJT and FET, General Frequency Considerations, Low-Frequency Analysis of BJT, FET




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UNIT - IV: Operational Amplifiers, Op-Amp Applications, Linear-Digital ICs

Practical Op-Amp Circuits and various parameter analyses, various applications, Timer and PLL ICs

UNIT-V: Power Amplifiers, Feedback and Oscillator Circuits

Various classes of power amplifier and their characteristics, design of various oscillators and its applications

Text Books:

1. Electronic Devices and Circuit Theory, Eleventh Edition: Robert L. Boylestad. Louis Nashelsky
2. Electronic Principles and Applications , Ninth Edition: Charles A. Schuler

Reference Books

1. Electronic Devices and Circuits : GSN Raju
2. Electronic Devices: Systems and Applications: Robert Diffenderfer.


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RESOURCE PERSON


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Electronics and Communication Engineering
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ADD ON COURSE NAME: **Emerging Electronic Devices and Systems**

DAY WISE SCHEDULE SHEET

Academic Year: 2021-2022

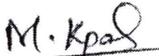
Date: 04-06-2022

B.Tech I-II SEM

SECTION: ECE

Room Number: BFF6

S.No	DAY	Topic	Timings	Duration
1	06-06-2022	Semiconductor Diodes, Diode Applications	9:00am to 4:00pm	7 hours
2	07-06-2022	Bipolar Junction Transistors, Field-Effect Transistors	9:00am to 4:00pm	7 hours
3	08-06-2022	DC Biasing—BJTs. BJT AC Analysis, FET Amplifiers, BJT and JFET Frequency Response	9:00am to 4:00pm	7 hours
4	09-06-2022	Operational Amplifiers, Op-Amp Applications, Linear-Digital IC's	9:00am to 4:00pm	7 hours
5	10-06-2022	Power Amplifiers, Feedback and Oscillator Circuits	9:00am to 4:00pm	7 hours
Total – 35 hours				


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Date: 13-06-2022

PROGRAM REPORT

Name of the Add on Course: Emerging Electronic Devices and Systems

Day/Duration: 35 hours

Time: 9:00am to 4:00pm

Resource Person: Dr. Masthan Basha Shaik, Associate Professor, VMTW, Hyderabad

Name of the Coordinator: Mr. M. Karthikpal, Assistant Professor, VMTW, Hyderabad.

Number of the Participants: 39

Topics covered: The following topics covered in this program

- Semiconductor Diodes
- Bipolar Junctions Transistors
- FET Amplifiers
- Operational Amplifiers
- Oscillator Circuits

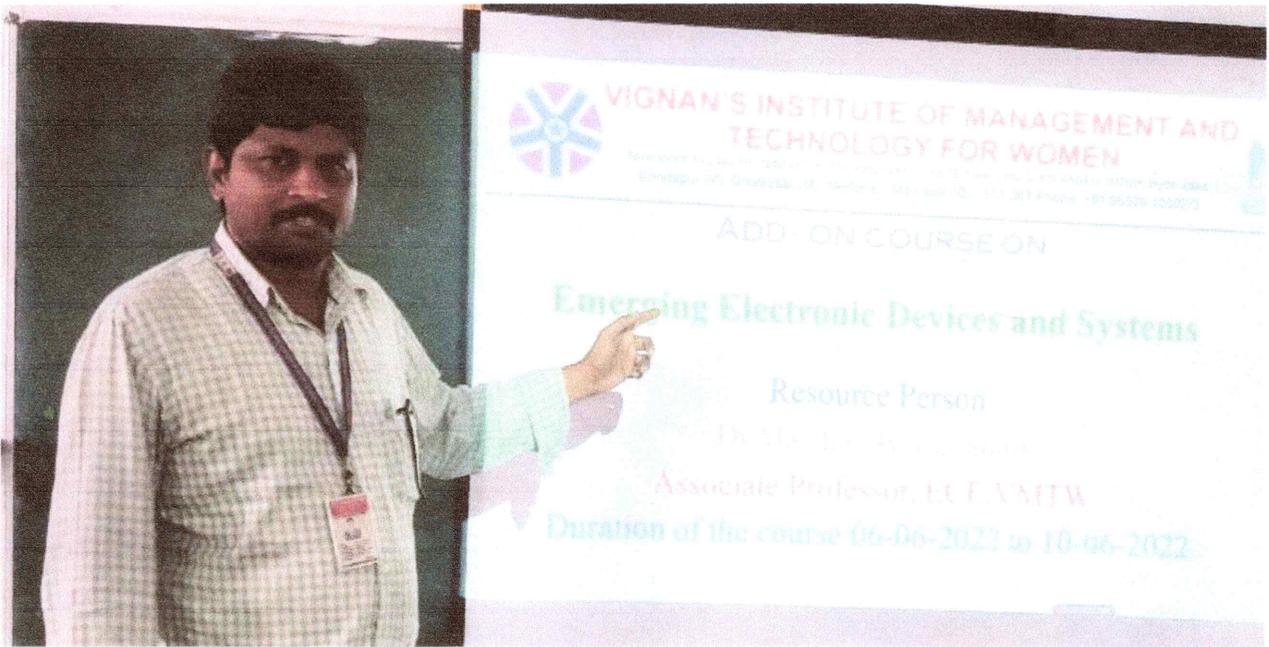
Course Outcomes:

COs	At the end of the course, students will have the ability to:	POs Mapped	Strength of mapping
CO1	Designed to be a broad introduction to electronic systems for students from diverse engineering disciplines.	PO2, PO5	3
CO2	Completing the course will provide the necessary foundation to understand the role, capabilities and constraints of electronics in contemporary engineering systems	PO3, PO4	2
CO3	Develops a basic understanding of the fundamentals and principles of analog and digital circuits and electronic devices	PO2, PO3, PO6	1
CO4	Understanding is a critical step towards being able to design new electronic circuits	PO5, PO6	2
CO5	Use electronic circuits appropriately as part of a larger engineering system	PO3, PO6	3




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Emerging Electronic Devices and Systems

: Add on course explained by Dr. Masthan Basha Shaik, Associate Professor, VMTW, Hyderabad

Hence, Students understood the concept on main features of Electronic devices & Systems and also learnt how to design the system by using Electronic devices concepts and understood the basic concepts of EDS, I am thankful for the department for conduct such type of informative events.

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice Questions through offline Mode.

M. Kpal
COORDINATOR

[Signature]
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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

VMTW/BSH/AOC/2021-22/II/03

Date: 27-06-2022

CIRCULAR

This is to inform all I-II B.Tech students that there is going to be an addon course on "Algorithms and Data Structures" that will be held from 04-07-2022 to 09-07-2022 by Dr.C. Srinivasa Kumar, Professor, Dept of CSE. All students are welcome to participate in this Addon course. Interested students can sign in the registration form and communicate to the program coordinator Mr.S.Ravi, Asst. Prof, Dept of CSE, VMTW.


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- I-II B.Tech Students
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COURSE MODULES

Module 1: Introduction to components of a computer system, Introduction to Algorithms: steps to solve logical and numerical problems. Representation of Algorithm, Flowchart/Pseudo code with examples, Program design.

Module 2: Algorithm Specifications: Performance Analysis and Measurement (Time and space analysis of algorithms- Average, best and worst case analysis).

Module 3: Introduction To Data Structure: Data Management concepts, Data types – primitive and non-primitive, Types of Data Structures- Linear & Non Linear Data Structures.

Module 4: Array: Representation of arrays, Applications of arrays, Linear Data Structure sparse matrix and its representation.

Stack: Stack-Definitions & Concepts, Operations On Stacks, Applications of Stacks, Polish Expression, Reverse Polish Expression And Their Compilation, Recursion, Tower of Hanoi.

Module 5: Queue: Representation Of Queue, Operations On Queue, Circular Queue, Priority Queue, Array representation of Priority Queue, Double Ended Queue..

COURSE OBJECTIVES

1. To assess how the choice of data structures and algorithm design methods impacts the performance of programs.
2. To choose the appropriate data structure and algorithm design method for a specified application.
3. To write programs using linear lists, stacks.
4. To solve problems using data structures such as queues, hash tables, binary trees, heaps.
5. To solve problems using algorithm design methods such as the greedy method.

EXPECTED OUTCOMES

- CO1:** Analyse mathematically the behaviour of algorithms in terms of time and memory use.
- CO2:** Design new algorithms for similar problems.
- CO3:** Use generic programming to program the algorithms.
- CO4:** Program efficient algorithms for sorting, searching and graphs.
- CO5:** Analyse empirically the behaviour of algorithms in terms of time and memory use.



Resource Person:
Dr. C. Srinivass Kumar
Professor,
Department of CSE.

Co-ordinator:

Mr. S. Ravikumar,
Assistant Professor,
Department of CSE,
Contact No: +91 8125400758

LAST DATE FOR REGISTRATION: 2ND JULY, 2022

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ADD-ON COURSE ON "ALGORITHMS AND DATA STRUCTURES"

4TH TO 9TH JULY, 2022

Duration of the Course : 36 Hrs

VENUE: 'A'-BLOCK SEMINAR HALL, VMTW

ORGANIZED BY:

**DEPARTMENT OF COMPUTER SCIENCE
AND ENGINEERING**



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ADDON COURSE SYLLABUS

Addon course: Algorithms and Data Structures

Course objectives:

1. To assess how the choice of data structures and algorithm design methods impacts the performance of programs.
2. To choose the appropriate data structure and algorithm design method for a specified application.
3. To write programs using linear lists, stacks.
4. To solve problems using data structures such as queues, hash tables, binary trees, heaps.
5. To solve problems using algorithm design methods such as the greedy method.

Module 1: Introduction to components of a computer system, Introduction to Algorithms: steps to solve logical and numerical problems. Representation of Algorithm, Flowchart/Pseudo code with examples, Program design.

Module 2: Algorithm Specifications: Performance Analysis and Measurement (Time and space analysis of algorithms- Average, best and worst case analysis).

Module 3: Introduction To Data Structure: Data Management concepts, Data types – primitive and non-primitive, Types of Data Structures- Linear & Non Linear Data Structures.

Module 4: Array: Representation of arrays, Applications of arrays, Linear Data Structure sparse matrix and its representation.

Stack: Stack-Definitions & Concepts, Operations On Stacks, Applications of Stacks, Polish Expression, Reverse Polish Expression And Their Compilation, Recursion, Tower of Hanoi.

Module 5: Queue: Representation Of Queue, Operations On Queue, Circular Queue, Priority Queue, Array representation of Priority Queue, Double Ended Queue.

Text Book

1. "Introduction to Algorithms" by Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein

S. Ravi
COORDINATOR



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DAY WISE SCHEDULE SHEET

Addon Course: Algorithms and Data Structures

Room No: A Block Seminar Hall-ASF-5

DAY	Topic	Timings	Duration
04-07-2022	Introduction to components of a computer system, Introduction to Algorithms: steps to solve logical and numerical problems. Representation of Algorithm, Flowchart/Pseudo code with examples, Program design.	09:00 am to 03:30 pm	6 hrs
05-07-2022	Algorithm Specifications: Performance Analysis and Measurement (Time and space analysis of algorithms-Average, best and worst case analysis).	09:00 am to 03:30 pm	6 hrs
06-07-2022	Introduction To Data Structure: Data Management concepts, Data types – primitive and non-primitive, Types of Data Structures- Linear & Non Linear Data Structures.	09:00 am to 03:30 pm	6 hrs
07-07-2022	Array: Representation of arrays, Applications of arrays, Linear Data Structure sparse matrix and its representation.	09:00 am to 03:30 pm	6 hrs
08-07-2022	Stack: Stack-Definitions & Concepts, Operations On Stacks, Applications of Stacks, Polish Expression, Reverse Polish Expression And Their Compilation, Recursion, Tower of Hanoi.	09:00 am to 03:30 pm	6 hrs
09-07-2022	Queue: Representation Of Queue, Operations On Queue, Circular Queue, Priority Queue, Array representation of Priority Queue, Double Ended Queue.	09:00 am to 03:30 pm	6 hrs
Total 36 hours			

S. Ravi
COORDINATOR



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Date: 11-07-2022

Addon course Report

Name of the Add on Course: Algorithms and Data Structures

Day/Duration: 04-07-2022 to 09-07-2022 6 (Days) – 36 Hrs

Time: 09:00am to 03:30pm.

Resource Person: Dr.C. Srinivasa Kumar, Professor, Dept of CSE .

Name of the Coordinator: Mr.S.Ravi, Assistant Professor, Dept of CSE, VMTW.

Number of the Participants: 160

Topics covered: The following topics covered in this program:

- ❖ Steps to solve logical and numerical problems. Representation of Algorithm /Pseudo code with examples, Program design.
- ❖ Time and space analysis of algorithms- Average, best and worst case analysis.
- ❖ Data Management concepts, Data types – primitive and non-primitive, Types of Data Structures.
- ❖ Representation of arrays, Applications of arrays, Linear Data Structures.
- ❖ Stack-Definitions & Concepts, Operations On Stacks, Applications of Stacks Representation Of Queue, Operations On Queue.

Course Outcomes

COs	At the end of the course, students will have the ability to:	Pos Mapped	Strength of mapping
CO1	Analyse mathematically the behaviour of algorithms in terms of time and memory use.	PO2	4
CO2	Design new algorithms for similar problems.	PO3	4
CO3	Use generic programming to program the algorithms.	PO5	4
CO4	Program efficient algorithms for sorting, searching and graphs.	PO1,PO5	3
CO5	Analyse empirically the behaviour of algorithms in terms of time and memory use.	PO2	4

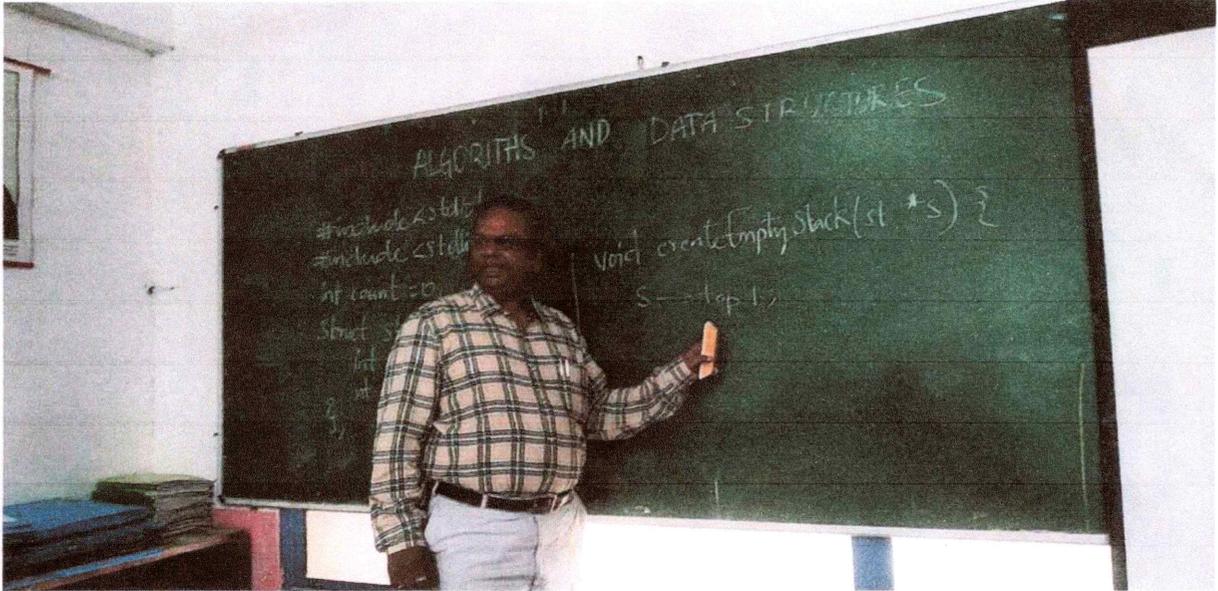



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Addon course sessions by Dr.C. Srinivasa Kumar, Professor, Dept of CSE.

S. Ravi

COORDINATOR

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DEPARTMENT OF BASIC SCIENCE AND HUMANITIES

VMTW/BSH/AOC/CIR/2021-22/II/04

Date: 01.08.2022

CIRCULAR

We are pleased to announce that the Department of CSE (AI&ML) is organizing an Add-On Course on 'DATA MANIPULATION AND ANALYSIS WITH PYTHON'. This course aims to provide you with essential knowledge and practical skills in using Python for data manipulation, analysis, and visualization.

We are pleased to inform you that **Mr. V. Maddileti Reddy**, Assistant Professor, Department of CSE (AI&ML), VMTW, Hyderabad have been identified by the department advisory committee as the esteemed resource person for this course. We are delighted to share that **Mr. V. Maddileti Reddy** have graciously accepted our invitation to conduct the classes, providing you with a comprehensive and enriching learning experience. The course is scheduled to run for 32 days from 08-08-2022 to 24-09-2022. This course is open to all B. Tech I-II students of the Department of AIDS and CSE (AI&ML). To register, please fill out the registration form available in the Brochure. Participants who successfully complete the course will be awarded a certificate of Completion. We encourage you to take advantage of this valuable opportunity to enhance your skills in data manipulation and analysis with Python. For any further queries, please contact Ms. P. Shilpa Sri, Course Coordinator, Assistant Professor, Department of CSE (AI&ML) Phone Number: 90143 22312.


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ABOUT THE COURSE

"Data Manipulation and Analysis with Python" refers to a course or educational program that focuses on teaching individuals how to effectively manipulate and analyze data using the Python programming language. Python is a popular programming language for data analysis due to its simplicity, extensive libraries, and robust ecosystem.

In this course, participants learn various techniques and tools for handling and analyzing data, with a particular emphasis on Python libraries commonly used in data analysis, such as Pandas, NumPy, and Matplotlib.

COURSE OBJECTIVES

- Understand the fundamentals of data manipulation and analysis.
- Acquire, clean, and preprocess data using Python.
- Perform exploratory data analysis to gain insights and identify patterns.
- Apply data transformation techniques to prepare data for analysis.
- Utilize Python libraries for statistical analysis and data visualization

EXPECTED OUTCOMES

- Demonstrate a solid understanding of data manipulation concepts and techniques.
- Acquire, clean, and preprocess data using Python.
- Perform exploratory data analysis (EDA) to gain insights and identify patterns in data.
- Apply various data transformation techniques to prepare data for analysis.
- Utilize Python libraries, such as Pandas, NumPy, Matplotlib, and Scikit-learn, for data manipulation, analysis, and visualization



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ADD-ON COURSE ON "DATA MANIPULATION AND ANALYSIS WITH PYTHON"

8TH AUG TO 24TH SEP, 2022

DURATION OF THE COURSE: **32 HRS**

VENUE:
**A-BLOCK SEMINAR HALL,
VMTW**

ORGANIZED BY:
DEPARTMENT OF CSE (AI&ML)

Resource Person:

Mr. V. Maddileti Reddy,

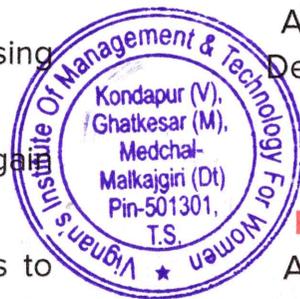
Assistant Professor,
Dept. of CSE (AI&ML).

Co-ordinator:

Mrs. P. Shilpa Sri,

Assistant Professor
Dept. of CSE (AI&ML).

Contact No: +91 90143 22312



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LAST DATE FOR REGISTRATION: 7TH AUGUST, 2022





DEPARTMENT OF CSE (AI&ML)

ADD ON COURSE SYLLABUS: DATA MANIPULATION AND ANALYSIS WITH PYTHON

Academic Year: 2021-22

B. Tech. I - II SEM

SYLLABUS

Course Description:

The course on "Data Manipulation and Analysis with Python" is designed to provide students with a comprehensive understanding of data manipulation techniques and tools using the Python programming language. Participants will learn how to acquire, clean, transform, and analyze data to derive meaningful insights and make informed decisions. The course will cover a range of Python libraries and frameworks commonly used for data manipulation and analysis, such as Pandas, NumPy, Matplotlib, and Scikit-learn.

Course Objectives:

1. Understand the fundamentals of data manipulation and analysis.
2. Acquire, clean, and preprocess data using Python.
3. Perform exploratory data analysis to gain insights and identify patterns.
4. Apply data transformation techniques to prepare data for analysis.
5. Utilize Python libraries for statistical analysis and data visualization.

Course Outcome:

1. Demonstrate a solid understanding of data manipulation concepts and techniques.
2. Acquire, clean, and preprocess data using Python.
3. Perform exploratory data analysis (EDA) to gain insights and identify patterns in data.
4. Apply various data transformation techniques to prepare data for analysis.
5. Utilize Python libraries, such as Pandas, NumPy, Matplotlib, and Scikit-learn, for data manipulation, analysis, and visualization.

Course Syllabus:

UNIT 1: Introduction to Data Manipulation

- Overview of data manipulation and analysis
- Introduction to Python for data manipulation
- Introduction to Jupyter Notebook
- Working with data types and structures in Python

UNIT 2: Data Acquisition and Cleaning

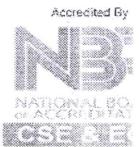
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- Data sources and formats
- Reading and writing data files
- Handling missing data and outliers
- Data cleaning and preprocessing techniques

UNIT 3: Exploratory Data Analysis (EDA)

- Data summarization and descriptive statistics
- Data visualization using Matplotlib and Seaborn
- Data exploration and feature engineering

UNIT 4: Data Transformation

- Data reshaping and restructuring
- Merging, joining, and concatenating data
- Applying functions and transformations to data

UNIT 5: Statistical Analysis

- Probability and statistical concepts
- Hypothesis testing and statistical inference
- Correlation and regression analysis

Resources:

1. "Python for Data Analysis" by Wes McKinney
2. "Python Data Science Handbook" by Jake VanderPlas
3. "Data Science from Scratch" by Joel Grus
4. "Data Wrangling with Python" by Jacqueline Kazil and Katharine Jarmul



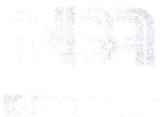
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DEPARTMENT OF CSE (AI&ML)

ADD ON COURSE NAME: DATA MANIPULATION AND ANALYSIS WITH PYTHON

Academic Year: 2021-22

Date: 01.08.2022

B. Tech. II - I SEM

DAY WISE SCHEDULE SHEET

Venue: A-block Seminar Hall

Sl. No.	Day	Topics	Timings	Duration
1	08/08/2022	Introduction to Data Manipulation	09.00 a.m. to 10.00 a.m.	01 hour
2	10/08/2022	Data Acquisition and Cleaning	09.00 a.m. to 10.00 a.m.	01 hour
3	11/08/2022	Exploratory Data Analysis (EDA)	09.00 a.m. to 10.00 a.m.	01 hour
4	12/08/2022	Data Transformation	09.00 a.m. to 10.00 a.m.	01 hour
5	16/08/2022	Statistical Analysis	09.00 a.m. to 10.00 a.m.	01 hour
6	17/08/2022	Machine Learning Fundamentals	09.00 a.m. to 10.00 a.m.	01 hour
7	18/08/2022	Machine Learning Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
8	19/08/2022	Advanced Topics in Data Analysis	09.00 a.m. to 10.00 a.m.	01 hour
9	22/08/2022	Python Basics for Data Manipulation	09.00 a.m. to 10.00 a.m.	01 hour
10	23/08/2022	Introduction to Jupyter Notebook	09.00 a.m. to 10.00 a.m.	01 hour
11	24/08/2022	Working with Data Types and Structures	09.00 a.m. to 10.00 a.m.	01 hour
12	25/08/2022	Reading and Writing Data Files	09.00 a.m. to 10.00 a.m.	01 hour
13	26/08/2022	Handling Missing Data and Outliers	09.00 a.m. to 10.00 a.m.	01 hour
14	29/08/2022	Data Cleaning and Preprocessing Techniques	09.00 a.m. to 10.00 a.m.	01 hour



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15	30/08/2022	Data Summarization and Descriptive Statistics	09.00 a.m. to 10.00 a.m.	01 hour
16	1/9/2022	Data Visualization using Matplotlib and Seaborn	09.00 a.m. to 10.00 a.m.	01 hour
17	2/9/2022	Data Exploration and Feature Engineering	09.00 a.m. to 10.00 a.m.	01 hour
18	6/9/2022	Data Reshaping and Restructuring	09.00 a.m. to 10.00 a.m.	01 hour
19	7/9/2022	Merging, Joining, and Concatenating Data	09.00 a.m. to 10.00 a.m.	01 hour
20	8/9/2022	Applying Functions and Transformations	09.00 a.m. to 10.00 a.m.	01 hour
21	9/9/2022	Probability and Statistical Concepts	09.00 a.m. to 10.00 a.m.	01 hour
22	12/09/2022	Hypothesis Testing and Statistical Inference	09.00 a.m. to 10.00 a.m.	01 hour
23	13/09/2022	Correlation and Regression Analysis	09.00 a.m. to 10.00 a.m.	01 hour
24	14/09/2022	Introduction to Machine Learning	09.00 a.m. to 10.00 a.m.	01 hour
25	15/09/2022	Supervised and Unsupervised Learning	09.00 a.m. to 10.00 a.m.	01 hour
26	16/09/2022	Model Evaluation and Validation Techniques	09.00 a.m. to 10.00 a.m.	01 hour
27	19/09/2022	Linear Regression	09.00 a.m. to 10.00 a.m.	01 hour
28	20/09/2022	Logistic Regression	09.00 a.m. to 10.00 a.m.	01 hour
29	21/09/2022	Decision Trees and Random Forests	09.00 a.m. to 10.00 a.m.	01 hour
30	22/09/2022	Clustering Algorithms	09.00 a.m. to 10.00 a.m.	01 hour
31	23/09/2022	Time Series Analysis	09.00 a.m. to 10.00 a.m.	01 hour
32	24/09/2022	Text Mining and Sentiment Analysis	09.00 a.m. to 10.00 a.m.	01 hour
				Total 32 hours



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HOD
Head of the Department
Computer Science and Engineering (AI & ML)
Vignan's Institute of Management & Technology For Women
Kondapur (V), Ghatkesar (M), Medchal-Malkajgiri (Dt)-501301



DEPARTMENT OF CSE (AI&ML)

PROGRAM REPORT

Date: 24.09.2022

The add-on course on "Data Manipulation and Analysis with Python" was successfully conducted from 8th August 2022 to 24th September 2022 (32 days). The course aimed to provide students with comprehensive knowledge and practical skills in data manipulation and analysis using Python. CSE (AI&ML) department organized the course; total **81 students** were attend the course. Timing form morning 9.00 a.m. to 10.00 a.m. in **A-block Seminar Hall**.

Mr. V. Maddileti Reddy, an experienced professional in the field of data science and Python programming, served as the resource person for the course. His expertise and guidance were invaluable in ensuring the delivery of high-quality content and hands-on learning experiences. **Mrs. P. Shilpa Sri**, the course coordinator, played a crucial role in managing the course logistics and coordinating with the students.

Throughout the duration of the course, participants gained a strong foundation in data manipulation and analysis techniques. The syllabus covered a wide range of topics, including data acquisition, cleaning, exploratory data analysis, statistical analysis, machine learning fundamentals, and advanced data analysis topics like time series analysis and text mining. The course emphasized practical implementation using popular Python libraries such as Pandas, NumPy, Matplotlib, and Scikit-learn.

The students actively participated in interactive lectures, hands-on coding exercises, and project work. The assignments and projects provided an opportunity for the students to apply their learnings to real-world datasets, enabling them to develop proficiency in data manipulation and analysis with Python. The course also fostered a collaborative learning environment, allowing students to engage in discussions, share insights, and learn from each other.

At the successful completion of the course, **58 CSE (AI&ML)** students and **23 AIDS B.Tech** 1st year IInd semester students were awarded the course completion certificates. The certificates serve as a testament to their dedication, effort, and achievement in acquiring the essential skills required for data manipulation and analysis using Python.




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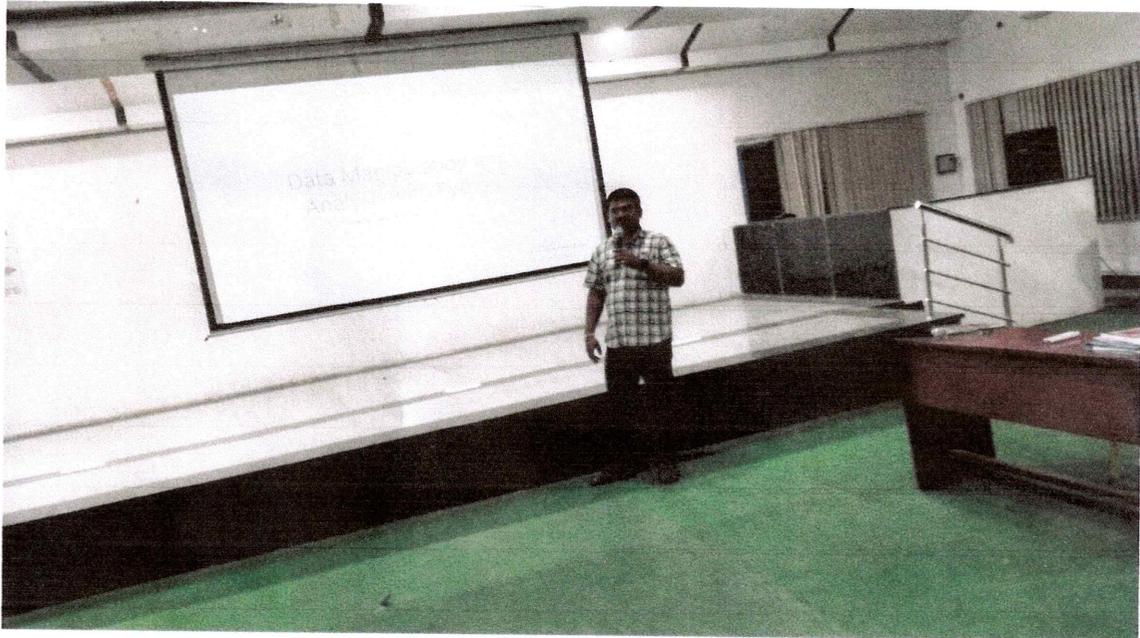
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COURSE OUTCOME:

Course Outcome (CO)	Program Outcome (PO)	Strength of Mapping
CO1: Demonstrate a solid understanding of data	PO1: Apply knowledge of mathematics, science, and	4
CO2: Acquire, clean, and preprocess data using	PO2: Identify, analyze, and solve complex	3
CO3: Perform exploratory data analysis (EDA)	PO3: Design and conduct experiments, as well	5
CO4: Apply various data transformation techniques	PO4: Design and develop solutions for complex	5
CO5: Utilize Python libraries for data	PO5: Use modern engineering tools, software,	2

The feedback received from the participants was overwhelmingly positive, highlighting the effectiveness of the course content, the expertise of the resource person, and the support provided by the course coordinator. The participants expressed their satisfaction with the hands-on approach, practical exercises, and the relevance of the topics covered in the course.

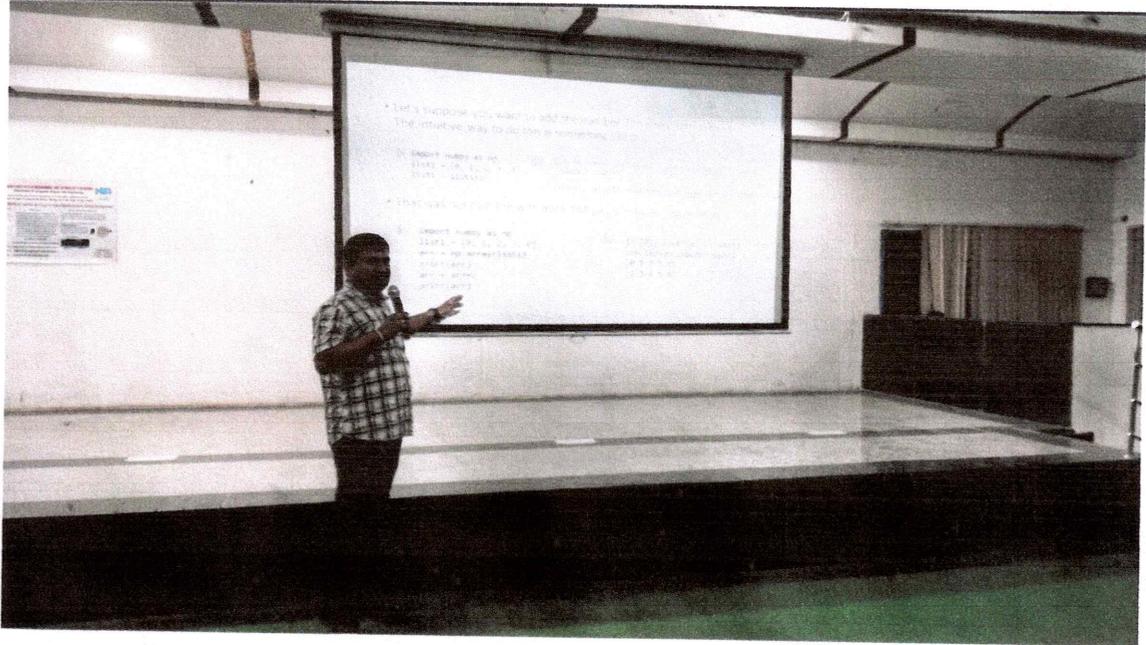



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The success of the course would not have been possible without the support and collaboration of the faculty, staff, and students. The CSE (AI&ML) department, under the guidance of the Head of the Department, ensured the smooth execution of the course. The administrative staff provided assistance in managing logistics and resources, contributing to the overall success of the program.

In conclusion, the add-on course on "Data Manipulation and Analysis with Python" provided a valuable learning experience for the participants, equipping them with essential skills in data manipulation and analysis. The course fostered a passion for data-driven decision-making and laid the foundation for further exploration in the field of data science and analytics. The CSE (AI&ML) department is committed to organizing similar initiatives in the future, catering to the growing demand for data science skills in the industry.

COORDINATOR



HOD

Head of the Department
Computer Science and Engineering (AI & ML)
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VMTW/EEE/AOC/2021-22/I/02

21-08-2021.

CIRCULAR

This is to inform all the IV B. Tech EEE students that there will be an Add on course on "Renewable Energy Technology" in association with VGNT (Vignan Institute of Technology and Science), from 13-09-2021 to 30-10-2021 All students are invited to take part in this course. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions.

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ABOUT THE COURSE

The proposed course will Apply principles of mathematical, natural science, and engineering science to identify, research, analyze, and formulate substantiated solution of complex practical food & biochemical technology problems, in additions to this course also has Ability to communicate effectively on professional activities with the engineering community to function effectively as an individual or leader in diverse teams in multi-disciplinary settings. Principles related to complex food solutions, its structural & functional stability and other parameters to ensure its safety in different processing treatments, as an industrial professional fulfilling principles of professional ethics, responsibilities, and norms of engineering practice.

COURSE OBJECTIVES

- Biological fuel generation.
- Biogas from anaerobic digestion.
- Hydrogen production by photosynthetic bacteria.
- Solar energy.



EXPECTED OUTCOMES

- Apply principles of mathematical, natural science, and engineering science to identify, research, analyze, and formulate substantiated solution of complex practical food & biochemical technology problems
- Design and develop solutions for practical engineering problems related to food, chemical & biochemical industries, and design system components or processes that meet specified needs with appropriate consideration for public health and safety, societal, and environmental considerations
- Design basic engineering processes along with products to meet societal needs within realistic constraints such as economic, environmental, ethical, cultural, human nutrition, feasibility, and sustainability.

Resource Person:

Mr. R. Ramanjan Prasad,

Associate Professor,

Vignan Institute of Technology and Science,
Deshmukhi, Hyderabad.

Co-ordinator:

Ms. K. Kumari,

Assistant Professor, Dept. of EEE,
Contact No: +91 9390438630



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ADD-ON COURSE ON "RENEWABLE ENERGY TECHNOLOGY"

13TH SEP TO 30TH OCT, 2021

DURATION OF THE COURSE: **31 HRS**

VENUE:

AGF-8, A-BLOCK, VMTW

ORGANIZED BY:

**DEPARTMENT OF ELECTRICAL AND
ELECTRONICS ENGINEERING**

[Signature]
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LAST DATE FOR REGISTRATION: 31ST AUGUST, 2021





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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ADD ON COURSE SYLLABUS: Renewable Energy Technology

Academic Year: 2021-22

B.Tech: IV

Branch: EEE

Course objectives:

- To understand the concept of Biological fuel generation
- Biogas and Thermal energy
- Hydrogen production and biophotolysis
- Detail explanation of Solar energy

Syllabus

Module 1: Biological fuel generation; Biomass as a renewable energy source; Types of biomass: forest, agricultural and animal residues; Industrial and domestic organic wastes; Conversion of biomass to clean fuels and petrochemical substitutes by physicochemical and/or fermentation processes.

Module 2: Biogas from anaerobic digestion; Thermal energy from biomass combustion; Ethanol from biomass.

Module 3: Hydrogen production by photosynthetic bacteria, biophotolysis of water and by fermentation; Microbial recovery of petroleum by biopolymers (Xanthum gum), biosurfactants.

Module 4: Solar energy; Solar collectors, solar pond, photovoltaic cells, chemical storage; Geothermal energy and wind energy; Use of geothermal energy; Operating principles of different types of wind energy mills; Nuclear energy; Nuclear reactions and power generation; Tidal wave energy.

REFERENCE BOOKS:

1. J.E.Smith - Biotechnology, 3rd edn
2. S.Sarkar - fuels and combustion, 2nd edn.
3. Fuel cells and their application by Kordesch, K and Simander
4. Biochemical conversion by immobilized whole cells by Karube, I and Suzuki, S

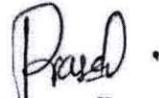


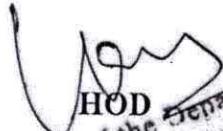

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5. An introduction to fuel cells by Williams, K.R
6. Electricity generation by microorganism by Bennetto, H.P


Coordinator


Resource Person


HOD
Head of the Department
Electrical and Electronics Engineering
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

06-09-2021

It is proposed to conduct an add on course (Outside the syllabus and to fill GAP) on “Renewable Energy Technology”. It is planned to schedule it from **13-09-2021 TO 30-10-2021** for 31 class-hours. These sessions will be delivered to IV B.Tech EEE students.

A total of 29 students will be benefitted from these sessions. Scheduled is attached.

Room number: AGF- 8

DAY	Topic	Timings	Duration
13-09-21	Biological fuel generation	04:00pm TO 05:00pm	1 hour
14-09-21	Biomass as a renewable energy source	04:00pm TO 05:00pm	1 hour
15-09-21	Types of biomass	04:00pm TO 05:00pm	1 hour
16-09-21	Types of biomass: forest, agricultural and animal residues	04:00pm TO 05:00pm	1 hour
17-09-21	Industrial and domestic organic wastes	04:00pm TO 05:00pm	1 hour
20-09-21	Conversion of biomass to clean fuels and petrochemical substitutes by physicochemical and/or fermentation processes	04:00pm TO 05:00pm	1 hour
21-09-21	Conversion of biomass to clean fuels and petrochemical substitutes by physicochemical and/or fermentation processes	04:00pm TO 05:00pm	1 hour
22-09-21	fermentation processes		
23-09-21	Biogas from anaerobic digestion	04:00pm TO 05:00pm	1 hour
24-09-21	Thermal energy from biomass combustion	04:00pm TO 05:00pm	1 hour
27-09-21	Thermal energy from biomass combustion	04:00pm TO 05:00pm	1 hour
28-09-21	Ethanol from biomass	04:00pm TO 05:00pm	1 hour
29-09-21	Hydrogen production by	04:00pm TO 05:00pm	1 hour




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	photosynthetic bacteria		
30-09-21	Hydrogen production by photosynthetic bacteria	04:00pm TO 05:00pm	1 hour
01-10-21	biophotolysis of water and by fermentation	04:00pm TO 05:00pm	1 hour
04-10-21	Microbial recovery of petroleum by biopolymers (Xanthum gum)	04:00pm TO 05:00pm	1 hour
05-10-21	biosurfactants	04:00pm TO 05:00pm	1 hour
07-10-21	Introduction to Solar energy	04:00pm TO 05:00pm	1 hour
08-10-21	Solar collectors	04:00pm TO 05:00pm	1 hour
09-10-21	solar pond	04:00pm TO 05:00pm	1 hour
18-10-21	photovoltaic cells	04:00pm TO 05:00pm	1 hour
20-10-21	chemical storage	04:00pm TO 05:00pm	1 hour
21-10-21	Geothermal energy and wind energy	04:00pm TO 05:00pm	1 hour
22-10-21	Use of geothermal energy	04:00pm TO 05:00pm	1 hour
23-10-21	Operating principles of different types of wind energy mills	04:00pm TO 05:00pm	1 hour
25-10-21	Nuclear energy	04:00pm TO 05:00pm	1 hour
26-10-21	Nuclear reactions and power generation	04:00pm TO 05:00pm	1 hour
27-10-21	Tidal wave energy	04:00pm TO 05:00pm	1 hour
28-10-21	Tidal wave energy	04:00pm TO 05:00pm	1 hour
29-10-21	Conclusion on RET	04:00pm TO 05:00pm	1 hour
30-10-21	Assessment test and Feedback	04:00pm TO 05:00pm	1 hour
Total 31 hours			


Coordinator




HOD, EEE

Head of the Department
Electrical and Electronics Engineering
Vignans Institute of Management and Technology,
Kondapur (V), Ghatkesar (M), R.R. Dist-5


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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Date: 01-11-2021.

PROGRAM REPORT

Name of the Add on Course: Renewable Energy Technology

Day/Duration: 32 hours

Time: 04:00 PM to 05: 00 PM

Resource Person: Mr. Repana Ramanjan Prasad, Associate Professor, VGNT, Hyderabad

Name of the Coordinator: Ms. K. Kumari, Assistant Professor, VMTW, Hyderabad

Number of the Participants: 29

Topics covered: The following topics covered in this program

- Bio fuels
- Bio gas
- Biophotolysis
- Solar energy

Course Outcomes:

COs	At the end of the course, students will have the ability to:	Pos Mapped	Strength of mapping
CO1	Apply principles of mathematical, natural science, and engineering science to identify, research, analyze, and formulate substantiated solution of complex practical food & biochemical technology problems	PO3,PO5	2
CO2	Design basic engineering processes along with products to meet societal needs within realistic constraints such as economic, environmental, ethical, cultural, human nutrition, feasibility, and sustainability	PO2	2




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CO3	Ability to create, select, and apply appropriate knowledge, techniques, resources with a view of modern engineering, instrumental and computational tools, including prediction and modeling to different Biochemical reactions, with an understanding of the limitations	PO3, PO2	3
CO4	Ability to communicate effectively on professional activities with the engineering community to function effectively as an individual or leader in diverse teams in multi-disciplinary settings	PO4	3
CO5	Apply principles related to complex food solutions, its structural & functional stability and other parameters to ensure its safety in different processing treatments, as an industrial	PO4,PO5	3

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice Questions through offline Mode.


Coordinator


EEE, HOD
Head of the Department
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VMTW/ECE/AOC/CIR/2021-22/1/01

Date: 08-09-2021

CIRCULAR

This is to inform all the IV B.Tech ECE students that there will be an Add on course on " **Modern Chip Design and Its Applications** " in association with Elegant Embedded Solutions Pvt Ltd. from **13-09-2021 to 30-10-2021** All students are invited to take part in this course. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form.



HOD

Head of the Department
Electronics and Communication Engineering
Vignan's Institute of Management & Technology For Women
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ABOUT THE COURSE

Introduction to IC Technology – MOS, PMOS, NMOS, CMOS & BiCMOS Basic Electrical Properties: Basic Electrical Properties of MOS and BiCMOS Circuits VLSI Circuit Design Processes: VLSI Design Flow, MOS Layers, Stick Diagrams, Design Rules and Layout, Transistors Layout Diagrams for NMOS and CMOS Inverters and Gates, Scaling of MOS circuits Gate Level Design: Logic Gates and Other complex gates, Switch logic. Data Path Subsystems Programmable Logic Devices: Design Approach – PLA, PAL, Standard Cells FPGAs, CPLDs. CMOS.

COURSE OBJECTIVES

The objectives of the course are to: Give exposure to different steps involved in the fabrication of ICs. Explain the electrical properties of MOS and BiCMOS devices to analyze the behavior of inverters designed with various loads. Give exposure to the design rules to be followed to draw the layout of any logic circuit. Provide design concepts to design building blocks of the data path of any system using gates. Understand basic programmable logic devices and testing of CMOS circuits.

EXPECTED OUTCOMES

The student will be able to. Acquire qualitative knowledge about the fabrication process of integrated circuits using MOS transistors. 2. Draw the layout of any logic circuit which helps to understand and estimate the parasitic effect of any logic circuit. Design building blocks of data path systems, memories, and simple logic circuits using PLA, PAL, FPGA, and CPLD. Understand different types of faults that can occur in a system and learn the concept of testing and adding extra hardware to improve the testability of the system

Resource Person:

Mr. I. Shankar Rao,

Technical Manager,

Elegant Embedded Solutions Pvt. Ltd.,
Hyderabad.

Co-ordinator:

Mr. T. Pullaiah,

Associate Professor,
Department of ECE,

Contact No: +91 96425 64980

LAST DATE FOR REGISTRATION: 10TH SEPTEMBER, 2021



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ADD-ON COURSE ON

**“MODERN CHIP DESIGN
AND ITS APPLICATIONS”**

13TH SEP TO 30TH OCT, 2021

IN ASSOCIATION WITH:



ELEGANT EMBEDDED SOLUTIONS PVT. LTD.

DURATION OF THE COURSE : **33 HRS**

VENUE: **BFF-7, B-BLOCK, VMTW**

ORGANIZED BY:

**DEPARTMENT OF ELECTRONICS AND
COMMUNICATION ENGINEERING**

PRINCIPAL

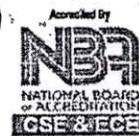
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

MODERN CHIP DESIGN AND ITS APPLICATIONS

SYLLABUS

Academic Year : 2021-2022

B.Tech IV-I SEM

SECTION : ECE-A&B

Course Objectives:

- ❖ To understand basic programmable logic devices and testing of CMOS circuits
- ❖ To explain the electrical properties of MOS and BiCMOS devices to analyze the behavior of inverters designed with various loads
- ❖ Give exposure to different steps involved in the fabrication of ICs
- ❖ To understand basic programmable logic devices and testing of CMOS circuits.
- ❖ To learn chip level Test Techniques

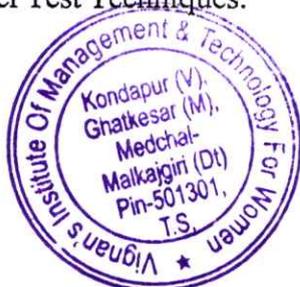
UNIT – I :Introduction: Introduction to IC Technology – MOS, PMOS, NMOS, CMOS & BiCMOS Basic Electrical Properties: Basic Electrical Properties of MOS and BiCMOS Circuits: Ids-Vds relationships, MOS transistor threshold Voltage, gm, gds, Figure of merit; Pass transistor, NMOS Inverter, Various pull ups, CMOS Inverter analysis and design, Bi-CMOS Inverters.

UNIT – II: VLSI Circuit Design Processes: VLSI Design Flow, MOS Layers, Stick Diagrams, Design Rules and Layout, Transistors Layout Diagrams for NMOS and CMOS Inverters and Gates, Scaling of MOS circuits.

UNIT – III: Gate Level Design: Logic Gates and Other complex gates, Switch logic, Alternate gate circuits, Time delays, Driving large capacitive loads, Wiring capacitance, Fan – in, Fan – out.

UNIT – IV: Data Path Subsystems: Subsystem Design, Shifters, Adders, ALUs, Multipliers, Parity generators, Comparators, Zero/One Detectors, Counters. Array Subsystems: SRAM, DRAM, ROM, Serial Access Memories.

UNIT – V: Programmable Logic Devices: Design Approach – PLA, PAL, Standard Cells FPGAs, CPLDs. CMOS Testing: CMOS Testing, Test Principles, Design Strategies for test, Chip level Test Techniques.



[Signature]
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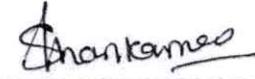
TEXT BOOKS:

1. Essentials of VLSI circuits and systems – Kamran Eshraghian, Eshraghian Douglas and A. Pucknell, PHI, 2005 Edition R18 B.TECH ECE III YEAR
2. CMOS VLSI Design – A Circuits and Systems Perspective, Neil H. E Weste, David Harris, Ayan Banerjee, 3rd Ed, Pearson, 2009.

REFERENCE BOOKS:

1. Introduction to VLSI Systems: A Logic, Circuit and System Perspective – Ming-BO Lin, CRC Press, 2011
2. CMOS logic circuit Design - John. P. Uyemura, Springer, 2007.


COORDINATOR


RESOURCE PERSON


HOD

Head of the Department
Electronics and Communication Engineering
Vignan's Institute of Management & Technology For Women
Kondapur (V), Ghatkesar (M), Medchal-Malkajgiri (Dt)-501301
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E.I.T.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ADD ON COURSE NAME: **Modern Chip Design and Its Applications**

DAY WISE SCHEDULE SHEET

Academic Year : 2021-2022

Date : 08-09-2021

B.Tech IV-I SEM

SECTION : ECE-A & B

Room number: BFF7

S.No	DAY	Topic	Timings	Duration
1.	13-09-21	Introduction to IC Technology	04:00pm to 05:00pm	1 hour
2.	14-09-21	MOS, PMOS, NMOS, CMOS &	04:00pm to 05:00pm	1 hour
3.	15-09-21	Basic Electrical Properties	04:00pm to 05:00pm	1 hour
4.	16-09-21	Basic Electrical Properties of MOS and	04:00pm to 05:00pm	1 hour
5.	17-09-21	Basic Electrical Properties of MOS and	04:00pm to 05:00pm	1 hour
6.	18-09-21	Ids-Vds relationships	04:00pm to 05:00pm	1 hour
7.	20-09-21	MOS transistor threshold Voltage, gm,	04:00pm to 05:00pm	1 hour
8.	21-09-21	Figure of merit; Pass transistor	04:00pm to 05:00pm	1 hour
9.	22-09-21	NMOS Inverter	04:00pm to 05:00pm	1 hour
10.	23-09-21	Various pull ups	04:00pm to 05:00pm	1 hour
11.	24-09-21	CMOS Inverter analysis and design	04:00pm to 05:00pm	1 hour
12.	25-09-21	Bi-CMOS Inverters.	04:00pm to 05:00pm	1 hour
13.	27-09-21	VLSI Circuit Design Processes	04:00pm to 05:00pm	1 hour
14.	28-09-21	VLSI Design Flow	04:00pm to 05:00pm	1 hour
15.	29-09-21	MOS Layers	04:00pm to 05:00pm	1 hour
16.	30-09-21	Stick Diagrams	04:00pm to 05:00pm	1 hour
17.	01-10-21	Design Rules and Layout	04:00pm to 05:00pm	1 hour
18.	04-10-21	Transistors Layout Diagrams for NMOS	04:00pm to 05:00pm	1 hour
19.	05-10-21	Scaling of MOS circuits	04:00pm to 05:00pm	1 hour
20.	06-10-21	Gate Level Design: Logic Gates and	04:00pm to 05:00pm	1 hour
21.	07-10-21	Switch logic, Alternate gate circuits	04:00pm to 05:00pm	1 hour
22.	18-10-21	Time delays, Subsystem Design	04:00pm to 05:00pm	1 hour
23.	19-10-21	Data Path Subsystems:	04:00pm to 05:00pm	1 hour
24.	20-10-21	Shifters, Adders, ALUs, Multipliers,	04:00pm to 05:00pm	1 hour
25.	21-10-21	Comparators, Zero/One Detectors	04:00pm to 05:00pm	1 hour
26.	22-10-21	Counters, Array Subsystems: SRAM,	04:00pm to 05:00pm	1 hour



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27.	23-10-21	ROM, Serial Access Memories. DRAM	04:00pm to 05:00pm	1 hour
28.	25-10-21	Design Approach – PLA, PAL	04:00pm to 05:00pm	1 hour
29.	26-10-21	Standard Cells FPGAs, CPLDs	04:00pm to 05:00pm	1 hour
30.	27-10-21	CMOS Testing, Test Principles	04:00pm to 05:00pm	1 hour
31.	28-10-21	Design Strategies for test	04:00pm to 05:00pm	1 hour
32.	29-10-21	Chip level Test Techniques	04:00pm to 05:00pm	1 hour
33.	30-10-21	Test conducted, feedback taken	04:00pm to 05:00pm	1 hour
Total – 33hours				


CO ORDINATOR


HOD

Head of the Department
Electronics and Communication Engineering
Vignan's Institute of Management and Technology for Women
Kondapur (V), Ghatkesar (M), R.R., Dist-501 301




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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Date: 02 -11- 2021

PROGRAM REPORT

Name of the Add on Course: Modern Chip Design and Its Applications

Day/Duration: 33 hours

Time: 4:00pm to 5:00pm

Resource Person: Mr. I.Shankar Rao, Elegant Embedded Solutions Pvt. Ltd. Hyderabad

Name of the Coordinator: Mr.T.Pullaiiah, Associate Professor, VMTW, Hyderabad

Number of the Participants: 100

Topics covered: The following topics covered in this program

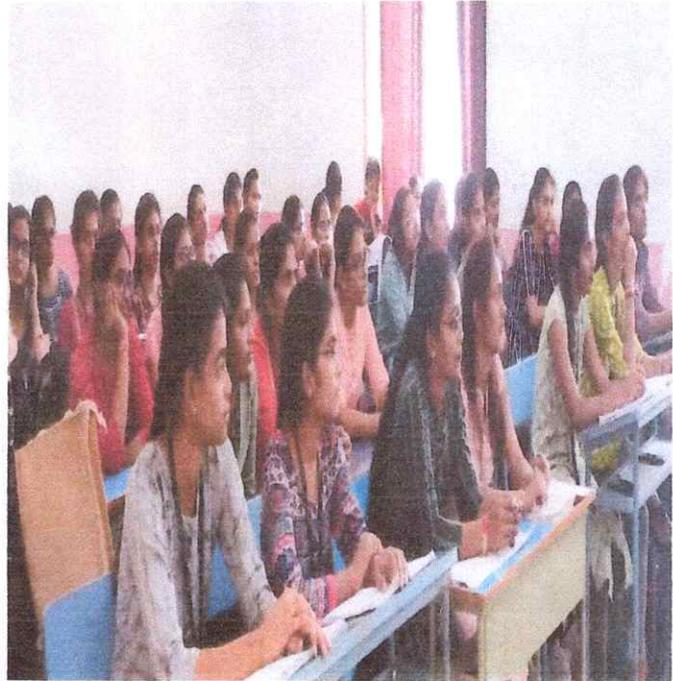
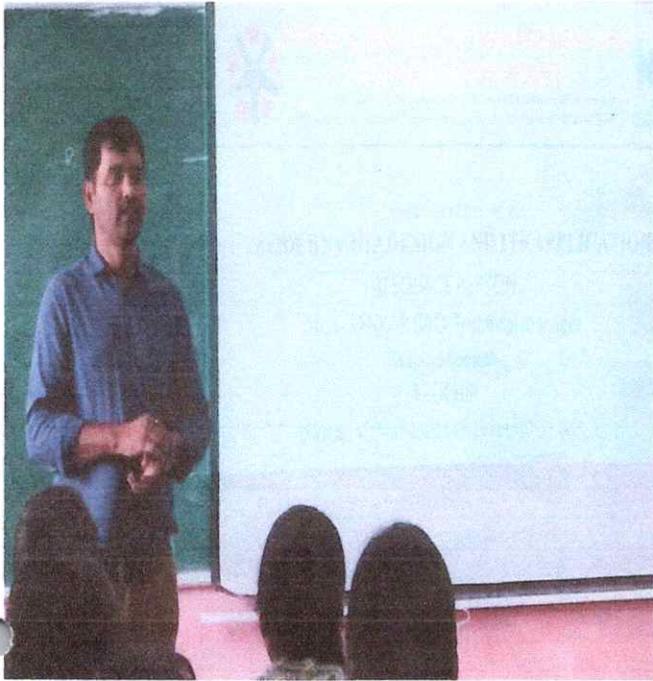
- ❖ Fabrications of ICs
- ❖ MOS/CMOS/BiCMOS
- ❖ Counters
- ❖ Programmable Logic Devices
- ❖ CMOS Testing

Course Outcomes:

COs	At the end of the course, students will have the ability to:	Pos Mapped	Strength of mapping
CO1	To Learn basic programmable logic devices and testing of CMOS circuits	PO2,PO4	2
CO2	To Understand the electrical properties of MOS and BiCMOS devices	PO3,PO5	3
CO3	Give exposure to different steps involved in the fabrication of ICs	PO2,PO4,PO7	2
CO4	Understand basic programmable logic devices and testing of CMOS circuits	PO3,PO5	3
CO5	Learn chip level Test Techniques	PO4,PO7	1




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Modern Chip Design and Its Applications: Add on course explaining by Mr. I.Shankar Rao, Elegant Embedded Solutions Pvt.Ltd, Hyderabad

By having such a wonderful event students are able to understand chip designs, and are able to design chips ,and understood VLSI basic concepts,and know how to Design and Analysis of modern chips . So, students are thankful to the department for conducting such type of event and they also want this event to be held further more.

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice Questions through offline Mode.

COORDINATOR

HOD

Head of the Department
Electronics and Communication Engineering
Vignan's Institute of Management & Technology For Women
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VMTW/ECE/AOC/CIR/2021-22/I-SEM/02

11-09-2021

CIRCULAR

This is to inform all the III B.Tech ECE students that there will be an Add on course on "Design of Smart Antenna Systems and Its Importance " in association with Elegant Embedded Solutions Pvt. Ltd from 17-09-2021 to 02-11-2021 All students are invited to take part in this course. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form.

HOD

Head of the Department
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Vignan's Institute of Management & Technology For Women
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ABOUT THE COURSE

In this course, introduce about Antenna Theory: Antennas, Radiation concept, Types of Antennas, Antenna parameters, Friis Transmission equation Aperture Antenna: Introduction Microstrip Radiators: Introduction, Rectangular Microstrip Antenna analysis and Design, Circular Microstrip Antenna Analysis and Design, Microstrip Slot Antennas: Wave guide fed slots, Radiation mechanism, Microstrip slot antennas, Introduction to rectangular slot antennas, narrow, wide, tapered and circularly polarized slot antennas, Annular slot antennas, Comparison of microstrip slot antennas with patch antennas. Micro Strip Antenna Arrays: Introduction, Micro strip array antennas, Characteristics of fixed beam linear antenna arrays, Linear microstrip arrays, Characteristics of planar arrays, Microstrip planar arrays, Microstrip scanned array antennas, Phase scanned microstrip arrays, Time delay scanning, Electronic feed switching, Frequency scanned microstrip arrays.

COURSE OBJECTIVES

To familiarize the basic concepts of antenna parameters and radiation mechanism. To

analyze aperture antennas with the knowledge of various theorems. To study the principles of frequency independent antenna design. To understand, analyze and synthesize array antennas and also know the concepts of smart antennas.

EXPECTED OUTCOMES

The student will be able to Analyze the different types of antennas with the help of basic antenna fundamentals. Utilize the various microwave antennas by understanding the principle of working of it. Apply the knowledge in the design of various microwave aperture antennas. Acquire basic knowledge of smart antenna design.

Resource Person:

Mrs. K. Sampurna,

Senior Engineer,

Elegant Embedded Solutions Pvt. Ltd.,
Hyderabad.

Co-ordinator:

Ms. G. Ganesh Reddy,

Assistant Professor,

Department of ECE,

Contact No: +91 99514 07307

LAST DATE FOR REGISTRATION: 11TH SEPTEMBER, 2021



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VALUE ADDED COURSE ON "DESIGN OF SMART ANTENNA SYSTEMS AND ITS IMPORTANCE"

17TH SEP TO 2ND NOV, 2021

IN COLLABORATION WITH:



ELEGANT EMBEDDED SOLUTIONS PVT. LTD.

DURATION OF THE COURSE : **32 HRS**

VENUE: **BFF-3, B-BLOCK, VMTW**

ORGANIZED BY:

**DEPARTMENT OF ELECTRONICS AND
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Design of Smart Antenna Systems and Its Importance Syllabus

Academic Year: 2021-2022

B.Tech III-I SEM

SECTION : ECE-A&B

Course Objectives:

- To understand the basic concepts of Smart antennas
- To study the principles of frequency independent antenna design
- To analyze the Integration and Simulation of Smart Antennas
- To analyze and synthesize array antennas and also know the concepts of Smart antennas.
- To Learn Space– Time Beamforming

UNIT - I :Smart Antennas: Introduction, Need for Smart Antennas, Overview, Smart Antenna Configurations, Switched-Beam Antennas, Adaptive Antenna Approach, Space Division Multiple Access (SDMA), Architecture of a Smart Antenna System, Receiver, Transmitter, Benefits and Drawbacks, Basic Principles, Mutual Coupling Effects.

UNIT - II :DOA Estimation Fundamentals: Introduction, Array Response Vector, Received Signal Model, Subspace-Based Data Model, Signal Autocovariance, Conventional DOA Estimation Methods, Conventional Beam forming Method, Capon's Minimum Variance Method, Subspace Approach to DOA Estimation, MUSIC Algorithm, ESPRIT Algorithm, Uniqueness of DOA Estimates.

UNIT - III Beam Forming Fundamentals: Classical Beam former, Statistically Optimum Beam forming Weight Vectors, Maximum SNR Beam former, Multiple Sidelobe Canceller and Maximum, SINR Beam former, Minimum Mean Square Error (MMSE), Direct Matrix Inversion (DMI), Linearly Constrained Minimum Variance (LCMV), Adaptive Algorithms for Beamforming

UNIT - IV :Integration and Simulation of Smart Antennas: Overview, Antenna Design, Mutual Coupling, Adaptive Signal Processing Algorithms, DOA, Adaptive Beam forming, Beam forming and Diversity Combining for Rayleigh-Fading, Channel, Trellis-Coded Modulation (TCM) for Adaptive Arrays, Smart Antenna Systems for Mobile Adhoc Networks (MANETs), Protocol, Simulations, Discussion.

UNIT - V Space-Time Processing: Introduction, Discrete Space-Time Channel and Signal Models, Space-Time Beamforming, Intersymbol and Co-Channel Suppression, Space-Time Processing for DSCDMA, Capacity, and Data Rates in MIMO Systems, Discussion.



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TEXT BOOKS:

1. Constantine A. Balanis & Panayiotis I. Ioannides, "Introduction to Smart Antennas", Morgan & Claypool Publishers' series-2007
2. Joseph C. Liberti Jr., Theodore S Rappaport, "Smart Antennas for Wireless Communications IS-95 and Third Generation CDMA Applications", PTR – PH publishers, 1st Edition, 1989.

REFERENCE BOOKS:

1. T.S Rappaport, "Smart Antennas Adaptive Arrays Algorithms and Wireless Position Location", IEEE press 1998, PTR – PH publishers 1999.
2. Lal Chand Godara, "Smart Antennas", CRC Press, LLC-20



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ADD ON COURSE NAME: **Design of Smart Antenna Systems and Its Importance**

DAY WISE SCHEDULE SHEET

Academic Year : 2021-2022

Date : 11-09-2021

B.Tech III-I SEM

SECTION : ECE-A & B

Room number: BFF3

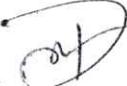
S.No	DAY	Topic	Timings	Duration
1.	17-09-21	Antenna Theory: Antennas	04:00pm to 05:00pm	1 hour
2.	18-09-21	Radiation concept	04:00pm to 05:00pm	1 hour
3.	20-09-21	Types of Antennas	04:00pm to 05:00pm	1 hour
4.	21-09-21	Antenna parameters	04:00pm to 05:00pm	1 hour
5.	22-09-21	Friis Transmission equation	04:00pm to 05:00pm	1 hour
6.	23-09-21	Aperture Antenna: Introduction	04:00pm to 05:00pm	1 hour
7.	24-09-21	Pyramidal Horns- Design Procedure	04:00pm to 05:00pm	1 hour
8.	25-09-21	Conical and Corrugated Horns	04:00pm TO 05:00pm	1 hour
9.	27-09-21	Aperture Corrugated Horns	04:00pm to 05:00pm	1 hour
10.	28-09-21	Reflected Antennas- Parameters	04:00pm to 05:00pm	1 hour
11.	29-09-21	Analysis of front-fed parabolic reflector	04:00pm to 05:00pm	1 hour
12.	30-09-21	Feed methods and feed types	04:00pm to 05:00pm	1 hour
13.	01-10-21	Cassegrain Reflector	04:00pm to 05:00pm	1 hour
14.	04-10-21	Microstrip Radiators: Introduction	04:00pm to 05:00pm	1 hour
15.	05-10-21	Rectangular Microstrip	04:00pm to 05:00pm	1 hour
16.	06-10-21	Antenna analysis and Design	04:00pm to 05:00pm	1 hour
17.	07-10-21	Circular Micro strip Antenna Analysis and Design	04:00pm to 05:00pm	1 hour
18.	08-10-21	Microstrip Slot Antennas:Wave guide fed slots	04:00pm to 05:00pm	1 hour
19.	18-10-21	Radiation mechanism	04:00pm to 05:00pm	1 hour
20.	19-10-21	Micro strip slot antennas	04:00pm to 05:00pm	1 hour
21.	20-10-21	Introduction to rectangular slot	04:00pm to 05:00pm	1 hour




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22.	21-10-21	Narrow, wide, tapered and circularly polarized slot antennas	04:00pm to 05:00pm	1 hour
23.	22-10-21	Annular slot antennas	04:00pm to 05:00pm	1 hour
24.	23-10-21	Comparison of microstrip slot	04:00pm to 05:00pm	1 hour
25.	25-10-21	Arrays Introduction	04:00pm to 05:00pm	1 hour
26.	26-10-21	Micro strip array antennas, Characteristics of fixed beam linear antenna arrays	04:00pm to 05:00pm	1 hour
27.	27-10-21	Linear micro strip arrays	04:00pm to 05:00pm	1 hour
28.	28-10-21	Characteristics of planar arrays	04:00pm to 05:00pm	1 hour
29.	29-10-21	Microstrip planar arrays	04:00pm to 05:00pm	1 hour
30.	30-10-21	Characteristics of planar arrays	04:00pm to 05:00pm	1 hour
31.	01-11-21	Microstrip planar arrays	04:00pm to 05:00pm	1 hour
32.	02-11-21	Test Conducted and Feedback Form	04:00pm to 05:00pm	1 hour
Total – 32 hours				


COORDINATOR


HOD

Head of the Department
Electronics and Communication Engineering
Vignn's Institute of Management and Technology For Women
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Date: 04-11-2021

PROGRAM REPORT

Name of the Add on Course: Design of Smart Antenna Systems and its Importance

Day/Duration: 32 hours

Time: 4:00pm to 5:00pm

Resource Person: Mrs.K.Sampurna, Elegant Embedded Solutions Pvt.Ltd, Hyderabad.

Name of the Coordinator: Mr.G.Ganesh Reddy, Assistant professor, VMTW, Hyderabad.

Number of the Participants: 90

Topics covered: The following topics covered in this program

- Smart Antennas
- Simulation of Smart Antennas
- Array Response Vector
- Minimum Mean Square Error
- Space- Time Beam forming

Course Outcomes:

COs	At the end of the course, students will have the ability to:	POs Mapped	Strength of mapping
CO1	Introduction of Smart Antennas	PO2,PO5	3
CO2	Integration and Simulation of Smart Antennas	PO4,PO3	2
CO3	Study the principles of frequency independent antenna design	PO2,PO4,PO6	3
CO4	Analyze and synthesize array antennas and also know the concepts of Smart antennas	PO4,PO7	1
CO5	Learn the Space- Time Beam forming	PO4,PO6	2



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Telangana State



Design of Smart Antenna Systems and its Importance: Add on course explaining by Mrs.K.Sampurna, Elegant Embedded Solutions Pvt.Ltd, Hyderabad.

By having such a wonderful event students are able to understand Smart antenna characteristics, and are able to design antenna and they learnt definitions of different antenna characteristic parameters and establish their mathematical relations. So, Students are thankful to the department for conducting such type of event and they also want this event to be held further more.

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice Questions through offline Mode.


COORDINATOR





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Head of the Department
Electronics and Communication Engineer:
Vignan's Institute of Management & Technology For Women
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VMTW/ECE/AOC/CIR/2021-22/1/03

21-10-2021

CIRCULAR

This is to inform all the II B. Tech ECE students that there will be an Add on course on "AI and ML in Signal Processing Applications" in association with Brain O Vision Hyderabad, on 28-10-2021 to 10-12-2021 All students are invited to take part in this course. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form.

HOD

Head of the Department

Electronics and Communication Engineering
Vignans Institute of Management & Technology For Women
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ABOUT THE COURSE

In this course, the focus is to providing necessary theoretical/mathematical foundations and on the applications of the tools and techniques for building engineering solutions that use image/video as primary data source. This course deals with various algorithms to enable computers to learn data without being explicitly programmed. An insight into various types of machine learning algorithms, strategies for model generation and evaluation are given in this course. The fundamental machine learning algorithms required in industries are covered together with their concrete implementations. This course will deal with the fundamental principles of Artificial Intelligence including knowledge representation, reasoning, decision making and programming techniques. The course will also support developing an understanding of the theoretical relationships between these algorithms.

COURSE OBJECTIVES

Build strong fundamentals on the techniques used for image and video processing . To able to wisely choose between techniques and if needed devise new techniques when building solutions to different computer vision problem To understand fundamental concepts of machine learning and its various algorithms and various strategies of generating models from data and evaluating them .Applying ML algorithms on given data and interpret the results obtained .Designing appropriate ML solution to solve real world problems in AI domain The principles of Artificial Intelligence & learn and design intelligent agents and the basic areas of artificial intelligence including problem solving, knowledge representation, reasoning, decision making, planning, perception and action

EXPECTED OUTCOMES

Understand basic image processing techniques. Identify applications of each of the techniques. Apply image processing techniques for real life interdisciplinary applications (based on student's specialization) Develop a good understanding of fundamental principles of machine learning. Formulation of a Machine Learning problem and develop a model using supervised/unsupervised machine learning algorithms for classification/prediction/clustering. Evaluate performance of various machine learning algorithms on various data sets of a domain. Design and Concrete implementations of various machine learning algorithms to solve a given problem using languages such as Python The tools and program paradigms of AI. Apply intelligent agents for Artificial Intelligence programming techniques. Applying problem solving through search for AI applications and logic and reasoning techniques to AI applications

Resource Person:

Mr. Dharmasoth Naveen.M,

Sr. Engineering,

Brain O Vision, Hyderabad.

Co-ordinator:

Mr. T. Pullaiah,

Associate Professor,

Department of ECE,

Contact No: +91 96425 64980



LAST DATE FOR REGISTRATION: 26TH OCT, 2021



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ADD-ON COURSE ON "AI&ML IN SIGNAL PROCESSING APPLICATIONS"

28TH OCT TO 10TH DEC, 2021

In association with:



**BRAIN O
VISION**

DURATION OF THE COURSE : **33 HRS**

VENUE:

BFF-6, B-BLOCK, VMTW

ORGANIZED BY:

**DEPARTMENT OF ELECTRONICS AND
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

AI and ML in Signal Processing Applications

SYLLABUS

Academic Year : 2021-2022

B.Tech II-I SEM
A&B

SECTION : ECE-

Course Objectives:

- To understand the basic signal processing techniques.
- To identify applications of each of the techniques. Apply signal processing techniques for real life interdisciplinary applications (based on student's specialization)
- To develop a good understanding of fundamental principles of machine learning and AI
- To understand fundamental concepts of machine learning and its various algorithms and various strategies
- To learn Artificial Intelligence programming techniques.

UNIT-I : Image Processing and Applications

Image representation: Types of Images, Image acquisition, Fundamental steps in Image processing, Image enhancement, Filtering in spatial and frequency domains Image Segmentation: Edge Detection, thresholding, region based segmentation, motion in segmentation. Image Morphology: Need of morphology, Morphological applications Image Compression: lossy and lossless compression techniques, JPEG standard. Reconstruction from projections. Thermal imaging. Color Image Processing Case studies: Image Processing Applications in various disciplines.

UNIT-II : Introduction to Machine Learning

Introduction: Machine learning, Terminologies in machine learning, Types of machine learning: supervised, unsupervised, semi-supervised learning. Discriminative Models: Least Square Regression, Gradient Descent Algorithm, Univariate and Multivariate Linear Regression, Prediction Model, Probabilistic interpretation, Regularization, Logistic regression, multi class classification, Support Vector Machines- Large margin classifiers, Nonlinear SVM, kernel functions, SMO algorithm.

UNIT-III : Generative models of ML

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Gaussian models: Multivariate Gaussian distributions, Maximum Likelihood Estimate, Inferring parameters, Mixture models, EM algorithm for clustering and learning with latent variables. Linear Discriminative Analysis, Naïve Bayes classifier, Decision trees, Ensemble models – Bagging and Boosting. Unsupervised Learning Algorithms: Dimensionality Reduction Principal Component Analysis (PCA), Singular Value Decomposition (SVD). Clustering – Hierarchical, Partitioned clustering : K-means, PAM, eXplainable AI (XAI), Approaching an ML problem

UNIT-IV: Foundations of Artificial Intelligence

Logic and Knowledge Representation - Knowledge base - Ontology - Commonsense Knowledge Representation of Commonsense knowledge – Graphical models – Belief networks - State space representation – Vector representation - Propositional logic and predicate logic – Propositional and predicate logic - Syntax - Informal and formal semantics - Validity, satisfiability - Semantic entailment - Equivalence - De Morgan's laws - Decidable problems - Many-sorted logic - first-order, aspects of higher-order logic.

UNIT-V: Decision Theory Decision-Making

Basics of utility theory, decision theory, sequential decision problems, decision networks, elementary game theory, sample applications; Problem-solving through Search: forward and backward, state-space, blind, heuristic, hill climbing, best-first, A, A*, AO*, minimax, constraint propagation, intelligent search, meta-heuristics, problem-reduction, neural and stochastic; Intelligent agents - reactive, deliberative, goal-driven, utility-driven, and learning agents Artificial Intelligence programming techniques; Planning: planning as search, partial order planning, construction and use of planning graph.

Text Book :

- 1.S. Sridhar, "Digital Image Processing", Oxford University Press, 2011
- 2.. Russell, Norvig, Artificial Intelligence: A Modern Approach, Third edition, Prentice Hall, 2010

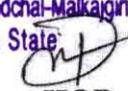
References:

1. Tsang. Foundations of constraint satisfaction, Academic press, 1993
2. Tom Mitchell, "Machine Learning", McGraw Hill, 1997 2. E. Alpaydin, "Introduction to Machine Learning"


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ADD ON COURSE NAME: **AI and ML in Signal Processing Applications**

DAY WISE SCHEDULE SHEET

Academic Year: 2021-2022

Date: 21-10-2021

B.Tech II-I SEM

SECTION : ECE-A&B

Room number: BFF6

S.No	DAY	Topic	Timings	Duration
1.	28-10-21	Image acquisition, Fundamental steps in Image	04:00pm to 05:00pm	1 hour
2.	29-10-21	Region based segmentation	04:00pm to 05:00pm	1 hour
3.	30-10-21	Motion in segmentation	04:00pm to 05:00pm	1 hour
4.	01-11-21	Image Morphology: Need of morphology	04:00pm to 05:00pm	1 hour
5.	02-11-21	Morphological applications Image	04:00pm to 05:00pm	1 hour
6.	03-11-21	Compression: lossy and lossless compression	04:00pm to 05:00pm	1 hour
7.	08-11-21	JPEG standard	04:00pm to 05:00pm	1 hour
8.	09-11-21	Reconstruction from projections	04:00pm to 05:00pm	1 hour
9.	10-11-21	Thermal imaging	04:00pm to 05:00pm	1 hour
10.	11-11-21	Color Image Processing Case studies	04:00pm to 05:00pm	1 hour
11.	12-11-21	Image Processing Applications in various	04:00pm to 05:00pm	1 hour
12.	13-11-21	Introduction: Machine learning, Terminologies	04:00pm to 05:00pm	1 hour
13.	15-11-21	Types of machine learning: supervised,	04:00pm to 05:00pm	1 hour
14.	16-11-21	Discriminative Models: Least Square	04:00pm to 05:00pm	1 hour
15.	17-11-21	28 Gradient Descent Algorithm	04:00pm to 05:00pm	1 hour
16.	18-11-21	Univariate and Multivariate Linear Regression	04:00pm to 05:00pm	1 hour
17.	22-11-21	Prediction Model	04:00pm to 05:00pm	1 hour
18.	23-11-21	Probabilistic interpretation	04:00pm to 05:00pm	1 hour
19.	24-11-21	Regularization	04:00pm to 05:00pm	1 hour
20.	25-11-21	Logistic regression, multi class classification	04:00pm to 05:00pm	1 hour
21.	26-11-21	Support Vector Machines- Large margin	04:00pm to 05:00pm	1 hour
22.	27-11-21	Nonlinear SVM, kernel functions	04:00pm to 05:00pm	1 hour
23.	29-11-21	SMO algorithm.	04:00pm to 05:00pm	1 hour
24.	30-11-21	Gaussian models: Multivariate Gaussian	04:00pm to 05:00pm	1 hour
25.	01-12-21	Logic and Knowledge Representation -	04:00pm to 05:00pm	1 hour
26.	02-12-21	Basics of utility theory	04:00pm to 05:00pm	1 hour
27.	03-12-21	Decision theory	04:00pm to 05:00pm	1 hour
28.	04-12-21	sequential decision problems	04:00pm to 05:00pm	1 hour
29.	06-12-21	Artificial Intelligence programming techniques	04:00pm to 05:00pm	1 hour
30.	07-12-21	Artificial Intelligence programming techniques	04:00pm to 05:00pm	1 hour



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31.	08-12-21	Planning: planning as search	04:00pm to 05:00pm	1 hour
32.	09-12-21	Partial order planning,	04:00pm to 05:00pm	1 hour
33.	10-12-21	Test Conducted and Feedback form	04:00pm to 05:00pm	1 hour
Total 33 hours				


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Date: 13-12-2021

PROGRAM REPORT

Name of the Add on Course: AI and ML in Signal Processing Applications

Day/Duration: 33 hours

Time: 4:00PM to 5:00PM

Resource Person: Mr.Dharmasoth Naveen.M, Brain O Vision, Hyderabad.

Name of the Coordinator: Mr.T.Pullaiiah, Associate Professor, VMTW.

Number of the Participants: 72

Topics covered: The following topics covered in this program

- AI & ML
- Signal processing Applications
- Graphical models
- De Morgan's laws
- Decision trees

Course Outcomes:

COs	At the end of the course, students will have the ability to:	POs Mapped	Strength of mapping
CO1	Understand the basic signal processing techniques	PO4,PO5	3
CO2	Develop a good understanding of fundamental principles of machine learning and AI	PO2,PO3	2
CO3	Apply signal processing techniques for real life interdisciplinary applications	PO2,PO5,PO7	2
CO4	Understand fundamental concepts of machine learning and its various algorithms and various strategies	PO3,PO4,PO6	3
CO5	Learn Artificial Intelligence programming techniques	PO5,PO7	2



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AI and ML in Signal Processing Applications : Add on course explained by Mr.Dhrmasoth Naveen.M

Senior .Engineer, Brain O Vision, .Hyderabad.

Hence, Students understood the concept on main features of the AI and ML signal processing. and also learnt how to analyze the signals processing by using AI/ML concepts and to apply the concepts of practically in signal processing, understood the basic concepts of Ai/ ML,I am thankful for the department for conduct such type of informative events.

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice Questions through offline Mode.

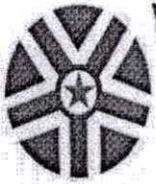

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VMTWECE/AOC/CIR//2021-22/II/04

Date: 08-03-2022

CIRCULAR

This is to inform all the IV B.Tech ECE students that there will be an Add on course on "Challenges in Design of PSOCs "in association with True chip Pvt Ltd. on 14-03-2022 to 29-03-2022 All students are invited to take part in this course. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form.

HOD.

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ABOUT THE COURSE

This course is for anyone passionate in learning how a hardware component can be adapted at runtime to better respond to users/environment needs. This adaptation can be provided by the designers, or it can be an embedded characteristic of the system itself. These runtime adaptable systems will be implemented by using FPGA technologies. Within this course we are going to provide a basic understanding on how the FPGAs are working and of the rationale behind the choice of them to implement a desired system.

COURSE OBJECTIVES

The objectives of the course are to: Learn Programmable Routing and Interconnect. Understand the the various features of PSoC Designer for configuring the digital and analog modules. Explain the the hardware and software components for mixed signal components. Learn the the hardware Components, PSoC Software Components.



EXPECTED OUTCOMES

After studying this course, students will be able to:
Explain the basic concepts and families of PSoC. Recognize the various features of PSoC architecture and programmable blocks. Analyze the various features of PSoC Designer for configuring the digital and analog modules. Design the hardware and software components for mixed signal components. Develop the programming skills for interfacing various I/O modules to PSoC.

Resource Person:

Mr. M. Achyuth Reddy,

Technical Manager,
Truechip, Noida.

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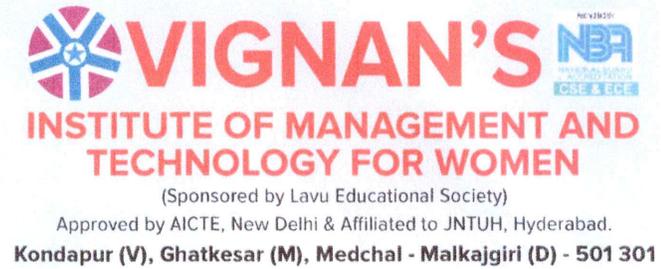
Co-ordinator:

Mr. J. Sunil Kumar,

Associate Professor,
Department of ECE,

Contact No: +91 8374 717668

LAST DATE FOR REGISTRATION: 12TH MAR, 2022



ADD-ON COURSE ON

**“CHALLENGES IN
DESIGN OF PSoCs”**

14TH TO 29TH MAR, 2022

IN ASSOCIATION WITH:



DURATION OF THE COURSE : **36 HRS**

VENUE:

BFF-8, B-BLOCK, VMTW

ORGANIZED BY:

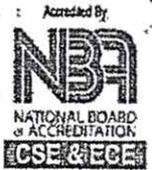
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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING CHALLENGES IN DESIGN OF PSOCs

SYLLABUS

Academic Year : 2021-2022

B.Tech IV-II SEM

SECTION : ECE-A&B

Course Objectives:

- To learn the processor selection for SOC, basic concepts in processor Architecture
- To understand the various features of PSOC designer for configuring the digital and analog modules
- To understand the memory design for SOC and overview of SOC external memory
- To analyze the Interconnect Customization
- To analyze the configuration and reconfiguration techniques

UNIT – I: Introduction to the System Approach: System Architecture, Components of the system, Hardware & Software, Processor Architectures, Memory and Addressing. System level interconnection, An approach for SOC Design, System Architecture and Complexity.

UNIT – II: Processors: Introduction, Processor Selection for SOC, Basic concepts in Processor Architecture, Basic concepts in Processor Micro Architecture, Basic elements in Instruction handling. Buffers: minimizing Pipeline Delays, Branches, More Robust Processors, Vector Processors and Vector Instructions extensions, VLIW Processors, Superscalar Processors.

UNIT – III: Memory Design for SOC: Overview of SOC external memory, Internal Memory, Size, Scratchpads and Cache memory, Cache Organization, Cache data, Write Policies, Strategies for line replacement at miss time, Types of Cache, Split – I, and D – Caches, Multilevel Caches, Virtual to real translation, SOC Memory System, Models of Simple Processor – memory interaction.

UNIT - IV: Interconnect Customization: Inter Connect Architectures, Bus: Basic Architectures, SOC Standard Buses, Analytic Bus Models, Using the Bus model, Effects of Bus transactions and contention time, SOC Customization

UNIT – V: Configuration: An overview, Customizing Instruction Processor, Reconfiguration Technologies, Mapping design onto Reconfigurable devices, Instruction Specific design, Customizable Soft Processor, Reconfiguration - overhead analysis and trade-off analysis on reconfigurable Parallelism.



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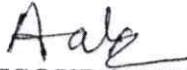
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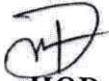
1. Computer System Design System-on-Chip by Michael J. Flynn and Wayne Luk, Wiley India Pvt. Ltd.
2. ARM System on Chip Architecture – Steve Furber – 2nd Ed., 2000, Addison Wesley Professional.

REFERENCE BOOKS:

1. Design of System on a Chip: Devices and Components – Ricardo Reis, 1st Ed., 2004, Springer
2. Co-Verification of Hardware and Software for ARM System on Chip Design (Embedded Technology) – Jason Andrews – Newnes, BK and CDROM
3. System on Chip Verification – Methodologies and Techniques – Prakash Rashinkar, Peter Paterson and Leena Singh L, 2001, Kluwer Academic Publishers.


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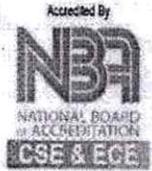



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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ADD ON COURSE NAME: **Challenges in Design of PSOCs**

DAY WISE SCHEDULE SHEET

Academic Year: 2021-2022

Date: 12-03-2022

B.Tech IV-II SEM

SECTION: ECE-A&B

Room Number: BFF8

S.No	DAY	Topic	Timings	Duration
1.	14-03-2022	System Architecture, Components of the	02:00pm to 05:00pm	3 hours
2.	15-03-2022	Hardware & Software, Processor	02:00pm to 05:00pm	3 hours
3.	16-03-2022	Memory and Addressing	02:00pm to 05:00pm	3 hours
4.	19-03-2022	SOC Memory System , Models of Simple	02:00pm to 05:00pm	3 hours
5.	21-03-2022	Internal Memory, Size, Scratchpads and	02:00pm to 05:00pm	3 hours
6.	22-03-2022	Cache Organization, Cache data, Write	02:00pm to 05:00pm	3 hours
7.	23-03-2022	Strategies for line replacement at miss time	02:00pm to 05:00pm	3 hours
8.	24-03-2022	Types of Cache, Split – I , and D – Caches	02:00pm to 05:00pm	3 hours
9.	25-03-2022	Bus: Basic Architectures	02:00pm to 05:00pm	3 hours
10.	26-03-2022	SOC Standard Buses	02:00pm to 05:00pm	3 hours
11.	28-03-2022	Analytic Bus Models, Using the Bus model	02:00pm to 05:00pm	3 hours
12	29-03-2022	Configuration: An overview, Customizing Instruction Processor	02:00pm to 05:00pm	3 hours
Total – 36 hours				


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Date: 30-03-2022

PROGRAM REPORT

Name of the Add on Course: Challenges in Design of PSOCs

Day/Duration: 36 hours

Time: 2:00pm to 5:00pm

Resource Person: Mr. M. Achyuth Reddy, True chip Pvt.Ltd. Hyderabad

Name of the Coordinator: Mr.J.SunilKumar, Assistant Professor, VMTW, Hyderabad.

Number of the Participants: 98

Topics covered: The following topics covered in this program

- SOC
- PSOC
- SOC Standard Buses
- Multilevel Caches
- SOC Customization

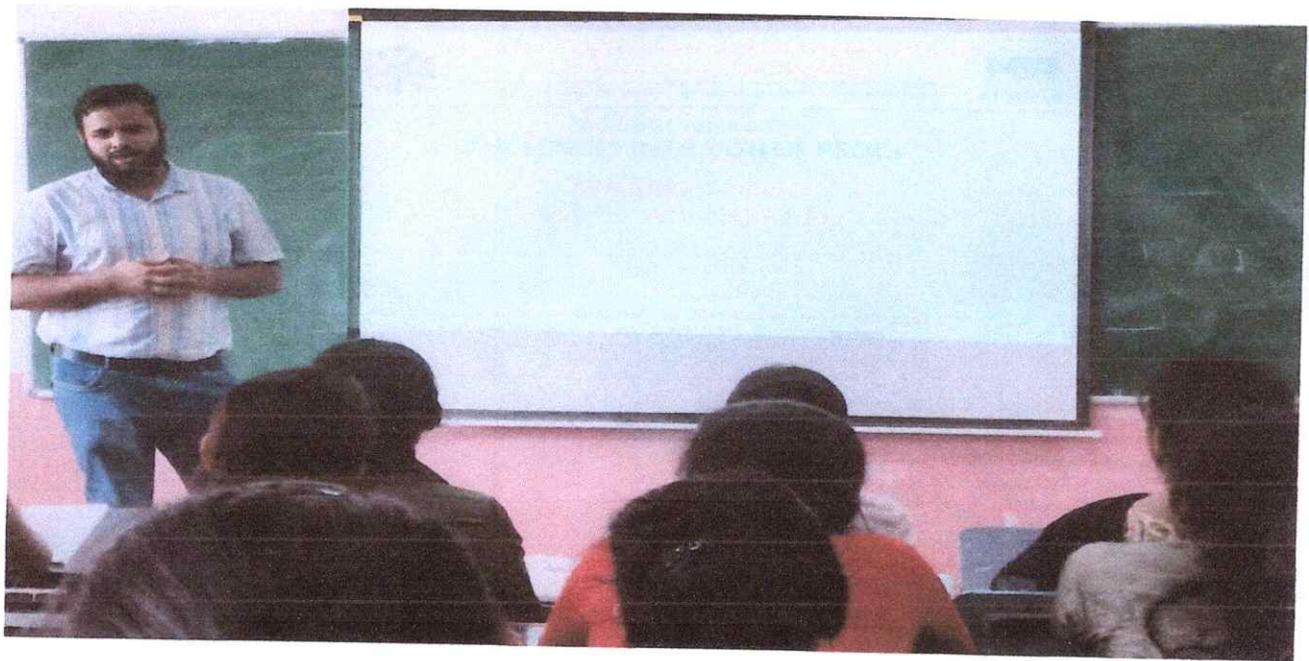
Course Outcomes:

COs	At the end of the course, students will have the ability to:	POs Mapped	Strength of mapping
CO1	Learn the Basic concepts in Processor Architecture	PO2, PO5	3
CO2	Analyze the memory design for SOC	PO3 , PO4	2
CO3	Understand the memory design for SOC and overview of SOC external memory	PO2, PO3,PO6	1
CO4	Analyze the Interconnect Customization	PO5 , PO7	2
CO5	Analyze the configuration and reconfiguration techniques	PO3,PO6	3




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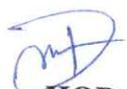
Challenges in Design of PSOCs

: Add on course explained by Mr. M. Achyuth Reddy, True chip Pvt.Ltd. Hyderabad

Hence, Students understood the concept on main features of PSOC and also learnt how to learn the programming by using SOC concepts and understood the basic concepts of SOC ,I am thankful for the department for conduct such type of informative events.

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice Questions through offline Mode.


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VMTW/CSE/AOC/2021-22/II/04

10-05-2022

CIRCULAR

This is to communicate all IV-II B. Tech CSE students that a "Certified Associate in Python Programming" add-on course will be offered from 16-05-2022 to 21-05-2022. Everyone is welcome to enroll in this course. Certificates of completion will be presented to the students. The course is good for developing programming skills, enabling the solution of real-world issues, and is helpful in campus placement interviews. Please contact the program coordinator for registration.

Head of The Department
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ABOUT THE COURSE

Python is an interpreted, object-oriented programming language similar to PERL, that has gained popularity because of its clear syntax and readability. Python is said to be relatively easy to learn and portable, meaning its statements can be interpreted in a number of operating systems, including UNIX-based systems, Mac OS, MS-DOS, OS/2, and various versions of Microsoft Windows 98. Python was created by Guido van Rossum, a former resident of the Netherlands, whose favorite comedy group at the time was Monty Python's Flying Circus. The source code is freely available and open for modification and reuse. Python has a significant number of users. The Python Programming course comprises sessions dealing with syntax, variables and data types, operators and expressions, conditions and loops, functions, objects, collections, modules and packages, strings, pattern matching, exception handling, binary and text files, and databases. Exercises and examples are used throughout the course to give practical hands-on experience with the techniques covered. We're going to jump right into it so you can start coding your first Python program as soon as possible.

COURSE OBJECTIVES

This course aims to provide the delegate with the knowledge to be able to produce simple computer programs that demonstrate an understanding of the three core principles of programming sequence, selection, and iteration. Delegates will also be exposed to functions, objects, and both procedural and object-oriented programming paradigms. The course further aims to prepare delegates to go on to learn any one of many programming languages in detail. This Introduction to Programming - Python course is designed for those new to programming, to learn about the terminology, structures, and principles of programming generally. Build basic programs using fundamental programming constructs like variables, conditional logic, looping, and functions. Work with user input to create fun and interactive programs. Create simple games with images, animations, and audio using our custom beginner-friendly programming library. The learning objectives of this course are: To understand why Python is a useful scripting language for developers, To learn how to design and program Python applications, how to use

list, tuples, and dictionaries in Python programs and how to identify Python object types.

EXPECTED OUTCOMES

Make use of the python programming language to construct basic programs. Know how to use collections such as list, tuple, range, dictionary and sets. Make use of functions, classes and objects from those classes. Understand the concepts of inheritance and polymorphism for code reusability and extensibility. Write robust code using exception handling. Create and animate a variety of shapes and develop an application with graphical user interface (GUI). Extend the knowledge of python programming to build successful career in software development. The goal of the course is to introduce students to Python Version 3.x programming using hands on instruction. It will show how to install Python and use the Spyder IDE (Integrated Development Environment) for writing and debugging programs. The approach will be to present an example followed by a small exercise where the learner tries something similar to solidify a concept. At the end of each module there will be an exercise where the student is required to write simple programs and submit them for grading. It is intended for students with little or no programming background, although students with such a background should be able to move forward at their preferred pace.



Resource Person:
Dr. Ch. Basavaraj,
Associate Professor,
Department of CSE.

Co-ordinator:
Mr. Ch. Sunil,
Assistant Professor,
Department of CSE,
Contact No: +91 79890 11922

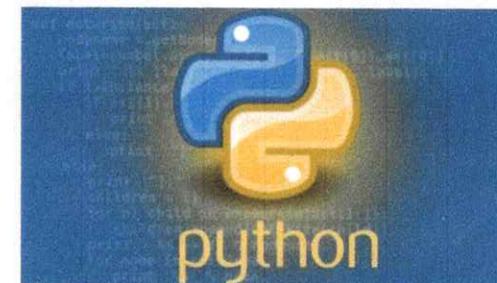
LAST DATE FOR REGISTRATION: 14TH MAY, 2022

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ADD-ON COURSE ON

**“CERTIFIED ASSOCIATE IN
PYTHON PROGRAMMING”**

16TH TO 21ST MAY, 2022

Duration of the Course : **36 Hrs**

VENUE: A-BLOCK SEMINAR HALL, VMTW

ORGANIZED BY:

**DEPARTMENT OF COMPUTER SCIENCE
AND ENGINEERING**

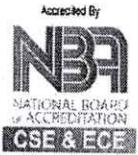


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Syllabus

Addon Course: Certified Associate in Python Programming

Course objectives:

1. To understand why Python is a useful scripting language for developers.
2. To learn how to design and program Python applications.
3. To learn how to use lists, tuples, and dictionaries in Python programs.
4. To learn how to use class inheritance in Python for reusability.
5. To learn how to use exception handling in Python applications for error handling.

Module 1: Python Basics: Running Python, Hello, World!, Literals, Python Comments, Variables, writing a Python Module, print Function, Collecting User Input, Getting Help, Lab : Exercises in this Lesson, Hello, World, Exploring Types, A Simple Python Script

Module 2: Functions and Modules: Defining Functions, Variable Scope, Global Variables, Function Parameters, Returning Values, Importing Modules, Lab : Exercises in this Lesson, A Function with Parameters, Parameters with Default Values,

Module 3: Math: Arithmetic Operators, Assignment Operators, Built-in Math Functions, The math Module, The random Module, Lab : Exercises in this Lesson, Floor and Modulus, How Many Pizzas Do We Need.

Module 4: Iterables: Sequences, Dictionaries, and Sets: Definitions, Sequences, Unpacking Sequences, Dictionaries, The len Function, Sets, args and kwargs, Lab : Exercises in this Lesson, Remove and Return Random Element, Simple Rock, Paper, Scissors Game, Slicing Sequences, Creating a Dictionary from User Input.

Module 5: File Processing: Opening Files, The os and os.path Modules, Lab : Exercises in this Lesson, Finding Text in a File.

Text Book: Programming For Beginners: Learn The Fundamentals of Python by Michael Knapp and Python Programming.


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Time Schedule of Add-on Course "Certified Associate in Python Programming"

Room No: A-Block Seminar Hall

Date	Topic Name	Timings
16-05-2022	Python Basics: Running Python, Hello, World!, Literals, Python Comments, Variables, Writing a Python Module, print Function, Collecting User Input, Getting Help, Lab Exercises in this Lesson, Hello, World, Exploring Types, A Simple Python Script.	09:00 am to 03:30 pm
17-05-2022	Functions and Modules: Defining Functions, Variable Scope, Global Variables, Function Parameters, Returning Values, Importing Modules, Lab : Exercises in this Lesson, A Function with Parameters, Parameters with Default Values.	09:00 am to 03:30 pm
18-05-2022	Math: Arithmetic Operators, Assignment Operators, Built-in Math Functions, The math Module, The random Module, Lab: Exercises in this Lesson, Floor and Modulus.	09:00 am to 03:30 pm
19-05-2022	Iterables: Sequences, Dictionaries, and Sets: Definitions, Sequences, Unpacking Sequences, Dictionaries, The len Function, Sets, args and kwargs. Lab : Exercises in this Lesson, Remove and Return Random Element, Simple Rock, Paper, Scissors Game.	09:00 am to 03:30 pm
20-05-2022	File Processing: Opening Files, The OS and OS.path Modules, Lab : Exercises in this Lesson.	09:00 am to 03:30 pm
21-05-2022	Finding Text in a File, Writing to Files List Creator After completing this module, students will be able to Read files on the operating system.	09:00 am to 03:30 pm
Total 36 Hours		

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Date: 23-05-2022

Addon course Report

Name of the Add on Course: Certified Associate in Python Programming.

Day/Duration: 16-05-2022 to 21-05-2022 6(Days) - 36Hrs -09:00am to 03:30pm

Name of the Coordinator: Mr.Ch.Sunil , Assistant Professor, Dept of CSE, VMTW.

Resource Person: Dr.Ch. BasavaRaj, Professor, Dept of CSE, VMTW.

Number of the Participants: 109

Topics covered: The following topics covered in this program

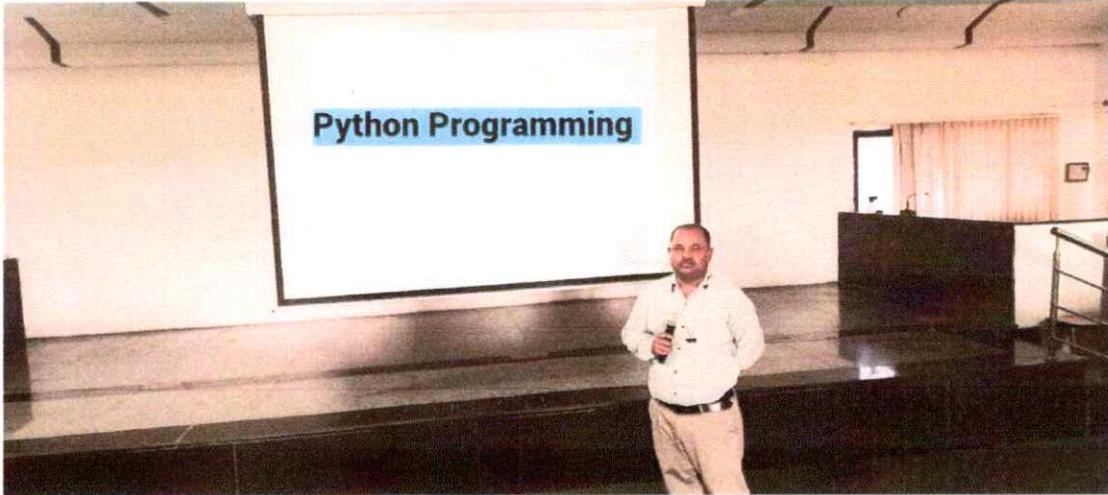
1. Python Basics, Running Python, Exercises, A Simple Python Script
2. Functions and Modules, Variable Scope, Global Variables, Function Parameters, Returning Values
3. Built-in Math Functions, Exercises related to concepts
4. Iterables, Sequences, Dictionaries, Slicing Sequences, Creating a Dictionary
5. File Processing, Opening Files, The os and os.path Modules.

Course Outcomes:

COs	At the end of the course, students will have the ability to:	Pos Mapped	Strength of mapping
CO1	Create your program in Python IDLE.	PO1, PO2	4
CO2	Implement OOPs concepts in your programming	PO5,PO6,	2
CO3	Use Arrays, and Data structures.	PO2	3
CO4	Create an application with the support of graphics in Python.	PO1,P05	3
CO5	Implement error handling.	PO1,P04	4




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Addon course sessions by Dr.Ch. BasavaRaj

This program was aimed to provide knowledge about Python Programming; Dr.Ch. Basava Raj has given 36 Hours of training program to the students which have theory and practical classes. Students have expressed about their capability of developing Python programs. Program was an informative and interesting. All the students had practical exposure about programming skill.


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VMTW/CSE/AOC/2021-22/II/02

Date: 23-02-2022

CIRCULAR

This is to inform all III-II B.Tech CSE students that there is going to be an add-on course on "Data analytics with R programming" that will be held from 03/03/2022 to 10/03/2022 by Mr.P.Rajendra Prasad, Assistant Professor, Dept of CSE, VMTW. All students are welcome to participate in this Add-on course. Interested students can sign in the registration form and communicate to the program coordinator accordingly.


HOB

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ABOUT THE COURSE

In this course, you'll learn about the programming language known as R. You'll find out how to use R Studio, the environment that allows you to work with R. This course will also cover the software applications and tools that are unique to R, such as R packages. You'll discover how R lets you clean, organize, analyze, visualize, and report data in new and more powerful ways. Exploratory data analysis is an approach for summarizing and visualizing the important characteristics of a data set. Promoted by John Tukey, exploratory data analysis focuses on exploring data to understand the data's underlying structure and variables, to develop intuition about the data set, to consider how that data set came into existence, and to decide how it can be investigated with more formal statistical methods. Data analysis becomes an essential part of everyday life. After this course, you will be able to conduct data analysis task yourself. Gain insights from the data. R - widely used tool for data analysis and visualization. R is rapidly becoming the leading programming language for effective data analysis and statistics. It is the tool of choice for many data science professionals in every industry.

COURSE OBJECTIVES

The fundamental of course you will feel much more comfortable programming in other languages as well. This is because R is a fully empowered programming language itself. Main programming concepts presented Various data types, Conditional statements, and For and While loops. Finally, data mining and data science techniques in R are delivered in a clear fashion together with assignments to make sure you understand topics. Main statistical capabilities behind data science covered. Data Analytics with R training will help you gain expertise in R Programming, Data Manipulation, Exploratory Data Analysis, Data Visualization, Data Mining, Regression, Sentiment Analysis, and using R Studio for real-life case studies on Retail, Social Media. In this course, you will learn about the basics of statistical computing and data

analysis, how to use R for analytical programming, How to implement data structure in R, R loop functions and debugging tools, Object-oriented programming concepts in R, Data visualization in R, How to perform error handling, Writing custom R functions.

EXPECTED OUTCOMES

Examine the benefits of using the R programming language. Discover how to use R Studio to apply R to your analysis. Explore the fundamental concepts associated with programming in R. Explore the contents and components of R packages including the Tidyverse package. Gain an understanding of data frames and their use in R. - Discover the options for generating visualizations in R. Learn about R Markdown for documenting R programming. After completing this course, you will be able to: Explain critical R programming concepts, Demonstrate how to install and configure R Studio, Apply OOP concepts in R programming, Explain the use of data structure and loop functions, Analyse data and generate reports based on the data, Apply various concepts to write programs in R.



Resource Person:
Dr. P. Rajendra Prasad,
Assistant Professor,
Department of CSE.

Co-ordinator:
Mr. M. Vishnu Vardhana Rao,
Assistant Professor, Dept. of CSE,
Contact No: +91 86399 36639

LAST DATE FOR REGISTRATION: 28TH FEBRUARY, 2022

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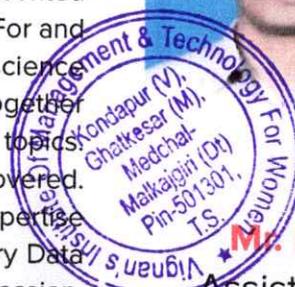
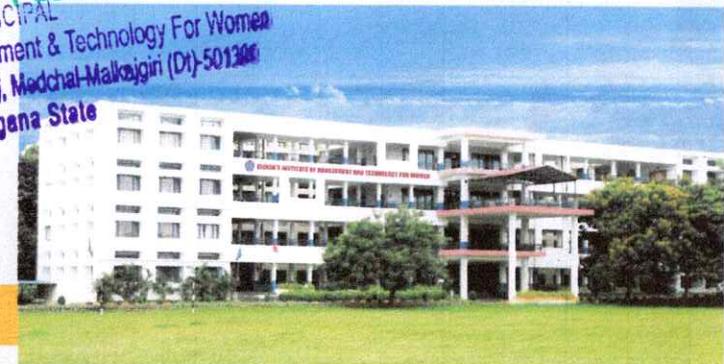


ADD-ON COURSE ON
"DATA ANALYTICS
WITH R PROGRAMMING"
3RD TO 10TH MAR, 2022

Duration of the Course : 42 Hrs

VENUE: **'A'-BLOCK SEMINAR HALL, VMTW**

ORGANIZED BY:
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Addon Course Syllabus

Addon Course Name: Data Analytics with R programming

Course objectives:

1. To use R for analytical programming
2. To implement data structure in R
3. To learn R loop functions and debugging tools
4. To learn Object-oriented programming concepts in R
5. To perform error handling

1. R Introduction: Overview of R Programming, Downloading and installing, Help of Function, Viewing documentation, General issues in R, Package Management,

2. Data Inputting in R: Data Types, Subsetting, Writing data, Reading from csv files, Creating a vector and vector operation, Initializing data frame, Control structure, Re-directing R Output.

3. Data Visualization: Creating bar chart and dot plot, Creating histogram and box plot, Plotting with base graphics, Plotting and coloring in R,

4. Basic Statistic: Computing Basic Statistics, Comparing means of two samples, Testing a proportion, Data Munging Basics,

5. Functions and Programming in R: Flow control: For loop, If condition, Debugging tools
Data manipulation in R: List Management, Data Transformation, Merging Data Frames, Outlier Detection, Combining multiple vectors.

Text Books

1. Data Analytics with R by Bharti Motwani (Author).
2. Business Analytics: The Science of Data - Driven Decision Making by U Dinesh Kumar.


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DAY WISE SCHEDULE

Add-on Course: Data Analytics with R programming

Room No: A Block Seminar Hall-ASF-5

DAY	Topic	Timings	Duration
03/03/2022	R Introduction: Overview of R Programming, Downloading and installing, Help of Function. Viewing documentation, General issues in R.	09:00 am to 03:30 pm	6 hrs
04/03/2022	Data Inputting in R: Data Types, Subsetting, Writing data, Reading from csv files, Creating a vector and vector operation, Initializing data frame.	09:00 am to 03:30 pm	6 hrs
05/03/2022	Data Visualization: Creating bar chart and dot plot, Creating histogram and box plot, Plotting with base graphics, Plotting and coloring in R.	09:00 am to 03:30 pm	6 hrs
07/03/2022	Basic Statistic: Computing Basic Statistics, Comparing means of two samples, Testing a proportion, Data Data Munging Basics.	09:00 am to 03:30 pm	6 hrs
08/03/2022	Lab practice, Control structures, Package Management.	09:00 am to 03:30 pm	6 hrs
09/03/2022	Functions and Programming in R: Flow control, for loop, If condition.	09:00 am to 03:30 pm	6 hrs
10/03/2022	Debugging tools and Lab practice	09:00 am to 03:30 pm	6 hrs
Total 42 hours			


Coordinator




HOD, CSE

Head of The Department
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Date: 11-03-2022

PROGRAM REPORT

Name of the Add on Course: Data Analytics with R programming

Day/Duration: 03/03/2022 to 10/03/2022 7(Days) – 42 Hrs

Time: 09:00am to 03:30pm

Resource Person: Dr.P.Rajendra Prasad, Assistant Professor, Dept of CSE, VMTW.

Name of the Coordinator: Mr.M.Vishu Vardhana Rao, Asst Professor, Dept of CSE.

Number of the Participants: 95

Topics covered: The following topics covered in this program:

- ❖ R Introduction: Overview of R Programming, Downloading and installing.
- ❖ Data Visualization: Creating bar chart and dot plot, creating histogram and box plot. Basic Statistics, Comparing means of two samples Testing
- ❖ Functions and Programming in R: Flow control, for loop, If condition, Debugging tools.
- ❖ Data manipulation in R: List Management.
- ❖ Data Transformation, Merging Data Frames, Outlier Detection, Combining multiple vectors.

Course Outcomes:

COs	At the end of the course, students will have the ability to:	Pos Mapped	Strength of mapping
CO1	Demonstrate how to install and configure RStudio.	PO1, PO2	4
CO2	Apply OOP concepts in R programming	PO5, PO6,	2
CO3	Analyse data and generate reports based on the data.	PO2	3
CO4	Explain the use of data structure and loop functions.	PO1, PO4	3
CO5	Analyze and interpret data using an ethically responsible approach.	PO2, PO3	4

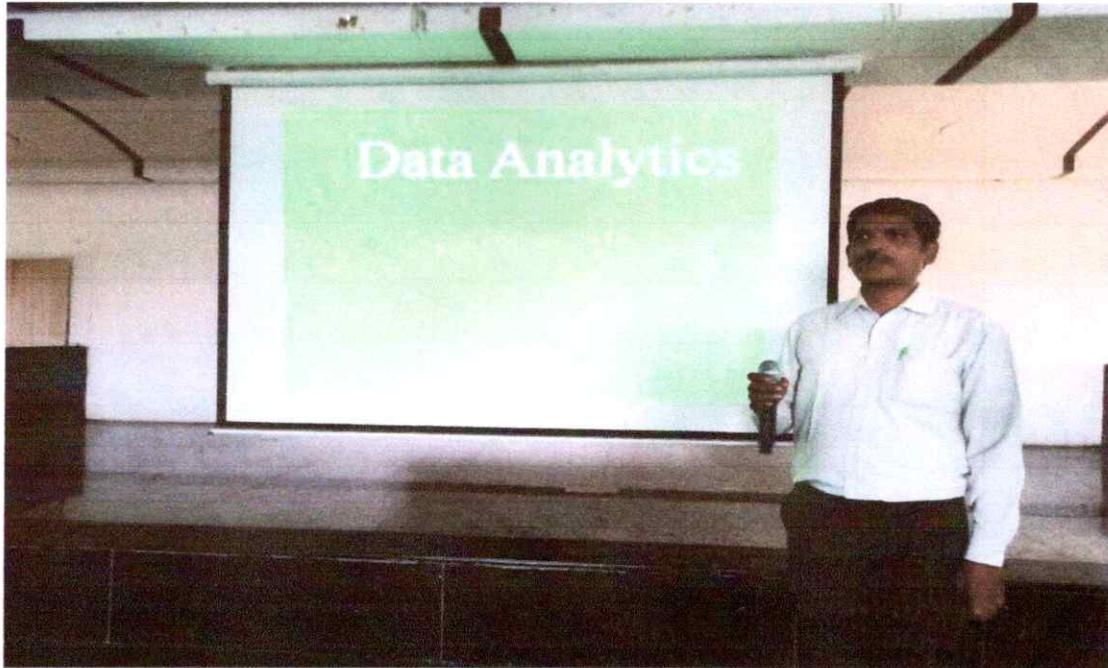



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Dr.P.Rajendra Prasad delivering training sessions on addon course

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VMTW/CSE/AOC/2021-22/II/03

26-04-2022

CIRCULAR

All II-II B. Tech CSE students are hereby notified that an Add-On Course entitled "Building Internet of Things Applications with Aurdino" will be offered from 03-05-2022 to 09-05-2022. Everyone can utilize the opportunity to enhance the skills and Certificates of completion will be presented to the students. Therefore, interested students can fill out the registration form and contact the respective coordinator accordingly.

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ABOUT THE COURSE

Nowadays advancement of technology is rapidly increasing and people want to do tasks in a smart way. So, people are thinking about quick ways of solving Daily life tasks. This will result in a technology that can control domestic and industrial applications using IoT. The increase in demand for service over the Internet necessitated data collection and exchange in an efficient manner. In this sense, the Internet of Things (IoT) has promised the ability to provide efficient data storage and exchange by connecting physical devices via electronic sensors and the Internet. The course is designed to build simple circuits around the Arduino Uno, that implement simple functions. Write simple Arduino sketches that can get sensor readings, make LEDs blink, write text on an LCD screen, read the position of a potentiometer, and much more. Understand what is the Arduino. In this course, you will learn A basic understanding of what is the Internet of Things, IoT Terminology, What is the Arduino IoT Cloud Platform, How to set up your Arduino MKR boards to connect to the Arduino IoT Cloud, How to use the Arduino Internet of Things (IoT) Cloud Platform to build IoT apps with minimal code, How to build dashboards to monitor your Internet of Things (IoT) projects, peripherals and sensors, How to incorporate Webhooks in your Internet of Things (IoT) Applications, How to use the If This Then That (IFTTT) to integrate services into your IoT Applications.

COURSE OBJECTIVES

The fundamentals of the program Arduino to control lights, motors, and other devices. To learn Arduino's architecture, including inputs and connectors for add-on devices. To add third-party components such as LCDs, accelerometers, gyroscopes, and GPS trackers to extend Arduino's functionality. To understand various options in programming languages, from C to drag-and-drop languages. To test, debug, and deploy the Arduino to solve real-world problems. To acquire basic knowledge of sensors and their hardware. Practical hands-on experience with interfacing sensors. Simple programming language to study the sensor operation. The objective of this course is to gain knowledge on the importance of the Internet of Things (IoT), the current components of typical IoT devices

and trends for the future. The contents focus on IoT design constraints, interfacing between the physical world and devices and further implementation and intergradations of IoT ecosystems.

EXPECTED OUTCOMES

Recall the basics of sensors and their functioning. Execute basic and advanced assembly language programs. Learn the ways to interface I/O devices with processors for task sharing. Recall the basics of co-processor and its ways to handle float values by its instruction set. Recognize the functionality of microcontrollers, the latest version processors and its applications. Acquire design thinking capability, the ability to design a component with realistic constraints, to solve real-world engineering problems and analyses the results. You will learn to design IoT components which would allow them to innovate new designs and products. IoT has revolutionized the digital world, by connecting all things together. Arduino is Open Source electronic prototyping platform. It is one of the most favour platforms with easy-to-use hardware and software. Arduino family has many ready-to-use hardware prototyping boards and one of the most versatile board is Uno popularly known as Arduino Uno.



Resource Person:
Dr. C. Srinivasa Kumar,
Professor,
Department of CSE.

Co-ordinator:
Mrs. B. Geetha, Assistant Professor,
Department of CSE,
Contact No: +91 97035 98700

LAST DATE FOR REGISTRATION: 30TH APRIL, 2022

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ADD-ON COURSE ON "BUILDING INTERNET OF THINGS APPLICATIONS WITH ARDUINO"

3RD TO 9TH MAY, 2022

Duration of the Course : **36 Hrs**

VENUE: **'A'-BLOCK SEMINAR HALL, VMTW**

ORGANIZED BY:
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ADDON COURSE SYLLABUS

Addon Course: Building Internet of Things Applications with Aurdino

Course objectives:

1. To Describe what IoT is and how it works today
2. To Recognise the factors that contributed to the emergence of IoT
3. To Design and program IoT devices
4. To Use real IoT protocols for communication
5. To Secure the elements of an IoT device

- 1. Introduction to IOT:** Understanding IoT fundamentals, IOT Architecture and protocols, Various Platforms for IoT, Real time Examples of IoT.
- 2. Arduino Simulation Environment:** Arduino Uno Architecture, Setup the IDE, Writing Arduino Software, Arduino Libraries, Basics of Embedded C programming for Arduino, Interfacing LED, push button
- 3. Sensor and Actuators with Arduino:** Overview of Sensors working, Analog and Digital Sensors, Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino, Interfacing of Actuators with Arduino.
- 4. Basic Networking with ESP8266 WiFi module:** Basics of Wireless Networking, Introduction to ESP8266 Wi-Fi Module, Various Wi-Fi library, Web server- introduction, installation, configuration, Posting sensor(s) data to web server
- 5. Cloud Platforms for IOT:** Virtualization concepts and Cloud Architecture, Cloud computing, benefits, Cloud services -- SaaS, PaaS, IaaS, Cloud providers & offerings, Study of IOT Cloud platforms.

Text Books:

1. Building Arduino Projects for the Internet of Things: Experiments with Real-World Applications by Adeel Javed (Author).
2. IoT Projects with Arduino Nano 33 BLE Sense: Step-By-Step Projects for Beginners by Agus Kurniawan (Author).



P. Geetha
COORDINATOR

Adh.
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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DAY WISE SCHEDULE SHEET

Addon Course: Building Internet of Things Applications with Aurdino.

Room No: A Block Seminar Hall

DAY	Topic	Timings	Duration
03-05-2022	Introduction to IOT: Understanding IoT fundamentals, IOT Architecture and protocols.	09:00 am to 03:30 pm	6 hrs
04-05-2022	Arduino Simulation Environment: Arduino Uno Architecture, Setup the IDE, Writing Arduino Software.	09:00 am to 03:30 pm	6 hrs
05-05-2022	Sensor and Actuators with Arduino: Overview of Sensors working, Analog and Digital Sensors, Interfacing of Temperature.	09:00 am to 03:30 pm	6 hrs
06-05-2022	Basic Networking with ESP8266 WiFi module: Basics of Wireless Networking, Introduction to ESP8266 Wi-Fi Module.	09:00 am to 03:30 pm	6 hrs
07-05-2022	Cloud Platforms for IOT: Virtualization concepts and Cloud Architecture.	09:00 am to 03:30 pm	6 hrs
09-05-2022	Cloud computing, benefits, Cloud services -- SaaS, PaaS, IaaS, Cloud providers & offerings, Study of IOT Cloud platforms.	09:00 am to 03:30 pm	6 hrs
Total 36 hours			

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Date: 11-05-2022

PROGRAM REPORT

Name of the Add on Course: Building Internet of Things Applications with Aurdino.

Day/Duration: 03-05-2022 to 09-05-2022 6(Days) - 36Hrs

Time: 09:00am to 03:30pm

Resource Person: Dr.C. Srinivasa Kumar, Professor, Dept of CSE.

Name of the Coordinator: Mrs.B.Geetha, Asst Professor, Dept of CSE, VMTW.

Number of the Participants: 89

Topics covered: The following topics covered in this program

- IoT fundamentals, IOT Architecture and protocols,
- Arduino Simulation Environment: Arduino Uno Architecture, Setup the IDE, and Actuators with Arduino, Overview of Sensors working, Analog and Digital Sensors, Interfacing of Temperature.
- Basic Networking with ESP8266 WiFi module, Basics of Wireless Networking, Introduction to ESP8266 Wi-Fi Module.
- Platforms for IOT

Course Outcomes:

COs	At the end of the course, students will have the ability to:	Pos Mapped	Strength of mapping
CO1	Understand the importance of internet of things in present scenario	PO1,PO2	3
CO2	Describe the interfacing of IoT	PO2	2
CO3	Design of direct and alternating type of electrical instruments using arduino	PO3,P05	4
CO4	understand the key components that make up an IoT system	PO1,PO2	3
CO5	apply the knowledge and skills acquired during the course to build and test a complete, working IoT system	PO6	4




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Dr.C.Srinivasa Kumar, Professor, Dept of CSE training the students.

P. Geetha
COORDINATOR

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Head of The Department
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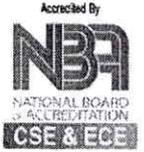


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VMTW/CSE/AOC/2021-22/I/01

Date: 24-08-2021

CIRCULAR

We are pleased to announce that we will be offering an Add on Course titled "Advanced problem solving techniques using C Programming". This course will be offered to all IV-II B.Tech CSE students. The course will be held from 30-08-2021 - 04-09-2021. This value added course can be used by students to enhance their skills. For more information, please contact the coordinator Mrs.K.Prathusha, Assistant Professor, Dept of CSE and register the course.


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ABOUT THE COURSE

Problem-Solving is a scientific technique to discover and implement the answer to a problem. The computer is the symbol-manipulating device that follows a set of commands known as the program. The problem that we want to solve can come from any real-world problem or perhaps even from the abstract world. We need to have a standard systematic approach to problem-solving through programming in c.

This course is aimed at enabling the students to Formulate simple algorithms for arithmetic and logical problems, Translate the algorithms to programs (in C language), Test and execute the programs and correct syntax and logical errors. Implement conditional branching, iteration and recursion, decompose a problem into functions and synthesize a complete program using divide and conquer approach, use arrays, pointers and structures to formulate algorithms and programs, apply programming to solve matrix addition and multiplication problems and searching and sorting problems, Apply programming to solve simple numerical method problems, namely root finding of function, differentiation of function and simple integration. This course covers: Introduction to Problem Solving through programs, Flowcharts/Pseudo codes, the compilation process, Syntax and Semantic errors, Variables and Data Types , Arithmetic expressions, Relational Operations, Logical expressions; Introduction to Conditional Branching, Functions and Parameter Passing by Value, Passing Arrays to Functions, Call by Reference, Recursion, Structures and Pointers, Self-Referential Structures and Introduction to Lists.

COURSE OBJECTIVES

This course focuses on utilizing decision-making and branching concepts to derive solutions for given problems. It covers the effective use of inbuilt functions for input and output operations, implementation of arrays, problem-solving with pointers, efficient file handling, and data structure utilization for problem solving. Topics include structures, unions, stacks, queues, linked lists, trees,

graphs, and algorithm creation, along with their traversal and representation. The course aims to develop problem-solving abilities and analytical skills for real-life scenarios, prepare students for the software industry, foster research and development knowledge in computer science, and cultivate successful careers and entrepreneurship in the field. It also emphasizes algorithm formulation, pseudocode and flowchart creation, structured programming, and fundamental programming concepts using the 'C' language.

EXPECTED OUTCOMES

After completing this course, you will be able to Write efficient algorithms to solve various problems. Understand and use various constructs of the programming language such as conditionals, iteration, and recursion. Implement your algorithms to build programs in the C programming language. Use data structures like arrays, linked lists, and stacks to solve various problems. Understand and use file handling in the C programming language. To understand the various steps in Program development. To understand the basic concepts in C Programming Language. To learn how to write modular and readable C Programs. To learn to write programs (using structured programming approach) in C to solve problems. You will master the basic knowledge on hypothesis-based problem solving that will let you proceed to more advanced courses on solving business problems.



Resource Person:

Mrs. M. Parimala,

Assistant Professor, Dept of CSE,
CMR Institute of Technology,
Hyderabad.

Co-ordinator:

Mrs. K. Prathyusha,

Assistant Professor, Dept. of CSE,
Contact No: +91 79958 06494

LAST DATE FOR REGISTRATION: 27TH AUGUST, 2021

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ADD-ON COURSE ON

“ADVANCED PROBLEM-SOLVING TECHNIQUES USING C PROGRAMMING”

30TH AUG TO 4TH SEP, 2021

Duration of the Course :**36 Hrs**

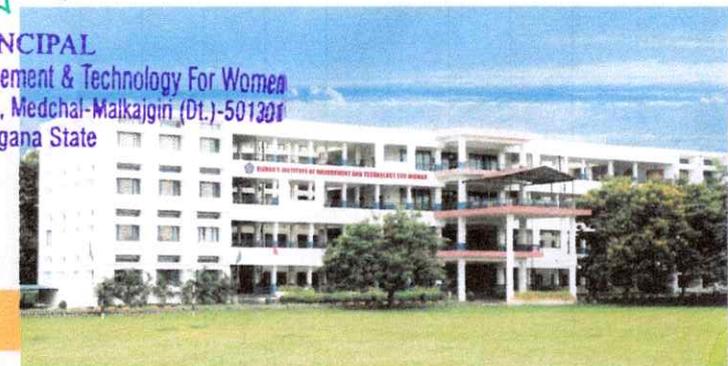
VENUE: **‘A’-BLOCK SEMINAR HALL, VMTW**

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SYLLABUS FOR THE ADD-ON COURSE

Advanced problem solving Techniques using C Programming

Course objectives:.

1. To Design solutions to simple engineering problem by apply in the basic programming.
2. To Choose a suitable C-construct to develop C code for a given problem
3. To Apply the C-language syntax rules to correct the bugs in the C program
4. To Develop simple C programs to illustrate the applications of different data types such as arrays, pointers, functions.
5. To Understand File management and dynamic memory allocation.

1. BASICS OF C PROGRAMMING:. Introduction to C: Features of C - Structure of C program-Data Types-'C' Tokens-Input/output statements-Control Statement, Functions: – Types of Functions – Recursion.

2. ARRAYS, STRINGS AND STRUCTURES:. Arrays : Single and Multidimensional Arrays-- Array as Function Arguments, Strings: String Handling Functions, Structure: Nested Structures – Array of Structures – Structure as Function Argument

3. POINTERS AND FILE PROCESSING:. Pointers: Introduction, Arrays Using Pointers – Structures Using Pointers – Functions Using Pointer, Dynamic Memory Allocation, Storage Classes, File Handling in 'C'.

4. STANDARD PROBLEMS ON DYNAMIC PROGRAMMING: Fibonacci numbers, nth Catalan Number, Bell Numbers (Number of ways to Partition a Set), Binomial Coefficient, Coin change problem, Subset Sum Problem ,Compute $nCr \% p$, Cutting a Rod, Painting Fence Algorithm.

Text Books

1. Problem Solving and Programming in C by R. S. Salaria (Author).
2. Problem Solving in Data Structures & Algorithms Using C by Hemant Jain (Author).


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DAY WISE SCHEDULE SHEET

Addon Course Name: Advanced problem solving Techniques using C Programming

Room No: A Block Seminar Hall-ASF-5

DAY	Topic	Timings	Duration
30-08-2021	BASICS OF C PROGRAMMING: Introduction to C: Features of C - Structure of C program-Data Types-'C' Tokens-Input/output statements-Control Statement, Functions: - Types of Functions -Recursion.	09:00 am to 03:30 pm	6 hrs
31-08-2021	ARRAYS, STRINGS AND STRUCTURES:. Arrays : Single and Multidimensional Arrays-- Array as Function Arguments, Strings: String Handling Functions, Structure: Nested Structures	09:00 am to 03:30 pm	6 hrs
01-09-2021	POINTERS AND FILE PROCESSING: Pointers: Introduction, Arrays Using Pointers - Structures Using Pointers .	09:00 am to 03:30 pm	6 hrs
02-09-2021	STANDARD PROBLEMS ON DYNAMIC PROGRAMMING: Fibonacci numbers, nth Catalan Number, Bell Numbers (Number of ways to Partition a Set).	09:00 am to 03:30 pm	6 hrs
03-09-2021	BINOMIAL COEFFICIENT: Subset Sum Problem ,Compute, Cutting a Rod, Painting Fence Algorithm ,Longest Common Subsequence.	09:00 am to 03:30 pm	6 hrs
04-09-2021	Functions Using Pointer, Dynamic Memory Allocation, Storage Classes, File Handling, Lab Practice.	09:00 am to 03:30 pm	6 hrs
Total 36 hours			


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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Date: 06-09-2021

Addon course Report

Name of the Add on Course: Advanced problem solving Techniques using C Programming

Day/Duration: 30-08-2021 to 04-09-2021 6 (Days) – 36 Hrs

Time: 09:00am to 03:30pm

Resource Person: Mrs.M.Parimala, Asst Professor, Dept of CSE, CMR Engineering College.

Name of the Coordinator: Mrs.K.Prathusha, Assistant Professor, Dept of CSE, VMTW.

Number of the Participants: 115

Topics covered: The following topics covered in this program

- Structure of C program-Data Types-'C' Tokens-Input/output statements-Control Statement, Functions: – Types of Functions –Recursion.
- Arrays : Single and Multidimensional Arrays— Array as Function Arguments, Strings: String Handling Functions, Structure: Nested Structures
- Arrays Using Pointers – Structures Using Pointers – Functions Using Pointer, Dynamic Memory Allocation, Storage Classes, File Handling in 'C'.
- Fibonacci numbers, nth Catalan Number, Bell Numbers.

Course Outcomes

COs	At the end of the course, students will have the ability to:	Pos Mapped	Strength of mapping
CO1	Illustrate and explain the basic computer concepts and programming principles of C language	PO1,PO2	4
CO2	Develop C programs to solve simple mathematical and decision making problems	PO3	3
CO3	Develop C programs to demonstrate the applications of derived data types such as arrays, pointers, strings and functions	PO3,PO5	4



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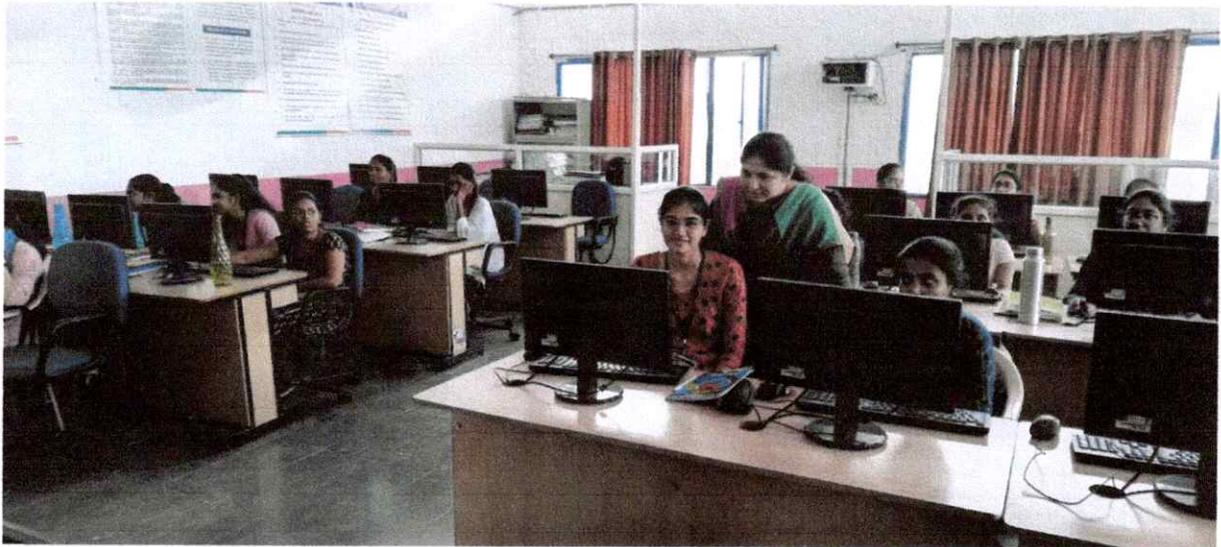


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CO4	Apply the concepts of looping, branching, and decision-making statements for a given problem	PO1,PO5	5
CO5	Develop modular applications using C programming language.	PO3	4



Value added course sessions by Mrs.M.Parimala


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DEPARTMENT OF INFORMATION TECHNOLOGY

VMTW/IT/AOC/CIR/2021-22/I/1

Date: 06.09.2021

CIRCULAR

This is to inform an exciting opportunity to enhance your knowledge and skills in the field of Information Technology. The Department of IT at VMTW is organizing an Add-on Course on "ADVANCED JAVASCRIPT FOR WEB PROGRAMMING" exclusively for the III-I B. Tech., students.

The department advisory committee has identified **Mrs. D. Nagasri**, Java Developer, Aptly Technology LLP, Hyderabad, as the resource person for this course. We are delighted to inform **Mrs. D. Nagasri** has accepted our invitation to take the class for a duration of 32 days, providing you with an extensive and comprehensive learning experience and the proposed schedule from 13.09.2021 to 23.02.2022. The participating students will be honored with certificates of Completion. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form.

HOD

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Information Technology

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ABOUT THE COURSE

"Advanced JavaScript for Web Programming" is an intensive and comprehensive course designed to enhance your proficiency in JavaScript programming specifically tailored for web development. This course is ideal for individuals who already possess a solid understanding of JavaScript fundamentals and want to deepen their knowledge and skills to create more dynamic and interactive web applications.

The "Advanced JavaScript for Web Programming" course dives deep into the advanced concepts and techniques of JavaScript, focusing on its application in web development. Throughout the course, you will explore a wide range of topics that will empower you to build highly functional, responsive, and interactive web applications.

COURSE OBJECTIVES

1. Introduction to popular JavaScript frameworks about React, Angular, and Vue.
2. DOM manipulation: Techniques for manipulating the Document Object Model (DOM) to create dynamic web pages.
3. Design Patterns: Understanding of common design patterns used in JavaScript such as Model-View-Controller (MVC),

Factory, and Singleton.

4. Web API integration: Study of integrating JavaScript with various web APIs such as AJAX, Fetch API, and Web Sockets..

EXPECTED OUTCOMES

- Understand object-oriented programming and functional programming concepts in JavaScript.
- Use event handling, DOM manipulation, and asynchronous programming effectively.
- Build dynamic web applications using API's, AJAX, and Webpack.
- Implement unit tests with Jest and maintain best practices for scalable code



Resource Person:

Mrs. D. Nagasri,

Java Developer, Aptly Technology,
Hyderabad.



[Handwritten Signature]
PRINCIPAL

Mrs. V. Rupa,
Assistant Professor,

Department of Information Technology,
Contact No: +91 98854 41753

LAST DATE FOR REGISTRATION: 11TH SEPTEMBER, 2021



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ADD-ON COURSE ON

**"ADVANCED JAVASCRIPT
FOR WEB PROGRAMMING"**
13TH SEP 2021 TO 23RD FEB, 2022

DURATION OF THE COURSE: **32 HRS**

VENUE:

ASF-2 CLASSROOM, VMTW

ORGANIZED BY:

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ADD ON COURSE SYLLABUS: ADVANCED JAVASCRIPT FOR WEB PROGRAMMING

Academic Year: 2021-22

B. Tech. III-I SEM

SYLLABUS

COURSE OBJECTIVES:

1. Understand the fundamental concepts and features of popular JavaScript frameworks such as React, Angular, and Vue.
2. Create simple applications using React, Angular, and Vue frameworks.
3. Demonstrate proficiency in manipulating the Document Object Model (DOM) to create dynamic web pages.
4. Implement event handlers to respond to user actions within web applications.
5. Gain knowledge of common design patterns in JavaScript, including Model-View-Controller (MVC), Factory, and Singleton.

COURSE OUTCOMES:

1. Students will be able to demonstrate a comprehensive understanding of popular JavaScript frameworks such as React, Angular, and Vue.
2. Students will acquire practical skills in creating web applications using React, Angular, and Vue frameworks.
3. Students will be proficient in manipulating the Document Object Model (DOM) to create dynamic and interactive web pages.
4. Students will be able to implement event handlers to respond to user actions effectively within web applications.
5. Students will have a solid understanding of common design patterns in JavaScript, including Model-View-Controller (MVC), Factory, and Singleton, and will be able to apply them appropriately in web application development.

Unit 1: Introduction to popular JavaScript frameworks- Introduction to React, Angular, and Vue- Understanding the basic concepts and features of these frameworks- Creating simple applications using these frameworks.




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Unit 2: DOM manipulation- Introduction to the Document Object Model (DOM)-
Techniques for manipulating the DOM to create dynamic web pages - Creating event
handlers to respond to user actions.

Unit 3: Design Patterns- Introduction to common design patterns in JavaScript-
Understanding of Model-View-Controller (MVC), Factory, and Singleton- Implementation
of these design patterns in web applications.

Unit 4: Web API Integration - Integration of JavaScript with various web APIs such as
AJAX, Fetch API, and Web Sockets- Understanding the fundamentals of RESTful APIs-
Building applications that interact with web APIs.

Textbook:

- Eloquent JavaScript by Marijn Haverbeke

References:

- 1 React documentation: <https://reactjs.org/docs/getting-started.html>
- 2 Angular documentation: <https://angular.io/docs>
- 3 Vue documentation: <https://vuejs.org/v2/guide/>
- 4 DOM manipulation: <https://developer.mozilla.org/en>


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DEPARTMENT OF INFORMATION TECHNOLOGY

ADD ON COURSE NAME: ADVANCED JAVASCRIPT FOR WEB PROGRAMMING

Academic Year: 2021-22

Date: 06.09.2021

B. Tech. III-I SEM

DAY WISE SCHEDULE SHEET

Room number: ASF-2

Sl. No.	DAY	Topic	Timings	Duration
1	13.09.2021	Overview of React, Angular, and Vue, and their features	2.30 p.m. to 3.30 p.m.	1 hour
2	15.09.2021	Introduction to React, virtual DOM, components, JSX	2.30 p.m. to 3.30 p.m.	1 hour
3	21.09.2021	Introduction to Angular, modules, components, services	2.30 p.m. to 3.30 p.m.	1 hour
4	23.09.2021	Introduction to Vue, templates, components, Vue CLI	2.30 p.m. to 3.30 p.m.	1 hour
5	29.09.2021	Introduction to the DOM, document object, selecting elements	2.30 p.m. to 3.30 p.m.	1 hour
6	04.10.2021	Responding to user actions, event listeners	2.30 p.m. to 3.30 p.m.	1 hour
7	07.10.2021	Introduction to jQuery, DOM manipulation using jQuery	2.30 p.m. to 3.30 p.m.	1 hour
8	21.10.2021	Modifying HTML and CSS with JavaScript, dynamic content	2.30 p.m. to 3.30 p.m.	1 hour
9	26.10.2021	Introduction to design patterns in JavaScript, importance of design	2.30 p.m. to 3.30 p.m.	1 hour
10	29.10.2021	Overview of MVC, separating concerns, implementing MVC in	2.30 p.m. to 3.30 p.m.	1 hour
11	02.11.2021	Introduction to the Factory pattern, creating objects, advantages of using	2.30 p.m. to 3.30 p.m.	1 hour
12	15.10.2021	Introduction to the Singleton pattern, creating a single instance of an object,	2.30 p.m. to 3.30 p.m.	1 hour
13	18.11.2021	Introduction to the Observer pattern, event-driven programming,	2.30 p.m. to 3.30 p.m.	1 hour
14	22.11.2021	Introduction to the Decorator pattern, adding behavior to objects,	2.30 p.m. to 3.30 p.m.	1 hour
15	26.11.2021	Introduction to web APIs, AJAX, Fetch API, Web Sockets	2.30 p.m. to 3.30 p.m.	1 hour
16	30.11.2021	Overview of AJAX, making asynchronous requests, handling	2.30 p.m. to 3.30 p.m.	1 hour
17	02.12.2021	Introduction to the Fetch API, making requests, handling responses	2.30 p.m. to 3.30 p.m.	1 hour
18	07.12.2021	Introduction to Web Sockets, establishing a connection, sending	2.30 p.m. to 3.30 p.m.	1 hour



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19	10.12.2021	Introduction to RESTful APIs, HTTP methods, JSON	2.30 p.m. to 3.30 p.m.	1 hour
20	15.12.2021	Making requests to a RESTful API, handling responses, displaying data	2.30 p.m. to 3.30 p.m.	1 hour
21	23.12.2021	Introduction to authentication and authorization, using tokens,	2.30 p.m. to 3.30 p.m.	1 hour
22	27.12.2021	Advanced concepts in React, Redux, React Native, server-side rendering	2.30 p.m. to 3.30 p.m.	1 hour
23	31.12.2021	Advanced concepts in Angular, RxJS, Angular Universal, performance	2.30 p.m. to 3.30 p.m.	1 hour
24	03.01.2022	Advanced concepts in Vue, Vuex, Vue Router, server-side rendering	2.30 p.m. to 3.30 p.m.	1 hour
25	06.01.2022	Advanced techniques for manipulating the DOM, performance	2.30 p.m. to 3.30 p.m.	1 hour
26	19.01.2022	Advanced design patterns in JavaScript, Mediator pattern,	2.30 p.m. to 3.30 p.m.	1 hour
27	24.01.2022	Advanced concepts in web API integration, GraphQL, WebRTC,	2.30 p.m. to 3.30 p.m.	1 hour
28	31.01.2022	Working on a project that integrates various concepts learned in the course	2.30 p.m. to 3.30 p.m.	1 hour
29	04.02.2022	Planning the project, defining the requirements, designing the	2.30 p.m. to 3.30 p.m.	1 hour
30	07.02.2022	Implementing the project using the concepts learned in the course	2.30 p.m. to 3.30 p.m.	1 hour
31	17.02.2022	Testing the project, identifying and fixing bugs	2.30 p.m. to 3.30 p.m.	1 hour
32	23.02.2022	Presenting the project, demonstrating its functionality and features	2.30 p.m. to 3.30 p.m.	1 hour
Total – 32 hours				

Rupa
COORDINATOR



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DEPARTMENT OF INFORMATION TECHNOLOGY

Date: 12.08.2022

PROGRAM REPORT

ADVANCED JAVASCRIPT FOR WEB PROGRAMMING

Name of the Add-on Course: **Advanced JavaScript for Web Programming**

Day/Duration: **32 days**

Time: **1 hour (2:30 p.m. to 3:30 p.m.)**

Resource Person: **Mrs. D. Nagasri**
Java Developer
Aptly Technology
Hyderabad, Telangana, India

Name of the Coordinator: **Mrs. V Rupa**

Number of Participants: **35 students**

Topics Covered:

The program covered the following topics:

1. Introduction to popular JavaScript frameworks
2. DOM manipulation
3. Design Patterns
4. Web API Integration




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At the end of the course, students will have the ability to:

Course Outcome (CO)	At the end of the course, students will have the ability to:	Potential Program Outcome (PO)	Strength of Mapping
CO1	Understand the fundamentals of popular JavaScript frameworks	PO3	2
CO2	Develop web applications using DOM manipulation techniques	PO2, PO5	5



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CO3	Design and implement common design patterns in JavaScript	PO3, PO9	3
CO4	Integrate JavaScript with various web APIs	PO4, PO5	5
CO5	Apply Web programming techniques to interface from the user side.	PO1, PO2	1

Assessment Procedure:

The assessment of the Add-on course was conducted through offline mode using Multiple Choice and Fill in the Blanks Questions.

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DEPARTMENT OF INFORMATION TECHNOLOGY

VMTW/IT/AOC/CIR/2021-22/II/2

03-03-2022

CIRCULAR

This is to inform an exciting opportunity to enhance your knowledge and skills in the field of Information Technology. The Department of IT at VMTW is organizing an Add-on Course on "IOT SECURITY AND PRIVACY" exclusively for the III- B. Tech., students. The department advisory committee has identified Mrs. S. Shilpa, Department of ECE, Samskruti College of Engineering & Technology, Hyderabad, as the resource person for this course. We are delighted to inform you that Mrs. S. Shilpa has accepted our invitation to take the class for a duration of 32 days, providing you with an extensive and comprehensive learning experience and the proposed schedule from 07.03.2022 to 13.07.2022. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form.

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ABOUT THE COURSE

The add-on course titled "IoT Security and Privacy" provides a comprehensive overview of the security and privacy risks associated with Internet of Things (IoT) devices and systems. The course covers the technical aspects of IoT security, such as cryptography, access control, and network security, as well as the privacy regulations and best practices that apply to IoT devices.

Students will learn about the security technologies and protocols that are used to secure IoT devices and the communication between them. They will also learn about the privacy regulations and best practices that apply to IoT devices, and how to ensure that personal data is protected.

COURSE OBJECTIVES

The objective of the add-on course titled "IoT Security and Privacy" is to provide students with a comprehensive understanding of the security and privacy risks associated with Internet of Things (IoT) devices and systems.

The course aims to:

Introduce the security and privacy challenges associated with IoT devices and systems.

Teach the technical aspects of IoT security, including cryptography, access control, and network security.

Provide an understanding of privacy regulations and best practices that apply to IoT devices, and how to ensure that personal data is protected.

Cover the security features of popular IoT platforms and the steps to secure their own IoT systems.

Enable students to evaluate and mitigate security and privacy risks associated with IoT devices and systems.

Prepare students for a future in which IoT will play a significant role by building their skills in securing and protecting the data generated by IoT devices.

In summary, the objective of the course is to equip students with the knowledge and skills they need to understand and manage the security and privacy risks associated with IoT devices and systems.

EXPECTED OUTCOMES

"Security and Privacy" is to produce knowledgeable and skilled professionals who can understand and manage the security and privacy risks associated with Internet of Things (IoT) devices and systems. Upon completion of the course, students can expect to achieve the following:

1. A comprehensive understanding of the security and privacy risks associated with IoT devices and systems.
2. Knowledge of the technical aspects of IoT security, including cryptography, access control, and network security.
3. Familiarity with privacy regulations and best practices that apply to IoT devices, and the ability to ensure that personal data is protected.
4. Skills in evaluating and mitigating security and privacy risks associated with IoT devices and systems.
5. Ability to identify the security features of popular IoT platforms and secure their own IoT systems.
6. Preparedness for a future in which IoT will play a significant role by having the skills to secure and protect the data generated by IoT devices.

Overall, the expected outcome of the course is to produce professionals who have the knowledge and skills necessary to understand and manage the security and privacy risks associated with IoT devices and systems, and who can effectively contribute to the development and deployment of secure and privacy-friendly IoT systems.



Resource Person:

Mrs. S. Shilpa, Vignan's Institute of Management & Technology For Women
Assistant Professor, Department of ECE,
Samskruti College of Engineering & Technology, Ghatkesar, Hyderabad.



Co-ordinator:

Mrs. V. Rupa,

Assistant Professor, Dept. of IT,
Contact No: +91 63854 41753

LAST DATE FOR REGISTRATION: 5TH MARCH, 2022

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VALUE ADDED COURSE ON "IOT SECURITY AND PRIVACY"

7TH MAR TO 13TH JUL, 2022

DURATION OF THE COURSE: 32 HRS

VENUE:
ASF-2 CLASSROOM, VMTW

ORGANIZED BY:
DEPARTMENT OF INFORMATION TECHNOLOGY





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DEPARTMENT OF INFORMATION TECHNOLOGY

ADD ON COURSE SYLLABUS: IOT SECURITY AND PRIVACY

Academic Year: 2021-22

B. Tech. III-II SEM SYLLABUS

COURSE OBJECTIVES:

Upon completion of this course, students will be able to:

1. Understand the fundamental concepts and challenges related to IoT security and privacy.
2. Recognize the specific security concerns and privacy issues associated with IoT.
3. Identify the best practices for ensuring security and privacy in IoT deployments.
4. Comprehend the architecture and design principles of IoT devices.
5. Identify common vulnerabilities and threats that affect IoT devices.

COURSE OUTCOME:

Upon successful completion of this course, students will be able to:

1. Demonstrate a comprehensive understanding of IoT security and privacy challenges, including the unique characteristics and vulnerabilities of IoT devices and networks.
2. Analyze and assess the security risks associated with IoT deployments and propose effective security measures to mitigate these risks.
3. Design and implement secure IoT device architectures considering the principles of confidentiality, integrity, and availability.
4. Identify and address network security threats specific to IoT devices, such as unauthorized access, data tampering, and denial-of-service attacks.
5. Apply encryption and access control techniques to protect sensitive data transmitted and stored in IoT systems.

Unit 1: Introduction to IoT Security and Privacy - Overview of IoT and its security challenges - Introduction to IoT privacy concerns - IoT security and privacy best practices.

Unit 2: IoT Device Security - IoT device architecture and design - Common IoT device vulnerabilities and threats - Security measures for IoT devices

Unit 3: Network Security for IoT Devices - IoT network architecture and design - Network security threats to IoT devices - Network security measures for IoT devices



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Unit 4: Data Security and Privacy in IoT - Data security and privacy challenges in IoT - IoT data encryption and access control - IoT data privacy measures

Unit 5: IoT Security Testing - IoT security testing methodologies - Tools and techniques for testing IoT devices - Best practices for IoT security testing

Textbook:

1. "IoT Security: Issues, Challenges, and Solutions" Author: Shancang Li, Li Da Xu, and Min Chen Year: 2017
2. "Security and Privacy in Internet of Things (IoTs): Models, Algorithms, and Implementations" Author: Fei Hu Year: 2016
3. "IoT Security: Practical Guidebook" Author: Nitesh Dhanjani Year: 2015

Rupa
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DEPARTMENT OF INFORMATION TECHNOLOGY

ADD ON COURSE NAME: IOT SECURITY AND PRIVACY

Academic Year: 2021-22

Date: 03-03-2022

B. Tech. III-II SEM

DAY WISE SCHEDULE SHEET

Room number: ASF-2

Sl.	DAY	Topic	Timings	Duration
1	07.03.2022	Introduction to IoT Security and	1.10 p.m. to 2.10 p.m.	1 hour
2	10.03.2022	Overview of IoT security challenges	1.10 p.m. to 2.10 p.m.	1 hour
3	14.03.2022	Introduction to IoT privacy concerns	1.10 p.m. to 2.10 p.m.	1 hour
4	16.03.2022	IoT security and privacy best	1.10 p.m. to 2.10 p.m.	1 hour
5	19.03.2022	IoT device architecture and design	1.10 p.m. to 2.10 p.m.	1 hour
6	22.03.2022	Common vulnerabilities and threats	1.10 p.m. to 2.10 p.m.	1 hour
7	25.03.2022	Secure coding practices for IoT	1.10 p.m. to 2.10 p.m.	1 hour
8	30.03.2022	Access control measures for IoT	1.10 p.m. to 2.10 p.m.	1 hour
9	04.04.2022	IoT network architecture and design	1.10 p.m. to 2.10 p.m.	1 hour
10	07.04.2022	Network security threats to IoT	1.10 p.m. to 2.10 p.m.	1 hour
11	12.04.2022	Network segmentation for IoT	1.10 p.m. to 2.10 p.m.	1 hour
12	16.04.2022	IoT network access control measures	1.10 p.m. to 2.10 p.m.	1 hour
13	19.04.2022	IoT data security and privacy	1.10 p.m. to 2.10 p.m.	1 hour
14	22.04.2022	IoT data encryption techniques	1.10 p.m. to 2.10 p.m.	1 hour
15	25.04.2022	IoT data access control measures	1.10 p.m. to 2.10 p.m.	1 hour
16	28.04.2022	Data privacy measures for IoT	1.10 p.m. to 2.10 p.m.	1 hour
17	05.05.2022	IoT security testing methodologies	1.10 p.m. to 2.10 p.m.	1 hour
18	11.05.2022	Penetration testing for IoT devices	1.10 p.m. to 2.10 p.m.	1 hour
19	17.05.2022	Vulnerability scanning for IoT	1.10 p.m. to 2.10 p.m.	1 hour
20	19.05.2022	Security monitoring for IoT devices	1.10 p.m. to 2.10 p.m.	1 hour
21	23.05.2022	IoT security management practices	1.10 p.m. to 2.10 p.m.	1 hour
22	27.05.2022	Incident response for IoT security	1.10 p.m. to 2.10 p.m.	1 hour
23	30.05.2022	IoT security regulations and	1.10 p.m. to 2.10 p.m.	1 hour
24	01.06.2022	Risk assessment and management	1.10 p.m. to 2.10 p.m.	1 hour
25	04.06.2022	Overview of IoT security protocols	1.10 p.m. to 2.10 p.m.	1 hour
26	09.06.2022	IoT security protocols for data	1.10 p.m. to 2.10 p.m.	1 hour
27	13.06.2022	IoT security standards for devices	1.10 p.m. to 2.10 p.m.	1 hour
28	17.06.2022	IoT security compliance regulations	1.10 p.m. to 2.10 p.m.	1 hour
29	21.06.2022	Emerging threats to IoT devices and	1.10 p.m. to 2.10 p.m.	1 hour
30	27.06.2022	Cybersecurity threats to IoT devices	1.10 p.m. to 2.10 p.m.	1 hour
31	08.07.2022	Social engineering attacks on IoT	1.10 p.m. to 2.10 p.m.	1 hour
32	13.07.2022	Privacy implications of IoT data	1.10 p.m. to 2.10 p.m.	1 hour
			Total – 32 hours	

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DEPARTMENT OF INFORMATION TECHNOLOGY

Date: 13.07.2022

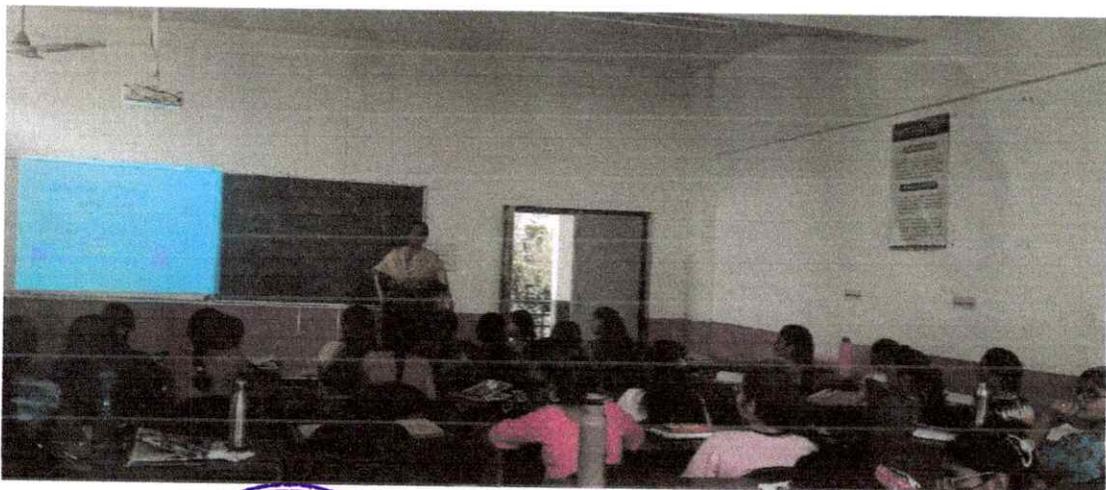
PROGRAM REPORT

The Add-on Course on "IoT Security and Privacy" was conducted over a duration of 32 days, with classes held for 1 hour each day from 1:10 p.m. to 2:10 p.m.

Mrs. S. Shilpa, Department of ECE, Samskruti College of Engineering & Technology, Hyderabad acted as Resource Person for this add on course and the Coordinated by Mrs. V. Rupa. A total number of 35 students completed this add on course.

Throughout the program, the following topics were covered:

1. Introduction to IoT Security and Privacy: This session provided an overview of the importance of security and privacy in IoT systems, and the unique challenges they pose.
2. IoT Device Security: Participants learned about the vulnerabilities associated with IoT devices and explored methods for securing them from unauthorized access and attacks.
3. Network Security for IoT Devices: The session focused on network-level security measures for IoT devices, including secure communication protocols, authentication, and access control.
4. Data Security and Privacy in IoT: Participants gained knowledge about ensuring the security and privacy of data collected and transmitted by IoT devices, including encryption, data integrity, and anonymization techniques.
5. IoT Security Testing: This session covered various testing methodologies and tools for evaluating the security of IoT systems, including vulnerability scanning and penetration testing.



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The course successfully provided students with a comprehensive understanding of IoT security and privacy. The topics covered aligned well with the course objectives, ensuring that students gained knowledge and practical skills in securing IoT devices and addressing privacy concerns.

Course Outcome (CO)	At the end of the course, students will have the ability to:	Potential Program Outcome (PO)	Strength of Mapping
CO1	Demonstrate a comprehensive understanding of IoT security and privacy challenges, including the unique characteristics and vulnerabilities of IoT devices and networks.	PO1, PO2, PO3	2
CO2	Analyze and assess the security risks associated with IoT deployments and propose effective security measures to mitigate these risks.	PO2, PO6, PO7	5
CO3	Design and implement secure IoT device architectures considering the principles of confidentiality, integrity, and availability.	PO3, PO4	5



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CO4	Identify and address network security threats specific to IoT devices, such as unauthorized access, data tampering, and denial-of-service attacks.	PO4, PO3	4
CO5	Apply encryption and access control techniques to protect sensitive data transmitted and stored in IoT systems.	PO1, PO2	1

Assessment Procedure: The assessment of the Add on course was conducted in Multiple Choice and Fill in the Blanks Questions through offline Mode.

In conclusion, the Add-on Course on "IoT Security and Privacy" effectively equipped students with the necessary knowledge and skills to address security and privacy challenges in IoT systems. The program report indicates that the course objectives were met and the topics covered aligned well with the desired learning outcomes. The assessment procedure provided a means to evaluate students' comprehension of the covered material. Overall, the course contributed to enhancing the participants' proficiency in IoT security and privacy, preparing them to tackle the challenges associated with securing IoT devices and protecting user privacy in the IoT landscape.

Pupa
COORDINATOR

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DEPARTMENT OF CSE (AI&ML)

VMTW/AIML/AOC/CIR/2021-22/I/1

Date: 08.10.2021

CIRCULAR

We are thrilled to announce a unique opportunity for you to enhance your knowledge and skills in the field of Artificial Intelligence and Machine Learning (AIML). The Department of CSE (AI&ML) at VMTW has organized an exclusive Add-on Course on "Chatbot Integration with Messaging Platforms" specifically designed for the II-I B. Tech. students. We are pleased to inform you that **Mr. V. Maddileti Reddy**, Assistant Professor, Department of CSE, Noble College of Engineering & Technology, Hyderabad have been identified by the department advisory committee as the esteemed resource person for this course. We are delighted to share that **Mr. V. Maddileti Reddy** have graciously accepted our invitation to conduct the classes, providing you with a comprehensive and enriching learning experience. The course is scheduled to run for 32 days, from 18th October 2021 to 25th February 2022. Participating students will be awarded certificates of participation upon completion of the course. Throughout the duration, you will have the opportunity to engage with the speaker and other participants through case study discussions, fostering interactive learning.

If you are interested in joining this course, kindly fill out the registration form and secure your spot for this exciting learning opportunity.


S. Anand
Head of the Department

Computer Science and Engineering (AI & ML)
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ABOUT THE COURSE

The add-on course "Chatbot Integration with Messaging Platforms" is designed for second-year second-semester AI&ML students at VMTW college. The course focuses on teaching students how to integrate chatbots with popular messaging platforms such as Facebook Messenger, Slack, and WhatsApp.

The course covers key topics such as chatbot architecture, messaging platform APIs, chatbot design and development, testing and deployment, and chatbot performance optimization. Students will also learn how to analyze chatbot data to identify areas for improvement and how to implement changes to optimize chatbot performance.

COURSE OBJECTIVES

The objective of the add-on course "Chatbot Integration with Messaging Platforms" for second-year second-semester AI&ML students at VMTW college is to provide students with the knowledge and skills needed to integrate chatbots with messaging platforms. The specific objectives are as follows:

1. To familiarize students with the concept of chatbots and their integration with messaging platforms.
 2. To teach students about the architecture of chatbots and how they interact with messaging platforms.
 3. To provide students with hands-on experience in designing, developing, and testing chatbots for popular messaging platforms.
 4. To equip students with the knowledge needed to analyze chatbot data and make improvements to optimize chatbot performance.
 5. To expose students to real-world scenarios and case studies, giving them a deeper understanding of the challenges and opportunities in this field.
 6. To develop students' critical thinking and problem-solving skills by challenging them to solve complex chatbot integration issues.
 7. To prepare students for careers in the field of chatbot integration with messaging platforms, either as developers, consultants, or in other roles.
- Overall, the course aims to equip students with the knowledge and skills they need to become experts in chatbot integration with messaging platforms and to succeed in the rapidly growing field of chatbots and messaging platforms.

EXPECTED OUTCOMES

Integration with Messaging Platforms" for second-year second-semester AI&ML students at VMTW college is for students to develop a comprehensive understanding of chatbot integration with messaging platforms and the skills to design, develop, test, and deploy effective chatbots.

Upon completion of the course, students can expect to have achieved the following outcomes:

1. A solid understanding of chatbot architecture and the interactions between chatbots and messaging platforms.
2. The ability to design, develop, and test chatbots for popular messaging platforms.
3. Knowledge of how to analyze chatbot data and make improvements to optimize chatbot performance.
4. Experience in solving complex chatbot integration issues through hands-on projects and case studies.
5. Exposure to real-world scenarios and a deeper understanding of the challenges and opportunities in the field of chatbot integration with messaging platforms.
6. Improved critical thinking and problem-solving skills.
7. A foundation for future career growth and opportunities in the field of chatbots and messaging platforms.

Overall, the expected outcome of the add-on course "Chatbot Integration with Messaging Platforms" is for students to gain the knowledge and skills they need to succeed in the rapidly growing field of chatbots and messaging platforms and to be prepared for careers as chatbot developers, consultants, or in other related roles.



Resource Person:

Mr. V. Maddileti Reddy,

Assistant Professor, Dept. of CSE,

Noble College of Engineering &

Technology for Women, Hyderabad.



Co-ordinator:

Dr. S. Ranga Swamy,

Associate Professor &

Head of the Department, Dept. of CSE (AI&ML).

Contact No: +91 99898 96548

LAST DATE FOR REGISTRATION: 16TH OCTOBER 2021



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ADD-ON COURSE ON "CHATBOT INTEGRATION WITH MESSAGING PLATFORMS"

18TH OCT 2021 TO 25TH FEB, 2022

DURATION OF THE COURSE: 32 HRS

VENUE:
AFF-2 CLASSROOM, VMTW

ORGANIZED BY:

DEPARTMENT OF CSE (AI&ML)





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DEPARTMENT OF CSE (AI&ML)

ADD ON COURSE SYLLABUS: CHATBOT INTEGRATION WITH MESSAGING PLATFORMS

Academic Year: 2021-22

B. Tech. II-I SEM SYLLABUS

COURSE OBJECTIVES (COs):

1. Understand the concepts and significance of chatbots in messaging platforms.
2. Develop chatbots using popular frameworks like Dialogflow, Microsoft Bot Framework, and IBM Watson.
3. Integrate chatbots with various messaging platforms such as Facebook Messenger, WhatsApp, and Slack.
4. Design engaging chatbots and implement best practices for effective chatbot interactions.
5. Apply natural language processing techniques to enhance chatbot capabilities.

COURSE OUTCOMES: After learning the contents of this add on course the student must be able to:

1. Gain a strong understanding of chatbot concepts and their significance in messaging platforms.
2. Acquire proficiency in developing chatbots using popular frameworks such as Dialogflow, Microsoft Bot Framework, and IBM Watson.
3. Demonstrate the ability to integrate chatbots with various messaging platforms, including Facebook Messenger, WhatsApp, and Slack.
4. Design engaging chatbot conversations and implement best practices for effective interactions with users.
5. Apply natural language processing techniques to enhance chatbot capabilities and improve user experience.

Unit 1: Introduction to Chatbots and Messaging Platforms, - Overview of chatbots and their role in messaging platforms- Introduction to Dialogflow, Microsoft Bot Framework, and IBM Watson.

Unit 2: Developing Chatbots, - Creating chatbots using Dialogflow- Creating chatbots using Microsoft Bot Framework- Creating chatbots using IBM Watson.

Unit 3: Integrating Chatbots with Messaging Platforms- Integrating chatbots with Facebook Messenger- Integrating chatbots with WhatsApp- Integrating chatbots with Slack.



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Unit 4: Chatbot Design and Best Practices- Designing chatbots for engaging conversations- Best practices for creating effective chatbot interactions- Implementing natural language processing techniques.

Unit 5: Advanced Topics in Chatbot Development - Chatbot security and privacy considerations- Multilingual chatbot development - Chatbot deployment and maintenance.

References:

1. Ahmad, A., & Daud, A. (2020). Chatbot Development: A Literature Review. 2020 3rd International Conference on Computer Applications & Information Security (ICCAIS). DOI: 10.1109/ICCAIS48960.2020.9275305
2. Chollet, F. (2018). Deep Learning with Python. Manning Publications.

S. Prasad
COORDINATOR



S. Prasad
HOD

Head of the Department
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Vignans Institute of Management & Technology For Women
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S. Prasad
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DEPARTMENT OF CSE (AI&ML)

ADD ON COURSE NAME: CHATBOT INTEGRATION WITH MESSAGING PLATFORMS

Academic Year: 2021-22

Date: 08.10.2021

B. Tech. II-I SEM

DAY WISE SCHEDULE SHEET

Venue: A-Block - AFF-2 (Class room)

Sl. No.	DAY	Topic	Timings	Duration
1	18.10.21	Introduction to chatbots and messaging platforms	09.00 a.m. to 10.00 a.m.	01 hour
2	22.10.21	Overview of Dialogflow, Microsoft Bot Framework, and IBM Watson	09.00 a.m. to 10.00 a.m.	01 hour
3	25.10.21	Setting up accounts for Dialogflow, Microsoft Bot Framework, and IBM	09.00 a.m. to 10.00 a.m.	01 hour
4	28.10.21	Creating a simple chatbot using Dialogflow	09.00 a.m. to 10.00 a.m.	01 hour
5	01.11.21	Creating a simple chatbot using Microsoft Bot Framework	09.00 a.m. to 10.00 a.m.	01 hour
6	08.11.21	Creating a simple chatbot using IBM Watson	09.00 a.m. to 10.00 a.m.	01 hour
7	12.11.21	Natural Language Processing (NLP) concepts and techniques	09.00 a.m. to 10.00 a.m.	01 hour
8	17.11.21	Designing conversations for chatbots	09.00 a.m. to 10.00 a.m.	01 hour
9	26.11.21	Writing and testing chatbot scripts	09.00 a.m. to 10.00 a.m.	01 hour
10	30.11.21	Creating and managing intents	09.00 a.m. to 10.00 a.m.	01 hour
11	03.12.21	Creating and managing entities	09.00 a.m. to 10.00 a.m.	01 hour
12	07.12.21	Dialog management and context	09.00 a.m. to 10.00 a.m.	01 hour
13	10.12.21	Integrating chatbots with Facebook Messenger	09.00 a.m. to 10.00 a.m.	01 hour
14	20.12.21	Setting up a Facebook Developer account	09.00 a.m. to 10.00 a.m.	01 hour
15	23.12.21	Creating and configuring a Facebook Messenger bot	09.00 a.m. to 10.00 a.m.	01 hour
16	27.12.21	Adding chatbot functionality to Facebook Messenger	09.00 a.m. to 10.00 a.m.	01 hour



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17	31.12.21	Best practices for creating engaging conversations with Facebook	09.00 a.m. to 10.00 a.m.	01 hour
18	04.01.22	Integrating chatbots with WhatsApp	09.00 a.m. to 10.00 a.m.	01 hour
19	07.01.22	Setting up a WhatsApp Business account	09.00 a.m. to 10.00 a.m.	01 hour
20	10.01.22	Creating and configuring a WhatsApp Business API client	09.00 a.m. to 10.00 a.m.	01 hour
21	20.01.22	Adding chatbot functionality to WhatsApp	09.00 a.m. to 10.00 a.m.	01 hour
22	24.01.22	Best practices for creating engaging conversations with WhatsApp users	09.00 a.m. to 10.00 a.m.	01 hour
23	28.01.22	Integrating chatbots with Slack	09.00 a.m. to 10.00 a.m.	01 hour
24	31.01.22	Setting up a Slack Developer account	09.00 a.m. to 10.00 a.m.	01 hour
25	02.02.22	Creating and configuring a Slack bot	09.00 a.m. to 10.00 a.m.	01 hour
26	04.02.22	Adding chatbot functionality to Slack	09.00 a.m. to 10.00 a.m.	01 hour
27	07.02.22	Best practices for creating engaging conversations with Slack users	09.00 a.m. to 10.00 a.m.	01 hour
28	10.02.22	Testing and debugging chatbots	09.00 a.m. to 10.00 a.m.	01 hour
29	21.02.22	Deploying chatbots to production environments	09.00 a.m. to 10.00 a.m.	01 hour
30	23.02.22	Chatbot analytics and metrics	09.00 a.m. to 10.00 a.m.	01 hour
31	24.02.22	Ethical considerations for chatbot development	09.00 a.m. to 10.00 a.m.	01 hour
32	25.02.22	Future developments in chatbot technology and messaging platforms	09.00 a.m. to 10.00 a.m.	01 hour
Total – 32 hours				


COORDINATOR




HOD
Head of the Department
Computer Science and Engineering (AI & ML)
Vignans Institute of Management & Technology For Women
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DEPARTMENT OF CSE (AI&ML)

Date: 25.02.2022

PROGRAM REPORT

Name of the Add on Course: **CHATBOT INTEGRATION WITH MESSAGING PLATFORMS**

Day/Duration: **32 days**

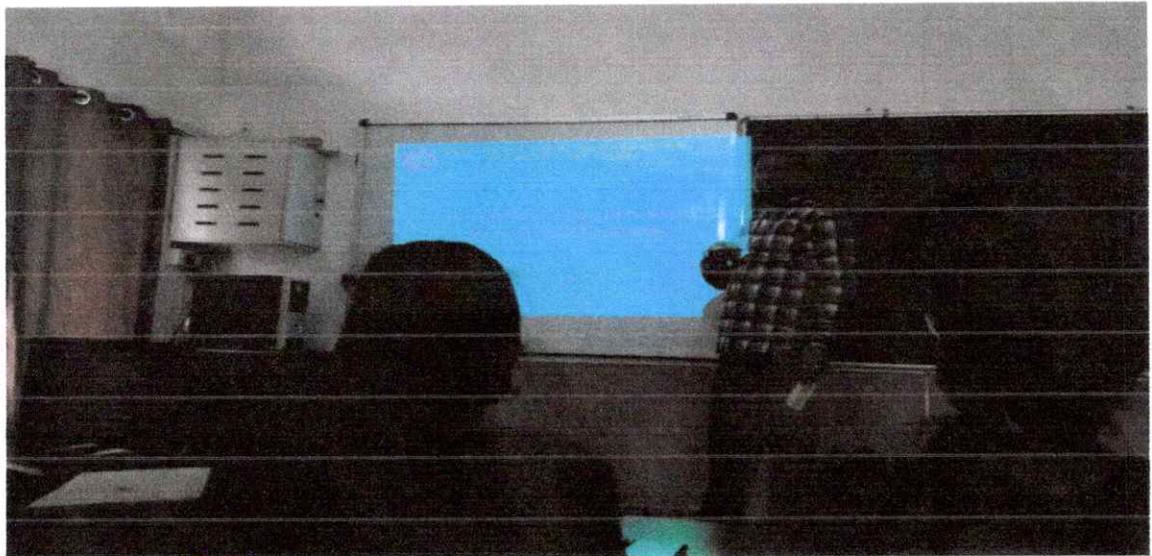
Time: **1 hours (09. 00 a.m. to 10. 00 a.m.)**

Resource Person: **Mr. V. Maddileti Reddy**, Assistant Professor, Department of CSE, Noble College of Engineering & Technology, Hyderabad.

Name of the Coordinator: **Dr. S. Rangaswamy**, Head and Associate Professor, Dept. CSE (AI&ML)

Number of the Participants: **48 students**

Dr. S. Rangaswamy, Head and Associate Professor of the Department of CSE (AI&ML), VMTW, conducted the Add on Course on "Chatbot Integration with Messaging Platforms" with the resource person, Mr. V. Maddileti Reddy, Assistant Professor, Department of CSE, Noble College of Engineering & Technology, Hyderabad. The course was conducted for a duration of 32 days, with classes held for 1 hour from 9:00 a.m. to 10:00 a.m.

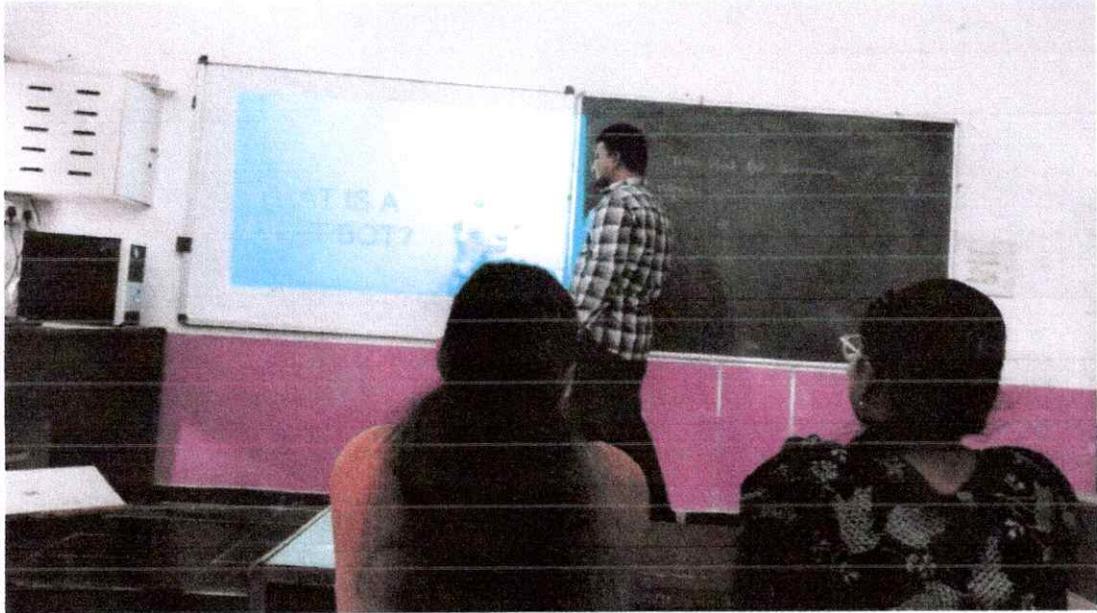



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The course had a total of 48 participants, who were students of the department CSE (AI&ML). The course aimed to provide students with the knowledge and skills necessary to design, develop, integrate, and optimize chatbots for messaging platforms. The course objectives included understanding the concepts and significance of chatbots in messaging platforms, developing chatbots using popular frameworks like Dialogflow, Microsoft Bot Framework, and IBM Watson, integrating chatbots with various messaging platforms such as Facebook Messenger, WhatsApp, and Slack, designing engaging chatbots, and implementing best practices for effective chatbot interactions. The application of natural language processing techniques to enhance chatbot capabilities was also covered.

The topics covered in the program included an introduction to chatbots and messaging platforms, developing chatbots using different frameworks, integrating chatbots with messaging platforms, chatbot design and best practices, and advanced topics in chatbot development.

Topics covered: The following topics are covered in this program.

1. Introduction to Chatbots and Messaging Platforms
2. Developing Chatbots
3. Integrating Chatbots with Messaging Platforms
4. Chatbot Design and Best Practices
5. Advanced Topics in Chatbot Development




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Course Outcomes:

COs	At the end of the course, students will have the ability to:	POs Mapped	Strength of mapping
CO1	Understand the concepts and significance of chatbots in messaging platforms.	PO1: Engineering knowledge	2
CO2	Develop chatbots using popular frameworks such as Dialogflow, Microsoft Bot Framework, and IBM Watson.	PO2: Problem analysis	4
CO3	Integrate chatbots with various messaging platforms like Facebook Messenger, WhatsApp, and Slack.	PO3: Design/development of solutions	5
CO4	Design engaging chatbots that can hold interactive and meaningful conversations.	PO4: Conduct investigations of complex problems	5
CO5	Implement best practices for creating effective chatbot interactions.	PO5: Modern tool usage	5

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice and Fill in the Blanks Questions through offline Mode.


COORDINATOR


HOD

Head of the Department
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DEPARTMENT OF CSE (AI&ML)

VMTW/AIML/AOC/CIR/2021-22/II/2

Date: 17.03.2022

CIRCULAR

This is to inform an exciting opportunity to enhance your knowledge and skills in the field of Artificial Intelligence and Machine Learning (AIML). The Department of CSE (AI&ML) at VMTW is organizing an Add-on Course on "INTRODUCTION TO THE JAVA API FOR MACHINE LEARNING" exclusively for the II-II B. Tech., students. The department advisory committee has identified Mrs. N. Sreeja, Assistant Professor, Department of CSE, Vathsalya Engineering College, Bhuvanagiri, Hyderabad, as the resource person for this course. We are delighted to inform you that Mrs. N. Sreeja has accepted our invitation to take the class for a duration of 35 days, providing you with an extensive and comprehensive learning experience and the proposed schedule from 23.03.2022 to 12.08.2022. The participating students will be honored with certificates of participation. During the course you will be encouraged to interact with the speaker and the other participants through the case study discussions. Hence those who are interested can sign in registration form.

S. P. Sreeja
HOD

Head of the Department
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II- B. Tech., Students

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The course typically involves both theoretical lectures and hands-on coding assignments, as well as project work in which students apply their knowledge to real-world string processing problems. The goal of the course is to provide students with a strong foundation in string processing algorithms and techniques, and to equip them with the skills and knowledge necessary to develop efficient algorithms for text-related problems in AI and ML.

COURSE OBJECTIVES

The objectives of the "Introduction to Java API for Machine Learning" add-on course are as follows:

1. To provide AI&ML students with a solid foundation in Java programming.
 2. To introduce students to the various Java libraries for machine learning and how to use them effectively.
 3. To teach students the various techniques used in data pre-processing and how to implement machine learning algorithms in Java.
 4. To provide students with an understanding of the evaluation techniques used to assess machine learning models.
 5. To teach students how to deploy and integrate machine learning models in real-world applications.
 6. To provide students with hands-on experience in developing machine learning applications using Java.
 7. To prepare students for careers in the AI and ML industry by equipping them with the knowledge and skills required to develop machine learning applications using Java.
- By the end of the course, students will be able to use Java and its libraries to develop and deploy machine learning models, as well as evaluate and improve their performance. The course will provide them with a comprehensive understanding of the Java API for machine learning and the skills necessary to become successful professionals in the field.

EXPECTED OUTCOMES

The expected outcomes for the "Introduction to Java API for Machine learning" add-on course for the 2nd year 2nd semester AI&ML students are:

1. Strong foundation in Java programming: By the end of the course, students will have a solid understanding of Java

2. Knowledge of Java libraries for machine learning: Students will be introduced to the various Java libraries for machine learning and will learn how to use them effectively in their projects.
3. Hands-on experience in developing machine learning applications: Students will have hands-on experience in developing machine learning applications using Java, which will help them understand the practical applications of the concepts they have learned.
4. Understanding of data pre-processing techniques: Students will be able to perform data pre-processing and extract features from the data to prepare it for machine learning models.
5. Ability to implement machine learning algorithms in Java: Students will learn how to implement various machine learning algorithms in Java and will be able to choose the appropriate algorithm for their projects.
6. Knowledge of model evaluation techniques: Students will understand the various techniques used to evaluate machine learning models and will be able to assess the performance of their models.
7. Deployment and integration of machine learning models: Students will learn how to deploy and integrate machine learning models in real-world applications.



Resource Person:

Mrs. N. Sreeja,

Assistant Professor,

Vathsalya Engineering College,
Hyderabad.



Co-ordinator:

Mr. G. Rajesh,

Assistant Professor

Dept. of CSE (AI&ML).

Contact No: +91 94942 74083

LAST DATE FOR REGISTRATION: 21ST MARCH, 2022

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**VALUE ADDED COURSE ON
"INTRODUCTION
TO THE JAVA API FOR
MACHINE LEARNING"
23RD MAR TO 12TH AUG, 2022**

DURATION OF THE COURSE: 35 HRS

VENUE:

AFF-2 CLASSROOM, VMTW

ORGANIZED BY:

DEPARTMENT OF CSE (AI&ML)





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DEPARTMENT OF CSE (AI&ML)

ADD ON COURSE SYLLABUS: INTRODUCTION TO THE JAVA API FOR MACHINE LEARNING

Academic Year: 2021-22

B. Tech. II-I SEM

SYLLABUS

Course Objectives:

1. Understand the fundamental concepts and principles of machine learning.
2. Gain knowledge of the Java ML landscape and popular libraries used for machine learning in Java.
3. Learn how to preprocess data, including cleaning, handling missing values, feature scaling, normalization, encoding, and transformation.
4. Explore supervised learning algorithms such as linear regression, logistic regression, decision trees, and random forests.
5. Study unsupervised learning algorithms, including K-means clustering, Principal Component Analysis (PCA), and association rule mining.

Course Outcomes:

1. Develop a solid understanding of machine learning concepts and their applications.
2. Gain practical experience with Java ML libraries, enabling you to implement machine learning algorithms using Java.
3. Acquire skills in data preprocessing, including handling missing values, scaling features, and transforming data.
4. Implement and apply supervised learning algorithms in Java for regression and classification tasks.
5. Apply unsupervised learning techniques to discover patterns and clusters in data.

Unit 1: Introduction to Machine Learning and Java ML, Introduction to machine learning concepts and applications, Overview of the Java ML landscape and popular libraries.

Unit 2: Data Preprocessing, Data cleaning and handling missing values, Feature scaling and normalization, Feature encoding and transformation.

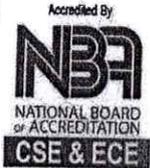


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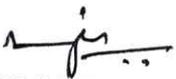
Unit 3: Supervised Learning Algorithms, Linear regression, Logistic regression, Decision trees and random forests.

Unit 4: Unsupervised Learning Algorithms, K-means clustering, Principal Component Analysis (PCA), Association rule mining

Unit 5: Model Evaluation and Validation, Train-test split and cross-validation techniques
Evaluation metrics for regression and classification tasks
Week 6: Advanced Topics in Java ML, Ensemble learning techniques, Support Vector Machines (SVM), Deep learning with Java libraries.

References:

1. Java Machine Learning" by Mark F. Hornick, Erik G. Marcade, and Francois J. Viau
2. Practical Machine Learning for Computer Vision" by Martin Görner, Ryan Gillard, and Valliappa Lakshmanan.
3. Java for Machine Learning" by Ahmed Fawzy Gad


COORDINATOR


HOD
Head of the Department
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DEPARTMENT OF CSE (AI&ML)

ADD ON COURSE NAME: Introduction to the Java Api for Machine Learning

Academic Year: 2021-22

Date: 17.03.2022

B. Tech. II-II SEM

DAY WISE SCHEDULE SHEET

Room number: AFF-2

Sl. No.	DAY	Topic	Timings	Duration
1	23-03-22	Introduction to Machine Learning	2.30 p.m. to 3.30 p.m.	1 hour
2	25-03-22	Overview of Java API for Machine Learning	2.30 p.m. to 3.30 p.m.	1 hour
3	29-03-22	Data Preprocessing in Java ML	2.30 p.m. to 3.30 p.m.	1 hour
4	01-04-22	Supervised Learning Algorithms	2.30 p.m. to 3.30 p.m.	1 hour
5	05-04-22	Unsupervised Learning Algorithms	2.30 p.m. to 3.30 p.m.	1 hour
6	08-04-22	Decision Trees and Random Forests	2.30 p.m. to 3.30 p.m.	1 hour
7	12-04-22	Naive Bayes Classifier	2.30 p.m. to 3.30 p.m.	1 hour
8	18-04-22	Support Vector Machines (SVM)	2.30 p.m. to 3.30 p.m.	1 hour
9	21-04-22	K-Nearest Neighbors (KNN)	2.30 p.m. to 3.30 p.m.	1 hour
10	25-04-22	Linear Regression	2.30 p.m. to 3.30 p.m.	1 hour
11	28-04-22	Logistic Regression	2.30 p.m. to 3.30 p.m.	1 hour
12	02-05-22	Neural Networks and Deep Learning	2.30 p.m. to 3.30 p.m.	1 hour
13	06-05-22	Convolutional Neural Networks (CNN)	2.30 p.m. to 3.30 p.m.	1 hour
14	09-05-22	Recurrent Neural Networks (RNN)	2.30 p.m. to 3.30 p.m.	1 hour
15	10-05-22	Feature Extraction and Selection	2.30 p.m. to 3.30 p.m.	1 hour
16	11-05-22	Dimensionality Reduction Techniques	2.30 p.m. to 3.30 p.m.	1 hour
17	13-05-22	Clustering Algorithms	2.30 p.m. to 3.30 p.m.	1 hour



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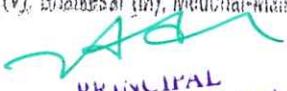
18	18-05-22	Association Rule Mining	2.30 p.m. to 3.30 p.m.	1 hour
19	20-05-22	Reinforcement Learning	2.30 p.m. to 3.30 p.m.	1 hour
20	23-05-22	Model Evaluation and Validation	2.30 p.m. to 3.30 p.m.	1 hour
21	27-05-22	Cross-Validation	2.30 p.m. to 3.30 p.m.	1 hour
22	06-06-22	Performance Metrics	2.30 p.m. to 3.30 p.m.	1 hour
23	09-06-22	Hyper parameter Tuning	2.30 p.m. to 3.30 p.m.	1 hour
24	13-06-22	Ensemble Learning	2.30 p.m. to 3.30 p.m.	1 hour
25	16-06-22	Natural Language Processing (NLP) in Java	2.30 p.m. to 3.30 p.m.	1 hour
26	20-06-22	Time Series Analysis and Forecasting	2.30 p.m. to 3.30 p.m.	1 hour
27	24-06-22	Image Classification in Java	2.30 p.m. to 3.30 p.m.	1 hour
28	27-06-22	Anomaly Detection	2.30 p.m. to 3.30 p.m.	1 hour
29	05-07-22	Recommender Systems	2.30 p.m. to 3.30 p.m.	1 hour
30	13-07-22	Deploying Machine Learning Models	2.30 p.m. to 3.30 p.m.	1 hour
31	22-07-22	Handling Imbalanced Data	2.30 p.m. to 3.30 p.m.	1 hour
32	25-07-22	Handling Missing Data	2.30 p.m. to 3.30 p.m.	1 hour
33	29-07-22	Model Interpretability	2.30 p.m. to 3.30 p.m.	1 hour
34	10-08-22	Java ML Libraries Overview	2.30 p.m. to 3.30 p.m.	1 hour
35	12-08-22	Future Trends in Java-based ML	2.30 p.m. to 3.30 p.m.	1 hour
Total – 35 hours				


COORDINATOR




HOD

Head of the Department
Computer Science and Engineering (AI & ML)
Vignans Institute of Management & Technology For Women
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DEPARTMENT OF CSE (AI&ML)

Date: 12.08.2022

PROGRAM REPORT

Name of the Add on Course	INTRODUCTION TO THE JAVA API FOR MACHINE LEARNING
Day/Duration	35 days
Time	1 hour (2.30 p.m. to 3.30 p.m.)
Resource Person	Mrs. N. Sreeja , Department of CSE, Vathsalya Engineering College, Hyderabad.
Name of the Coordinator	Mr. G. Rajesh , Department of CSE (AI&ML), Asst. Prof.
Number of the Participants	45 students

This course aims to provide students with a strong foundation in machine learning concepts and applications, specifically focusing on Java ML libraries. The course covers various topics that are essential for understanding and implementing machine learning models. The course begins with an introduction to machine learning and Java ML, giving students an overview of the field and the Java ML landscape. They will gain an understanding of the fundamental concepts and applications of machine learning. Next, the course covers data preprocessing, which includes techniques for cleaning data, handling missing values, and performing feature scaling, normalization, encoding, and transformation. This step is crucial for preparing data before applying machine learning algorithms. The course then delves into supervised learning algorithms, including linear regression, logistic regression, decision trees, and random forests. Students will learn how to build and train models for regression and classification tasks using these algorithms. Following that, the course explores unsupervised learning algorithms such as K-means clustering, Principal Component Analysis (PCA), and association rule mining. Students will understand how to apply these algorithms to discover patterns and structures in unlabeled data.

The course also covers model evaluation and validation techniques. Students will learn how to assess the performance of their machine learning models using train-test split and cross-validation methods. They will also be introduced to evaluation metrics for regression and classification tasks.

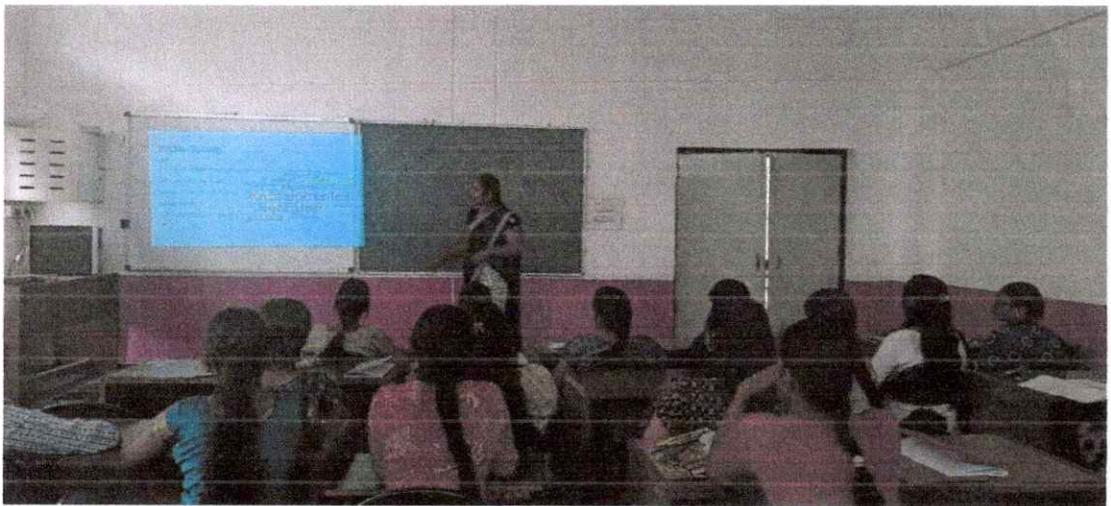
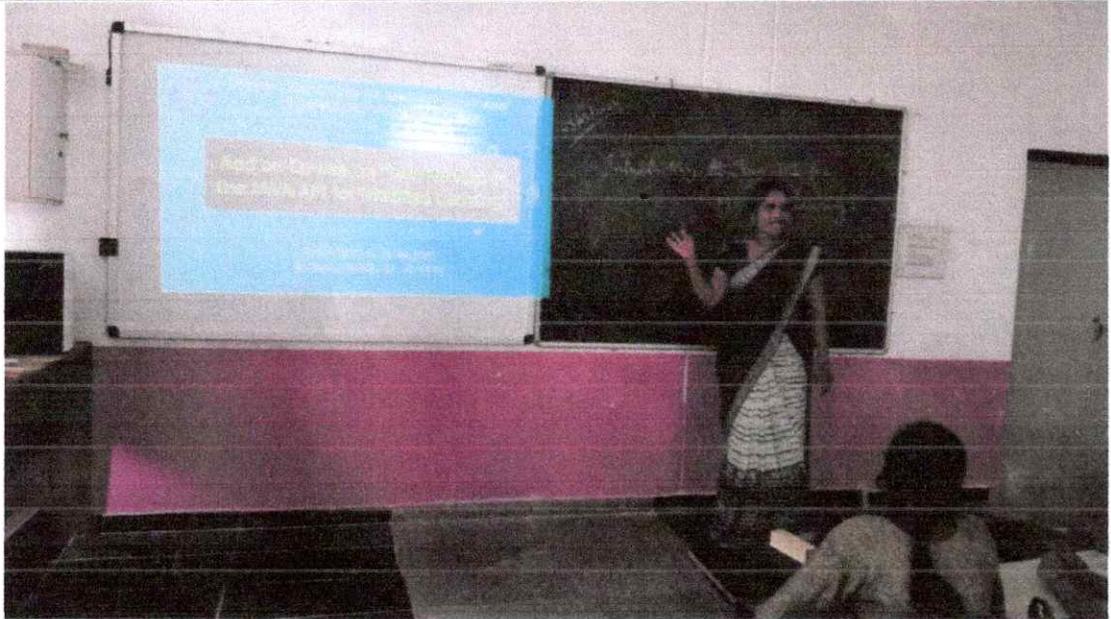


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COURSE OUTCOMES:

Course Outcome (CO)	At the end of the course, students will have the ability to:	Potential Program Outcome (PO)	Strength of Mapping
CO1	Develop a solid understanding of machine learning concepts and their applications.	PO2, PO3, PO4	4



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CO2	Gain practical experience with Java ML libraries, enabling you to implement machine learning algorithms using Java.	PO2, PO6, PO7	5
CO3	Acquire skills in data preprocessing, including handling missing values, scaling features, and transforming data.	PO3, PO4	5
CO4	Implement and apply supervised learning algorithms in Java for regression and classification tasks.	PO4, PO3	4
CO5	Apply unsupervised learning techniques to discover patterns and clusters in data.	PO1, PO2	2

Assessment Procedure: The assessment of the Add on course is conducted in Multiple Choice and Fill in the Blanks Questions through offline Mode.

In summary, this course equips students with a solid understanding of machine learning fundamentals and their practical implementation using Java ML libraries. By the end of the course, students will have gained proficiency in data preprocessing, building and evaluating supervised and unsupervised learning models, and effectively applying machine learning techniques to real-world problems.


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