SHARDA GROUP

HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF PHYSICS

Value Added Course

Fundamental Concepts and advances in Nanotechnology (VAS2201)

3rd Sep '2022 – 12th Dec 2022 - Every Saturday: 2:20 PM – 4:50 PM

Students of Biotechnology and Chemical Engineering

By

Prof. M.S. Gaur
Professor and Head
Dean R & D
Department of Physics
Hindustan College of Science & Technology
Farah, Mathura

Registration Dates
25th– 30th Aug. 2022
For Registration: Please contact
Dr. Vinod Kushwah (Asstt. Professor)
Room No.411

Prerequisites: Basics of science & technology

Head
Department of Physics
Hindustan College of Science & Technology
Farah, Mathura

Director
Hindustan College of
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Course Objectives

The main objectives of the value added course are as follows:

1. To attain world-class quality in learning (theory and practical) and research related to engineering sciences and technology
2. To provide comprehensive and interdisciplinary knowledge on analyses, design, and creation of novel and environmentally benign engineering solutions for short-term and long-term pertinent problems in the society
3. To give a comprehensive hands-on training in the theory and experiments related to processing, characterization, testing of advanced materials and engineering components.
4. To produce high quality and industrially relevant human resource for possible employment in industries, and academic and research organizations.

Course Syllabus

Units	Details	Course Out comes
1	apply the fundamentals of solid state physics and chemistry to nanoscience	CO_1
2	correlate physical behavior of materials at the nanoscale with quantum mechanics	CO_2
3	analyse the requirement of statistical mechanics for understanding the physical and chemical behavior of materials at the nanoscale	CO_3
4	apply the knowledge to suggest different applications of nanoscience and technology.	CO_4

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Evaluation Criteria: 1. Evaluation of Practical /assignments, Group project, Viva/Quiz

Course Outcomes

CO_1 apply the fundamentals of solid state physics and chemistry to nanoscience.

CO_2 correlate physical behavior of materials at the nanoscale with quantum mechanics

CO_3 analyse the requirement of statistical mechanics for understanding the physical and chemical behavior of materials at the nanoscale

CO_4 apply the knowledge gained to suggest different applications of nanoscience and technology.

CO-PO Mappings

	PO 1	PO 2	PO 3	PO 4	PO 5	PO6	PO 7	PO 8	PO9	PO1 0	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	2	2	3	3	3	3	2	2	2	2	2	1	3	2	2	1
CO2	2	2	3	3	2	2	2	2	2	2	2	1	2	2	2	1
CO3	2	2	3	3	2	2	2	2	2	2	2	1	2	2	2	1
CO4	2	2	3	1	1	2	2	2	2	2	2	1	2	2	2	1

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3rd Sep '2022 – 12th Dec 2022 - Every Saturday: 2:20 PM – 4:50 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	3-Sep	*2:20 PM – 4:50 PM*	2.5	Introduction to NanoScience & Technology	Dr. Vinod Kushwah
2	10-Sep	*2:20 PM – 4:50 PM*	2.5	Quantum Theory for Nano Science: Particle in a box, Potential step	Dr. Vinod Kushwah
3	17-Sep	*2:20 PM – 4:50 PM*	2.5	Energy bands and gaps of semiconductors	Dr. Vinod Kushwah
4	24-Sep	*2:20 PM – 4:50 PM*	2.5	Basics concept of Quantum Dots, Quantum wires and Quantum well, Demonstration in the Lab	Dr. Vinod Kushwah/ Dr. R.K. Tiwari
5	01-Oct	*2:20 PM – 4:50 PM*	2.5	Single electron Tunneling, Infrared detectors; Quantum dot laser superconductivity.	Dr. Vinod Kushwah
6	08-Oct	*2:20 PM – 4:50 PM*	2.5	Nano Particles: Metal nano clusters; Magic numbers;	Dr. Vinod Kushwah
7	15-Oct	*2:20 PM – 4:50 PM*	2.5	Inert gas clusters; Superfluid clusters; Molecular clusters.	Dr. Vinod Kushwah
8	22-Oct	*2:20 PM – 4:50 PM*	2.5	Litho and Nonlithograpahic techniques	Prof. M.S. Gaur
9	29-Oct	*2:20 PM – 4:50 PM*	2.5	Fabrication of nano materials -Top-Down approach (CVD) , Demonstration in the Lab	Prof. M.S. Gaur/ Dr. R.K. Tiwari and Dr. Vinod Kushwah
10	05-Nov	*2:20 PM – 4:50 PM*	2.5	Bottom-Up approach (Sol Gel) of nanomaterials	Prof. M.S. Gaur
11	12-Nov	*2:20 PM – 4:50 PM*	2.5	X-ray Diffraction Technique, Particle size determination, surface structure. Microscopy	Prof. M.S. Gaur
12	19-Nov	*2:20 PM – 4:50 PM*	2.5	Spectroscopy, Luminescence.	Prof. M.S. Gaur
13	26- Nov	*2:20 PM – 4:50 PM*	2.5	Bucky Ball and Carbon Nano- Tubes; Nano structures of carbon (fullerene), Fabrication, Structure. Electrical, Mechanical and Vibrational properties and applications	Prof. M.S. Gaur
14	3-Dec	*2:20 PM – 4:50 PM*	2.5	Nano-Biometrics, Nano Robots, Demonstration in the Lab	Prof. M.S. Gaur/ Dr. R.K. Tiwari and Dr. Vinod Kushwah
Total Number of Hours covered			**35hrs**		

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INVITES YOU FOR A

VALUE ADDED COURSE

ON

ALGORITHMIC PROBLEM-SOLVING: FROM FUNDAMENTALS TO APPLICATIONS (VACIT-004)

03rd September 2022 - 24th December 2022

Registration Date: 30 Aug 2022 - 02 Sep 2022

For Registration, Please contact:

Mrs. Deepti Mittal

Assistant Professor, IT

Head
Department of Information Technology
Hindustan College of Science & Technology
Farah, Mathura

DEPARTMENT OF INFORMATION TECHNOLOGY

www.hcst.edu.in

Director
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ABOUT

THE DEPARTMENT

Department of Information Technology was established in the year 1999 with an objective of imparting quality education in the field of Information Technology. Department of IT was accredited by National board of Accreditation (NBA) in 2006.

The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the Industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT

THE PROGRAM

"Algorithmic Problem-Solving: From Fundamentals to Applications" is a value-added course that provides students with a comprehensive understanding of problem-solving techniques, fundamental algorithms, and their practical applications. Through hands-on exercises and real-world examples, students will develop the skills and knowledge necessary to analyze complex problems, design efficient algorithms, and implement them using appropriate data structures. This course equips students with the essential foundation to excel in computer science and related fields.

Objectives

1. Develop Problem-Solving Skills: Enable students to acquire essential problem-solving skills.
2. Understand Fundamental Algorithms: Familiarize students with a wide range of fundamental algorithms. Students will gain proficiency in implementing and verifying algorithms.
3. Explore Factoring Methods: Introduce students to various factoring methods. Students will learn to apply these methods to solve mathematical problems efficiently.
4. Master Array Techniques: Equip students with the knowledge of array data structures and techniques. These skills are essential for handling large sets of data effectively.

COURSE

OUTCOMES

CO-1: Apply problem solving techniques to analyze and solve complex problems in computer science and related domains.

CO-2: Implement and verify algorithms to solve various computational tasks, including mathematical calculations, data manipulation, and sequence generation.

CO-3: Utilize factoring methods to efficiently solve mathematical problems, such as finding prime factors, generating pseudo-random numbers, and calculating Fibonacci numbers.

CO-4: Utilize array techniques to manipulate and process data effectively, including array reversal, finding maximum values, removing duplicates etc.

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CO-PO-PSO MAPPING

Algorithmic Problem-Solving: From Fundamentals to Applications (VACIT-004)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	-	2	-	2	3	-	-	3	2	3	-
CO-2	3	3	3	3	-	3	-	2	3	-	-	3	2	3	-
CO-3	2	2	3	2	-	3	-	1	2	-	-	3	2	3	-
CO-4	2	2	1	3	-	2	-	3	2	-	-	3	2	3	-
Avg	2.50	2.50	2.25	2.50	0.00	2.50	0.00	2.00	2.50	0.00	0.00	3.00	2.00	3.00	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

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Associate Professor
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Dy. HOD, IT

VAC COORDINATOR

Mr. Ajay Raj Parashar
Assistant Professor
IT Department

Head
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COURSE OUTLINE

Algorithmic Problem-Solving: From Fundamentals to Applications (VACIT-004)

Module 1: Introduction to Computer Problem-Solving

- Overview of problem-solving techniques in computer science, emphasizing their importance in software development.
- Top-down design approach for breaking down complex problems into manageable components.
- Introduction to algorithm implementation, program verification, and analyzing algorithm efficiency.

Module 2: Fundamental Algorithms

- Various fundamental algorithms, including exchanging values of variables, summing a set of numbers, computing factorials, and generating the Fibonacci sequence.
- Algorithms for sine function computation, reversing digits of an integer, and base conversion.

Module 3: Factoring Methods

- Algorithms for finding the square root of a number, smallest divisor of an integer, and greatest common divisor of two integers.
- Generating prime numbers, computing prime factors, and generating pseudo-random numbers.
- Algorithm for raising a number to a large power and computing the nth Fibonacci number.

Module 4: Array Techniques

- Introduction to array data structure and its applications.
- Array order reversal, counting, and finding the maximum number in a set using arrays.
- Removing duplicates from an ordered array and partitioning an array.
- Finding the kth smallest element and the longest monotone subsequence in an array.

Textbook/References:

- How to Solve it by computer, R.J. Dromey

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LECTURE PLAN

Algorithmic Problem-Solving: From Fundamentals to Applications (VACIT-004)

Unit 1: Introduction to Computer Problem-Solving

Lecture 1: Overview of Problem Solving in Computer Science
Lecture 2: The Problem-Solving Aspect and Top-Down Design
Lecture 3: Algorithm Implementation and Program Verification
Lecture 4: Efficiency of Algorithms and Performance Analysis
Lecture 5: Introduction to Algorithm Analysis
Lecture 6: Time Complexity Analysis
Lecture 7: Space Complexity Analysis
Lecture 8: Review and Recap of Unit 1

Unit 2: Fundamental Algorithms

Lecture 9: Exchanging the Values of Two Variables
Lecture 10: Counting Elements in a Set
Lecture 11: Summation of a Set of Numbers
Lecture 12: Factorial Computation
Lecture 13: Sine Function Computation
Lecture 14: Generation of the Fibonacci Sequence
Lecture 15: Reversing the Digits of an Integer
Lecture 16: Base Conversion and Character to Number Conversion

Unit 3: Factoring Methods

Lecture 17: Finding the Square Root of a Number
Lecture 18: Finding the Smallest Divisor of an Integer
Lecture 19: Finding the Greatest Common Divisor of Two Integers
Lecture 20: Generating Prime Numbers
Lecture 21: Computing the Prime Factors of an Integer
Lecture 22: Generation of Pseudo-random Numbers
Lecture 23: Raising a Number to a Large Power
Lecture 24: Computing the nth Fibonacci Number

Unit 4: Array Techniques

Lecture 25: Introduction to Array Data Structure and Applications
Lecture 26: Array Order Reversal
Lecture 27: Array Counting or Programming
Lecture 28: Finding the Maximum Number in a Set using Arrays
Lecture 29: Removal of Duplicates from an Ordered Array
Lecture 30: Partitioning an Array
Lecture 31: Finding the kth Smallest Element in an Array
Lecture 32: Finding the Longest Monotone Subsequence in an Array

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INVITES YOU FOR A

VALUE ADDED COURSE

ON

DATA ANALYSIS USING PYTHON
(VACIT-005)

13th Feb 2023 - 15th May 2023

Registration Date: 08 Feb 2023 - 12 Feb 2023

For Registration, Please contact:

Mr. Ajay Raj Parashar
Assistant Professor, IT

Head
Department of Information Technology
Hindustan College of Science & Technology
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ABOUT
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The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the Industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT
THE PROGRAM

The "Data Analysis using Python" program is designed to provide a comprehensive overview of data analysis techniques using the popular programming language Python. The course covers a range of topics from the basics of Python, numerical computing with Numpy, analyzing tabular data with Pandas, and introducing neural networks. The course will equip students with the skills to perform data analysis, extract insights, and make informed decisions. Through hands-on assignments , students will have the opportunity to apply their newly acquired skills to real-world data analysis problems. This course is suitable for anyone interested in learning data analysis, regardless of prior experience with programming or data analysis.

Objectives

1. To provide a solid understanding of the Python programming language and its applications in data analysis.
2. To introduce students to numerical computing with Numpy and its use in data analysis.
3. To teach students how to analyze tabular data using Pandas and its various functions.
4. To familiarize students with the basics of neural networks and their applications in data analysis.
5. To give students the opportunity to apply their knowledge and skills through hands-on assignments and a final project, allowing them to perform real-world data analysis and extract insights.

COURSE
OUTCOMES

CO-1:
Apply Python fundamentals with arithmetic, conditional logic, loops, functions, and handle exceptions.

CO-2:
Utilize NumPy for array operations, slicing, broadcasting, and CSV data handling.

CO-3:
Analyze and manipulate tabular data using Pandas for querying, filtering, grouping, and merging.

CO-4:
Understand, build, train, and evaluate basic neural networks with overfitting techniques.

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CO-PO-PSO MAPPING

Data Analysis using Python (VACIT-005)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	2	1	2	1	-	-	-	2	-	-	3	2	3	-
CO-2	2	3	2	2	2	-	-	-	2	2	-	2	3	3	-
CO-3	2	2	3	3	2	-	-	-	2	2	-	2	3	3	-
CO-4	1	2	3	3	3	-	1	2	3	3	2	2	3	3	-
Avg	2.00	2.25	2.25	2.50	2.00	0.00	1.00	2.00	2.25	2.33	2.00	2.25	2.75	3.00	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

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COURSE OUTLINE

Data Analysis using Python (VACIT-005)

Module 1: Introduction to Python

- First steps with Python & Jupyter notebooks
- Arithmetic, conditional & logical operators in Python
- Variables and common data types
- Branching with if, elif, and else
- Iteration with while and for loops
- Functions
- Scope of variables and exceptions

Module 2: Numerical Computing with Numpy

- Going from Python lists to Numpy arrays
- Working with multi-dimensional arrays
- Array operations
- Slicing and broadcasting
- Working with CSV data files

Module 3: Analyzing Tabular Data with Pandas

- Reading and writing CSV data with Pandas
- Querying, filtering and sorting data frames
- Grouping and aggregation for data summarization
- Merging and joining data from multiple sources

Module 4: Introduction to Neural Networks

- Understanding the basics of neural networks
- Building simple feedforward neural networks
- Training and evaluating neural networks
- Overfitting and regularization techniques

Textbook/References:

- "Python for Data Analysis" by Wes McKinney
- "Deep Learning" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville

LECTURE PLAN

Data Analysis using Python (VACIT-005)

Module 1: Introduction to Python

Lecture 1: Course Introduction and Overview
Lecture 2: Introduction to Python and Jupyter Notebooks
Lecture 3: Arithmetic and Mathematical Operations in Python
Lecture 4: Conditional and Logical Operators in Python
Lecture 5: Variables and Common Data Types in Python
Lecture 6: Branching with if, elif, and else Statements
Lecture 7: Iteration with while and for Loops
Lecture 8: Functions in Python
Lecture 9: Scope of Variables in Python
Lecture 10: Exceptions in Python

Module 2: Numerical Computing with Numpy

Lecture 11: Introduction to Numpy and Arrays
Lecture 12: Creating Numpy Arrays and Manipulating Array Shape
Lecture 13: Indexing and Slicing Numpy Arrays
Lecture 14: Boolean Indexing and Fancy Indexing
Lecture 15: Array Operations and Broadcasting
Lecture 16: Working with Multi-dimensional Arrays
Lecture 17: Reading and Writing CSV Data Files
Lecture 18: Data Analysis with Numpy

Module 3: Analyzing Tabular Data with Pandas

Lecture 19: Introduction to Pandas and DataFrames
Lecture 20: Reading and Writing CSV Data with Pandas
Lecture 21: Indexing and Selecting Data in Pandas
Lecture 22: Querying, Filtering, and Sorting DataFrames
Lecture 23: Grouping and Aggregation for Data Summarization
Lecture 24: Merging and Joining DataFrames
Lecture 25: Data Analysis with Pandas

Module 4: Introduction to Neural Networks

Lecture 26: Introduction to Neural Networks
Lecture 27: Building Simple Feedforward Neural Networks
Lecture 28: Training and Evaluating Neural Networks
Lecture 29: Overfitting and Regularization Techniques
Lecture 30: Applications of Neural Networks

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course
VEE2201 – ELECTRIC VEHICLE

3rd Sept '2022 – 7th JAN 2023 - Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Mr. Vivek Agrawal
Assistant Professor, Electrical & Electronics Engineering
Research Interest: Control System

Registration Dates
29st AUG 2022 –2nd Sept2022

For Registration: Please contact
Mr. Sunil Pathak, Office Staff, Department of EEE

Prerequisites: Basics Electrical Engineering

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2201 – ELECTRIC VEHICLE

3rd Sept '2022 – 7th JAN 2023 - Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. The course aims to provide a comprehensive understanding of the basic principles and components of electric vehicles (EVs).
2. The objective focuses on evaluating the environmental benefits and energy efficiency of electric vehicles compared to conventional internal combustion engine vehicles.
3. The objective aims to delve into the design and engineering aspects specific to electric vehicles.
4. The objective focuses on the charging infrastructure required to support electric vehicles.
5. The objective aims to provide insights into the policy framework and market dynamics shaping the adoption and growth of electric vehicles.

Prerequisites: Basic Electrical Engineering

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2201 – ELECTRIC VEHICLE

3rd Sept '2022 – 7th JAN 2023 - Every Saturday: 3:00 PM – 5:00 PM

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Electric Vehicles : Overview of Electric Vehicles, Definition and history of electric vehicles, Advantages and challenges of electric vehicles, Types of electric vehicles: BEVs, PHEVs, and HEVs, Electric vehicle architecture and system overview, Electric powertrain components: batteries, electric motors, power electronics, Energy storage systems: lithium-ion batteries, super capacitors, Overview of charging infrastructure for electric vehicles, Types of charging stations: Level 1, Level 2, and DC fast charging, Charging standards: CCS, CHAdeMO, Tesla Supercharger, etc.	CO1
2	Electric Vehicle Technology : Electric Motors and Controllers, Types of electric motors used in electric vehicles, Motor characteristics and performance parameters, Motor controllers and their role in controlling motor operation, Battery Technologies, Lithium-ion battery chemistry and operation, Battery pack design and management systems, Battery charging and discharging characteristics, Power electronics components and their functions, DC-DC converters and inverters in electric vehicles, Power electronics control strategies and efficiency optimization	CO2
3	Electric Vehicle Design and Manufacturing : Electric Vehicle Design Considerations, Vehicle platform selection and integration, Safety considerations in electric vehicle design, Aerodynamics and energy efficiency optimization, Electric Vehicle Manufacturing Processes, Manufacturing techniques for electric vehicle components, Assembly processes for electric vehicle production, Quality control and testing in electric vehicle manufacturing, Electric Vehicle Safety and Regulations, Safety standards and regulations for electric vehicles, Crash testing and safety features in electric vehicles, Battery safety and handling considerations	CO3
4	Electric Vehicle Infrastructure and Charging : Charging Infrastructure Planning, Infrastructure planning for residential, commercial, and public charging, Grid integration and smart charging solutions, Managing peak loads and demand response strategies, Charging Station Installation and Maintenance, Charging station installation requirements and considerations, Safety regulations and guidelines for charging infrastructure, Maintenance and troubleshooting of charging stations, Vehicle-to-Grid (V2G) and Vehicle-to-Home (V2H) Technologies, Introduction to V2G and V2H concepts, Benefits and applications of V2G and V2H technologies, Challenges and future prospects of V2G and V2H	CO4
5	Electric Vehicle Market and Future Trends : Market Trends and Economics of Electric Vehicles, Global and regional electric vehicle market analysis, Government policies and incentives driving electric vehicle adoption, Total cost of ownership and economic considerations, Recent advancements in electric vehicle technology, Battery advancements: solid-state batteries, new chemistries, Autonomous driving and connected vehicle technologies, Future trends and developments in electric vehicles, Environmental sustainability and lifecycle analysis, Addressing infrastructure challenges and range anxiety	CO5

Prerequisites: Basic Electrical Engineering

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2201 – ELECTRIC VEHICLE

3rd Sept '2022 – 7th JAN 2023 - Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1 Students will gain a comprehensive understanding of the key principles and concepts underlying electric vehicle technology. This includes knowledge of electric motors, batteries, power electronics, and energy management systems in electric vehicles.

CO2 Students will learn how to analyze and evaluate the performance of various electric vehicle systems, including range, efficiency, power delivery, and charging infrastructure. They will develop skills in conducting performance tests and interpreting the results to assess the overall performance and efficiency of electric vehicles.

CO3 This course will equip students with the skills to design and implement electric vehicle components and systems. They will learn about the design considerations for electric vehicle motors, batteries, power electronics, and control systems. Students will gain practical experience in designing electric vehicle systems through hands-on projects and simulations..

CO4 Students will learn to identify the challenges and explore potential solutions. They will study emerging technologies and trends in electric vehicle development to address issues such as range anxiety, battery degradation, and charging infrastructure expansion.

CO5 Students will be able to evaluate the overall benefits and challenges associated with the widespread adoption of electric vehicles.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												2	3
CO2	3	3	3										3	2
CO3	3	3	3		3	3						3	3	3
CO4	3	3	3		3	3						3	3	3
CO5	3	3	3		3	3						3	3	3
Average	3	3	3		3	3						3	3	2.8

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2201 – ELECTRIC VEHICLE

3rd Sept '2022 – 7th JAN 2023 - Every Saturday: 3:00 PM – 5:00 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	03/09/22	3:00 PM - 5:00 PM	2	Overview of Electric Vehicles	Mr. Vivek Agrawal
2	10/09/22	3:00 PM - 5:00 PM	2	Electric Vehicle Components	Mr. Vivek Agrawal
3	17/09/22	3:00 PM - 5:00 PM	2	Charging Infrastructure	Mr. Vivek Agrawal
4	24/09/22	3:00 PM - 5:00 PM	2	Electric Motors and Controllers	Mr. Vivek Agrawal
5	01/10/22	3:00 PM - 5:00 PM	2	Battery Technologies	Mr. Vivek Agrawal
6	08/10/22	3:00 PM - 5:00 PM	2	Power Electronics in Electric Vehicles	Mr. Vivek Agrawal
7	22/10/22	3:00 PM - 5:00 PM	2	Electric Vehicle Design Considerations	Mr. Vivek Agrawal
8	05/11/22	3:00 PM - 5:00 PM	2	Electric Vehicle Manufacturing Processes	Mr. Vivek Agrawal
9	12/11/22	3:00 PM - 5:00 PM	2	Electric Vehicle Safety and Regulations	Mr. Vivek Agrawal
10	19/11/22	3:00 PM - 5:00 PM	2	Charging Infrastructure Planning	Mr. Vivek Agrawal
11	26/11/22	3:00 PM - 5:00 PM	2	Charging Station Installation and Maintenance	Mr. Vivek Agrawal
12	10/12/22	3:00 PM - 5:00 PM	2	Vehicle-to-Grid (V2G) and Vehicle-to-Home (V2H) Technologies	Mr. Vivek Agrawal
13	17/12/22	3:00 PM - 5:00 PM	2	Market Trends and Economics of Electric Vehicles	Mr. Vivek Agrawal
14	24/12/22	3:00 PM - 5:00 PM	2	Emerging Technologies in Electric Vehicles	Mr. Vivek Agrawal
15	31/12/22	3:00 PM - 5:00 PM	2	Future Outlook and Challenges	Mr. Vivek Agrawal
16	07/01/23	3:00 PM - 5:00 PM	2	Battery Technology	Mr. Vivek Agrawal
Total Number of Hours covered			**32**		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2203 - Introduction to STAAD Pro.V8i

3rd September 2022 – 17th December 2022 - Every Saturday: 9:40 PM – 11:20 PM

By

Mr. Kuldeep Kushwaha
Assistant Professor, Civil Engineering
Hindustan College of Science & Technology, Farah (Mathura)

Registration Dates
29th August 2022 – 1st September 2022

For Registration: Please contact
Mr. Anil Kashyap, Office Staff, Department of CE

Prerequisites: Basic computer knowledge, knowledge about structural elements (support conditions, beams, columns, slabs etc.) and IS codes.

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2203 - Introduction to STAAD Pro.V8i

3rd September 2022 – 17th December 2022 - Every Saturday: 9:40 PM – 11:20 PM

Course Objectives

The main objective of this value added course are as follows:

1. **To learn about structural analysis and design using Staad Pro. V8i.**
2. **To learn about modelling and design of various structures.**
3. **To learn about use of various IS codes in building designs**

Course Syllabus

Units	Details	Course Outcomes
1	Introduction to Staad Pro, Study of various loads on structures and IS codes for design,	CO1
2	Analysis of Continuous beam, Analysis of Steel truss, analysis of single storeyed frame.	CO2
3	Analysis of Electrical Transmission Tower, Overhead Rectangular and Circular Water Tank, Analysis of Multi-storeyed frames.	CO3
4	Design of beams, columns, slabs and Steel Truss, Multi-storeyed building	CO4
5	Analysis of Footings and Bridge Deck	CO5

Prerequisites: Basic computer knowledge, knowledge about structural elements (support conditions, beams, columns, slabs etc.) and IS codes

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2203 - Introduction to STAAD Pro.V8i

3rd September 2022 – 17th December 2022 - Every Saturday: 9:40 PM – 11:20 PM

Course Outcomes:

After completion of the course student will be able to:

- **CO1** *Understand the scope of Staad Pro in structural modelling, analysis and design.*
- **CO2** *complete object-oriented instinctive 2D/3D graphic model generation.*
- **CO3** *Analyse various 2D structural elements like beams, columns, trusses, slabs etc.*
- **CO4** *Analyse 3D structures like Transmission Tower, overhead water tank, multi-storey buildings etc.*
- **CO5** *Use of IS codes in RCC, STEEL and SEISMIC design of various structural elements.*

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2											2		
CO2	2	3											2		
CO3	2	3											2		
CO4	2	3	3										2	3	
CO5	2	3											2		
Average	2	3	3										2	3	

Evaluation Criteria: 1. Evaluation of Practical Exam, Viva/Quiz

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2203 - Introduction to STAAD Pro.V8i

3rd September 2022 – 17th December 2022 - Every Saturday: 9:40 PM – 11:20 PM

Course Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	03/09/2022	09:40 AM - 11:20 PM	2	Topic 1: Introduction to Staad Pro, Study of various loads on structures and IS codes for design	Mr. Kuldeep Kushwaha
2	10/09/2022	09:40 AM - 11:20 PM	2	Topic 2: Analysis of Continuous beam	Mr. Kuldeep Kushwaha
3	17/09/2022	09:40 AM - 11:20 PM	2	Topic 3: Analysis of Steel truss	Mr. Kuldeep Kushwaha
4	24/09/2022	09:40 AM - 11:20 PM	2	Topic 4: analysis of single storeyed frame	Mr. Kuldeep Kushwaha
5	01/10/2022	09:40 AM - 11:20 PM	2	Topic 5: Analysis of Electrical Transmission Tower	Mr. Kuldeep Kushwaha
6	08/10/2022	09:40 AM - 11:20 PM	2	Topic 6: Analysis of overhead rectangular water tank	Mr. Kuldeep Kushwaha
7	15/10/2022	09:40 AM - 11:20 PM	2	Topic 7: Analysis of overhead circular water tank	Mr. Kuldeep Kushwaha
8	22/10/2022	09:40 AM - 11:20 PM	2	Topic 8: Analysis of multi-storeyed frames	Mr. Kuldeep Kushwaha
9	05/11/2022	09:40 AM - 12:10 PM	3	Topic 8: Design of beams	Mr. Kuldeep Kushwaha
10	12/11/2022	09:40 AM - 12:10 PM	3	Topic 9: Design of columns	Mr. Kuldeep Kushwaha
11	19/11/2022	09:40 AM - 12:10 PM	3	Topic 9: Design of multi-storeyed building	Mr. Kuldeep Kushwaha
12	26/11/2022	09:40 AM - 12:10 PM	3	Topic 10: Design of slabs and steel trusses,	Mr. Kuldeep Kushwaha
13	03/12/2022	09:40 AM - 12:10 PM	3	Topic 12: Analysis of footings and bridge Deck	Mr. Kuldeep Kushwaha
14	10/12/2022	09:40 AM - 12:10 PM	3	Quiz & Practical Exam	Mr. Kuldeep Kushwaha
15	17/12/2022	09:40 AM - 11:20 PM	2	Evaluation of Quiz and Practical Exam	Mr. Kuldeep Kushwaha
Total Number of Lectures covered			**36 (30 Hrs.)**		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702-Solid Waste Management

13th Aug, 2022 – 10th Dec, 2022 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Sandeep Kumar Verma
Chemical Engineering

Registration Dates
5th Aug 2022 – 10th Aug 2022

For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

Head
Department of Chemical Engg.
Hindustan College of Science & Technology
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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC -1702 -Solid Waste Management

13th Aug, 2022 – 10th Dec, 2022 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702 - **Solid Waste Management**

13th Aug, 2022 – 10th Dec, 2022 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC-1702* - Solid Waste Management**

Program Schedule

13th Aug, 2022 – 10th Dec, 2022 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	13-08-2022	3:10 PM – 4:50 PM	2	Topic 1:Logistics, importance, methods of logistics	Dr. Sandeep Kumar Verma
2	20-08-2022	3:10 PM – 4:50 PM	2	Topic 2:human components, technological components	Dr. Sandeep Kumar Verma
3	27-08-2022	3:10 PM – 4:50 PM	2	Topic 3:waste handling equipment and technology	Dr. Sandeep Kumar Verma
4	03-09-2022	3:10 PM – 4:50 PM	2	Topic 4:managerial goals, steps in waste management logistics	Dr. Sandeep Kumar Verma
5	10-09-2022	3:10 PM – 4:50 PM	2	Topic 5:Environmental aspects of waste collection	Dr. Sandeep Kumar Verma
6	17-09-2022	3:10 PM – 4:50 PM	2	Topic 6:role of public authority and private sector in waste collection	Dr. Sandeep Kumar Verma
7	24-09-2022	3:10 PM – 4:50 PM	2	Topic 7:organizing collection of residential waste	Dr. Sandeep Kumar Verma
8	01-10-2022	3:10 PM – 4:50 PM	2	Topic 8: fee schemes, public awareness programs	Dr. Sandeep Kumar Verma
9	08-10-2022	3:10 PM – 4:50 PM	2	Topic 9:source-segregated waste	Dr. Sandeep Kumar Verma
10	15-10-2022	3:10 PM – 4:50 PM	2	Topic 10:Purpose of source segregation	Dr. Sandeep Kumar Verma
11	22-10-2022	3:10 PM – 4:50 PM	2	Topic 11:segregation criteria and guidance	Dr. Sandeep Kumar Verma
12	29-10-2022	3:10 PM – 4:50 PM	2	Topic 12:segregation potential and efficiencies	Dr. Sandeep Kumar Verma
13	05-11-2022	3:10 PM – 4:50 PM	2	Topic 13:systems for collecting segregated fraction	Dr. Sandeep Kumar Verma
14	12-11-2022	3:10 PM – 4:50 PM	2	Topic 14:Waste delivery, waste transfer	Dr. Sandeep Kumar Verma
15	19-11-2022	3:10 PM – 4:50 PM	2	Topic 15: transportation of the reloaded waste	Dr. Sandeep Kumar Verma
16	26-11-2022	3:10 PM – 4:50 PM	2	Topic 16:siting and Design of waste transfer station	Dr. Sandeep Kumar Verma
17	03-12-2022	3:10 PM – 4:50 PM	2	Topic 17:economical considerations, recycling solid wastes	Dr. Sandeep Kumar Verma
18	10-12-2022	3:10 PM – 4:50 PM	2	Topic 18: materials recovery facilities	Dr. Sandeep Kumar Verma
Total Number of Hours covered			**36 (30 Hours)**		

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Department of Chemical Engineering
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2205 - Internet of Things (IOT) and its Applications

3rd Sep '2022 – 17th Dec 2022 – Every Saturday: 3:10 PM – 4:50 PM

Students From Any Branch Can Join the Course

By

Mr. Honey Kumar

Assistant Professor, Electronics & Communication Engineering

Research Interest: IoT based projects, VLSI Design

Registration Dates

24th Aug 2022 – 2nd Sep 2022

For Registration: Please contact

Mr. Sanjay Gupta, Lab Techniques, Department of ECE

Prerequisites: Basic knowledge of knowledge of sensors, transducer, microprocessor and microcontroller, and programming in Python.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2205 - Internet of Things (IOT) and its Applications

3rd Sep '2022 – 17th Dec 2022 – Every Saturday : 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. This course gives a foundation in the Internet of Things, including the components, tools, and analysis by teaching the concepts behind the IoT and a look at real-world solutions. This course will describe the technology used to build these kinds of devices, how they communicate, how they store data, and the kinds of distributed systems needed to support them.
2. Divided into five modules, we will learn by doing. We will start with basic definitions and concept of IoT.
3. This course focuses on the latest microcontrollers with application development, product design and prototyping using IoT supported hardwares. Ideally suited for engineering students and graduates with a basic understanding of electronics and microprocessors. They are also able to design & develop IoT Devices. The overall goal of this course is to enable you to build an IoT system from the ground up.

Course Syllabus

Units	Details	Course Out comes
1	**Introduction to IOT** : What is Internet of Things ?, Getting started with IoT, How IOT became 21 st Century Hottest Topic, How Internet of Things works, How Things Talk to Internet	CO1
2	**IOT Architecture:** Three Layer Architecture, Four Layer Architecture, Five Layer Architecture	CO2
3	**Hardware:** Functional blocks of an IoT ecosystem, IoT – Sensors, Actuators, Wearable Electronics, Standard Devices, Smart Objects and Connecting Smart Objects	CO3
4	**Design And Development:** Design Methodology, Embedded computing logic, Microcontroller, System on Chips, IoT system building blocks, IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, Arduino Board	CO4
5	**IOT Applications:** IoT applications in home, infrastructures, buildings, security, Industries, Industry 4.0 concepts	CO5

Prerequisites: Basic knowledge of knowledge of sensors, transducer, microprocessor and microcontroller, and programming in Python

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2205 - Internet of Things (IOT) and its Applications

3rd Sep '2022 – 17th Dec 2022 – Every Saturday : 3:10 PM – 4:50 PM

Course Outcomes

CO1	Understand the definition and concept of Internet of Things.
CO2	Discuss the layered architecture of an IoT system and their operations.
CO3	Able to understand the use of various basic hardware to design an IoT system.
CO4	Design and development of IoT devices using IoT supported hardware platforms such as: Raspberry pi, Arduino Board.
CO5	Able to understand the application areas of IoT.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2										3	3	
CO2	3	2	2									3	2	2
CO3	3	2										3		2
CO4	3	2	2									3		2
CO5	3	2	2									3		2
Average	3	2	2									3	2.5	2

Evaluation Criteria: Class attendance, Group project and its presentation, Quiz and Viva.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2205 - Internet of Things (IOT) and its Applications

3rd Sep '2022 – 17th Dec 2022 – Every Saturday : 3:10 PM – 4:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	03-09-2022	3:10 PM – 4:50 PM	2	Preamble of the course	Mr. Honey Kumar
2	10-09-2022	3:10 PM – 4:50 PM	2	Introduction to IOT , What is Internet of Things ?	Mr. Honey Kumar
3	17-09-2022	3:10 PM – 4:50 PM	2	Getting started with IoT, How IOT became 21 st Century Hottest Topic	Mr. Honey Kumar
4	24-09-2022	3:10 PM – 4:50 PM	2	How Internet of Things works.	Mr. Honey Kumar
5	01-10-2022	3:10 PM – 4:50 PM	2	IOT Architecture: Three Layer Architecture	Mr. Honey Kumar
6	08-10-2022	3:10 PM – 4:50 PM	2	Four Layer Architecture	Mr. Honey Kumar
7	22-10-2022	3:10 PM – 4:50 PM	2	Five Layer Architecture.	Mr. Honey Kumar
8	05-11-2022	3:10 PM – 4:50 PM	2	Hardware: Functional blocks of an IoT ecosystem	Mr. Honey Kumar
9	12-11-2022	3:10 PM – 4:50 PM	2	IoT – Sensors, Actuators,	Mr. Honey Kumar
10	19-11-2022	2:20 PM – 4:50 PM	3	Wearable Electronics, Standard Devices	Mr. Honey Kumar
11	26-11-2022	2:20 PM – 4:50 PM	3	Smart Objects and Connecting Smart Objects	Mr. Honey Kumar
12	03-12-2022	1:30 PM - 4:50 PM	4	Design And Development: Design Methodology, Embedded computing logic, Microcontroller, System on Chips, IoT system building blocks.	Mr. Honey Kumar
13	10-12-2022	1:30 PM - 4:50 PM	4	IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, Arduino Board	Mr. Honey Kumar
14	17-12-2022	1:30 PM - 4:50 PM	4	IOT Applications: IoT applications in home, infrastructures, buildings, security, Industries, Industry 4.0 concepts	Mr. Honey Kumar
Total Number of Lectures covered			**36 (30 Hours)**		

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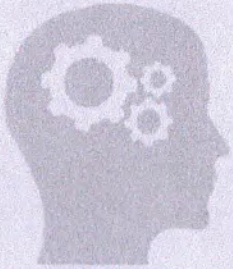
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-22-23-VCS2203 - JAVA Programming through Object Oriented Concept

3rd September '2022 – 28th January 2023- Every Saturday: 3:00 PM – 5:00 PM



Students From Any Branch Can Join the Course

By

Dr. Munish Khanna
Associate Professor, HOD -Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
29th August 2022 – 31st Augt 2022
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-22-23-VCS2203 - JAVA Programming through Object Oriented Concept

3rd September '2022 – 28th January 2023- Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Understand the basic object oriented programming concepts and apply them in problem solving.
2. Illustrate inheritance concepts for reusing the program.
3. Demonstrate on the multi-tasking by using multiple threads.
4. Develop data-centric applications using JDBC.
5. Understand the basics of java console and GUI based programming.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Java : Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.	CO1
2	Basics of objects and classes in java, Methods and objects, Inbuilt classes like String, Character, String Buffer, File, this reference	CO2
3	Inheritance in java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package	CO3
4	IEvent handling in java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing	CO4
5	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	CO5
6	Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally, Collections in java, Introduction to JavaBeans and Network Programming	CO5

Prerequisites Knowledge of c++ programming and oops concepts

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-22-23-VCS2203 - JAVA Programming through Object Oriented Concept

3rd September '2022 – 28th January 2023- Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs
CO2	Read and make elementary modifications to Java programs that solve real-world problems
CO3	Validate input in a Java program
CO4	Identify and fix defects and common security issues in code.
CO5	Document a Java program using Javadoc and Use a version control system to track source code in a project.

CO-PO & CO-PSO Mappings

CO5	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-22-23 VCS2203 - JAVA Programming through Object Oriented Concept

03rd September 2022 – 28th January 2023- Every Saturday: 3:00 PM – 5:00 PM

Program Schedule:

Session	Date	Time	No. of Hours	Session Topic	Resource Person
1	03-09-2022	3:00 PM - 5:00 PM	2	Introduction to Java : Basics of Java programming	Dr. Munish Khanna
2	10-09-2022	3:00 PM - 5:00 PM	2	Data types, Variables, Operators, Control structures including selection	Dr. Munish Khanna
3	17-09-2022	3:00 PM - 5:00 PM	2	Looping, Java methods, Overloading, Math class, Arrays in java.	Dr. Munish Khanna
4	24-09-2022	3:00 PM - 5:00 PM	2	Basics of objects and classes in java	Dr. Munish Khanna
5	01-10-2022	3:00 PM - 5:00 PM	2	Constructors, Finalizer, Visibility modifiers	Dr. Munish Khanna
6	08-10-2022	3:00 PM - 5:00 PM	2	Methods and objects, Inbuilt classes like String,	Dr. Munish Khanna
7	22-10-2022	3:00 PM - 5:00 PM	2	Character, String Buffer, File, this reference	Dr. Munish Khanna
8	05-11-2022	3:00 PM - 5:00 PM	2	Inheritance in java, Super and sub class, Overriding	Dr. Munish Khanna
9	12-11-2022	3:00 PM - 5:00 PM	2	Object class, Polymorphism, Dynamic binding,	Dr. Munish Khanna
10	19-11-2022	3:00 PM - 5:00 PM	2	Generic programming, Casting objects, Instance of operator	Dr. Munish Khanna
11	26-11-2022	3:00 PM - 5:00 PM	2	Abstract class, Interface in java, Package in java, UTIL package.	Dr. Munish Khanna
12	03-12-2022	3:00 PM - 5:00 PM	2	Event handling in java, Event types, Mouse and key events, GUI Basics .	Dr. Munish Khanna
13	10-12-2022	3:00 PM - 5:00 PM	2	Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, Text Fields, Text Areas, Combo Boxes, Lists	Dr. Munish Khanna
14	17-12-2022	3:00 PM - 5:00 PM	2	Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing	Dr. Munish Khanna
15	31-12-2022	3:00 PM - 5:00 PM	2	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	Dr. Munish Khanna
16	7-01-2023	3:00 PM - 5:00 PM	2	Thread life cycle and methods, Runnable interface	Dr. Munish Khanna
17	21-01-2023	3:00 PM - 5:00 PM	2	Thread synchronization, Exception handling with try-catch-finally, Collections in java,	Dr. Munish Khanna
18	28-01-2023	3:00 PM - 5:00 PM	2	Introduction to JavaBeans, Network Programming	Dr. Munish Khanna

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT MECHANICAL ENGINEERING

Value Added Course: Solid Works
VAC-22-23-VME2206
21th Jan '2023 –6th May 2023 - Every Saturday: 2:40 PM – 4:20 PM

Students From Any Branch Can Join the Course

By

Mr. Raj Vardhan
Assistant Professor, Mechanical Engineering
Research Interest: Applied Mechanics

Registration Dates
14th Jan 2023 –18th Jan 2023
For Registration: Please contact
Mrs. Geeta Gupta, Office Staff, Department of ME

Prerequisites: Basics of laws related to mechanics of solids

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course: Solid Works

VAC-22-23-VME2206

21th Jan '2023 –6th May 2023 - Every Saturday: 2:40 PM – 4:20 PM

Course Objectives

The main objective of this value added course are as follows:

1. 2D sketching
2. Using 3D features to build bodies
3. Using assembly features to combine more than one part
4. Basic introduction of SolidWorks simulator

Course Syllabus

Units	Details	Course Out comes
1	SolidWorks Basics and the User Interface, Introduction to Sketching, Basic Part Modeling	CO1
2	Symmetry and Draft, Patterning, Revolved Features, Shelling and Ribs	CO2
3	Editing: Repairs, Editing: Design Changes, Configurations, Using Drawings	CO3
4	Bottom-Up Assembly Modeling , Use of Assemblies, Project Evaluation	CO4

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course: Solid Works

VAC-22-23-VME2206

21th Jan '2023 –6th May 2023 - Every Saturday: 2:40 PM – 4:20 PM

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Course Outcomes

CO1	Demonstrate competency with multiple drawing and modification commands in SolidWorks.
CO2	Create three-dimensional solid models.
CO3	Create three-dimensional assemblies incorporating multiple solid models.
CO4	Apply industry standards in the preparation of technical mechanical drawings.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											3	
CO2	1	1												3
CO3	1		3										2	
CO4			2		2									2
Average	2	2	2.5		2								2.5	2.5

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course: Solid Works

VAC-22-23-VME2206

21th Jan '2023 –6th May 2023 - Every Saturday: 2:40 PM – 4:20 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	21-Jan	2:40 PM - 4:20 PM	2	SolidWorks Basics and the User Interface	Mr.Raj Vardhan
2	28-Feb	2:40 PM - 4:20 PM	2	Introduction to Sketching	Mr.Raj Vardhan
3	04-Feb	2:40 PM - 4:20 PM	2	Basic Part Modeling	Mr.Raj Vardhan
4	11-Feb	2:40 PM - 4:20 PM	2	Symmetry and Draft	Mr.Raj Vardhan
5	25-Feb	2:40 PM - 4:20 PM	2	Patterning	Mr.Raj Vardhan
6	4-Mar	2:40 PM - 4:20 PM	2	Revolved Features	Mr.Raj Vardhan
7	11-Mar	2:40 PM - 4:20 PM	2	Shelling and Ribs	Mr.Raj Vardhan
8	18-Mar	2:40 PM - 4:20 PM	2	Editing: Repairs	Mr.Raj Vardhan
9	25-Mar	2:40 PM - 4:20 PM	2	Editing: Design Changes	Mr.Raj Vardhan
10	01-Apr	2:40 PM - 5:00 PM	3	Configurations	Mr.Raj Vardhan
11	08-Apr	2:40 PM - 5:00 PM	3	Drawings	Mr.Raj Vardhan
12	29-Apr	11:50 AM - 4:50 PM	6	Bottom-Up Assembly Modeling	Mr.Raj Vardhan
13	06-May	11:50 AM - 4:50 PM	6	Assemblies Drawing	Mr.Raj Vardhan
Total Number of Hours covered			**36**		

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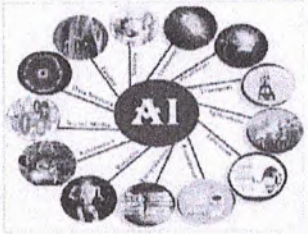
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS2302 Basic Understanding of Artificial Intelligence

11 February 2023 – 25 May 2023- Every Saturday: 3:10 PM – 04:50 PM



By

Mr. Kapil Srivastava

Assistant Professor, Computer Science & Engineering

Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates

01 February 2023– 09 February 2023

For Registration: Please contact

Mr. Yogesh Sharma, Office Staff, Department of CSE

Assumes familiarity with linear algebra, Probability theory and programming in python

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS2302 Basic Understanding of Artificial Intelligence

11 February 2023 – 25 May 2023- Every Saturday: 3:10 PM – 04:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Understand the concepts of AI and searching techniques.
2. To develop the logical skills of knowledge and its representational structure.
3. Understand the concepts of natural languages processing.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Artificial Intelligence : The Foundations of Artificial Intelligence, The History of Artificial Intelligence, The history of Artificial Intelligence and the state of the Art. Solving problems by searching: problem- solving Agents, Formulation problems.	CO1
2	Intelligent Agents: Introduction , How Agents should Act, Structure of Intelligent Agents Environments. Agent that Reason logically, A knowledge based Agent.	CO2
3	Planning A simple Planning Agent from problem solving to planning. Planning in situation calculations. Basics representations for planning.	CO3
4	Leaning in Artificial neural networks., How the Brain works, Neural Network, perceptions, Multi-layered feed forward networks applications, back propagation algorithm , applications of neural network.	CO4
5	knowledge representations: semantic Net, semantic Web ,conceptual Dependencies, conceptual Graphics,script,frames, Natural language processing.	CO5

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS2302 Basic Understanding of Artificial Intelligence

11 February 2023 – 25 May 2023- Every Saturday: 3:10 PM – 04:50 PM

Course Outcomes

CO1	Understand the concepts of AI and related searching algorithm
CO2	Develop the knowledge skills and its representational structure in AI.
CO3	Study how design the programming skill in PROLOG and concepts of pattern recognition approaches
CO4	Design and apply various reinforcement algorithm to solve real time complex problems.
CO5	Study the concepts of supervised or unsupervised machine learning and game technique.

CO-PO & CO-PSO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS2302 Basic Understanding of Artificial Intelligence

Program Schedule

11 February 2023 – 25 May 2023- Every Saturday: 3:10 PM – 04:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	11-02-2023	3:10 PM - 4:50 PM	2	Introduction to Artificial Intelligence	Mr. Kapil Srivastava
2	04-03-2023	3:10 PM - 4:50 PM	2	Intelligent Agents	Mr. Kapil Srivastava
3	11-03-2023	3:10 PM - 4:50 PM	2	A knowledge based Agent	Mr .Kapil Srivastava
4	18-03-2023	3:10 PM - 4:50 PM	2	Optimistic Problem	Mr. Kapil Srivastava
5	25-03-2023	3:10 PM - 4:50 PM	2	Basic representation for planning	Mr. Kapil Srivastava
6	01-04-2023	3:10 PM - 4:50 PM	2	Perceptron's & multilayer perceptron	Mr. Kapil Srivastava
7	08-04-2023	3:10 PM – 4:50 PM	2	Statistic learning model	Mr. Kapil Srivastava
8	15-04-2023	3:10 PM – 4:50 PM	2	Conceptual Dependencies	Mr. Kapil Srivastava
9	27-04-2023	3:10 PM - 4:50 PM	2	Back propagation algorithm	Mr. Kapil Srivastava
10	06-05-2023	3:10 PM – 4:50 PM	2	Natural language processing	Mr. Kapil Srivastava
11	13-05-2023	3:10PM-4:50PM	2	Semantic Net	Mr. Kapil Srivastava
12	18-05-2023	3:10 PM - 4:50 PM	2	Multi-layered feed forward networks	Mr. Kapil Srivastava
13	19-05-2023	3:10 PM - 4:50 PM	2	knowledge representations	Mr. Kapil Srivastava

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS2302 Basic Understanding of Artificial Intelligence

11 February 2023 – 25 May 2023- Every Saturday: 3:10 PM – 04:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
14	20-05-2023	3:10PM-4:50PM	2	semantic Net	Mr. Kapil Srivastava
15	22--05-2023	3:10 PM - 4:50 PM	2	conceptual Dependencies,	Mr.Kapil Srivastava
16	23-05-2023	3:10 PM - 4:50 PM	2	conceptual Graphics	Mr.Kapil Srivastava
17	24-05-2023	3:10 PM - 4:50 PM	2	applications of neural network.	Mr.Kapil Srivastava
18	25-05-2023	3:10 PM - 4:50 PM	2	How the Brain works, Neural Network, perceptions,	Mr.Kapil Srivastava
Total Number of Lectures covered			36 (30 Hrs)		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2205 – Biofertilizer Production Technology

03 Sept, 2022 – 17 Dec, 2022 - Every Saturday: 09:40 AM – 12:10 PM

By

Dr. Arun Prasad Chopra
Associate Professor, Department of Biotechnology
Research Interest: Identification of novel genes for crop improvement, Mushroom cultivation technology, Improvement of natural farming technology

Registration Dates
27 Aug 2022 – 02 Sept 2022
For Registration: Please contact
Mr. Raj Kumar, office Assistant
Department of Biotechnology

Prerequisites: Assumes familiarity with basic knowledge of biology.

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2206 – Biofertilizer Production Technology

03 Sept, 2022 – 17 Dec, 2022 - Every Saturday: 09:40 AM – 12:10 PM

Course Objectives

The main objective of this value added course are as follows:

1. To provide students the importance of use of microorganisms as a source of sustainable source of biofertilizers.
2. To make students understand importance of Nitrogen cycle in nature and biology behind nitrogen fixation
3. Identify bacterial, alga and fungal organisms
4. Assess quality control of biofertilizers

Course Syllabus

Units	Details	Course Out comes
1	Introduction and history of Biofertilizer production	CO1
2	Tools and Techniques required for Biofertilizer production, Production Preparation of media	CO2
3	Biology of nitrogen Fixation and nitrogen cycle, Nitrogen fixing microorganisms, Nitrogen fixing Microorganisms	CO3
4	Rhizosphere Colonization and competence, Selection, Isolation and Characterization of Plant Growth Promoting Rhizosphere (PGRP) organisms	CO4
5	Qualitative and quantitative estimation of Phosphate from Phosphate solubilizing bacteria, Qualitative and quantitative estimation of Phosphate, Commercialization of biofertilizers	CO5

Prerequisites: Assumes familiarity with basic knowledge of biology

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2206 – Biofertilizer Production Technology

03 Sept, 2022 – 17 Dec, 2022 - Every Saturday: 9:40 AM – 12:10 PM

Course Outcomes

CO1	*Identification of different sources of biofertilizers*
CO2	*Acquire knowledge of usage of microorganisms as an alternate to chemical fertilizer*
CO3	*Benefits of using biofertilizers for sustainable agricultural practice*
CO4	*For integrated soil management for nitrogen and phosphorus fertilizer*
CO5	*Biofertilizer Production Technology as entrepreneurship skill*

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											2	
CO2	2	3											2	
CO3	2			3						2	2	2	2	
CO4			2	3						2	2	2		3
CO5			2	3										3
Average	2	3	2	3						2	2	2	2	3

Evaluation Criteria: Evaluation of Practical assignments, Group project, Viva/Quiz

Prerequisites: Assumes familiarity with basic knowledge of biology

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2206 – Biofertilizer Production Technology

Program Schedule

03 Sept, 2022 – 17 Dec, 2022 - Every Saturday: 9:40 AM – 12:10 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	03-09-2022	09:40 AM – 12:10 PM	3	Introduction and history of Biofertilizer production	Dr. Arun P. Chopra
2	10-09-2022	09:40 AM – 12:10 PM	3	Tools and Techniques required for Biofertilizer production	Dr. Arun P. Chopra
3	17-09-2022	09:40 AM – 12:10 PM	3	Selection of Microbial culture	Dr. Arun P. Chopra
4	24-09-2022	09:40 AM – 12:10 PM	3	Preparation of Production media	Dr. Arun P. Chopra
5	01-10-2022	09:40 AM – 12:10 PM	3	Inoculam Preparation	Dr. Arun P. Chopra
6	08-10-2022	09:40 AM – 12:10 PM	3	Biology of nitrogen Fixation and nitrogen cycle	Dr. Arun P. Chopra
7	15-10-2022	09:40 AM – 12:10 PM	3	Nitrogen fixing Microorganisms	Dr. Arun P. Chopra
8	22-10-2022	09:40 AM – 12:10 PM	3	Rhizosphere Colonization and competence	Dr. Arun P. Chopra
9	05-11-2022	09:40 AM – 12:10 PM	3	Characterization of PGPR	Dr. Arun P. Chopra
10	12-11-2022	09:40 AM – 12:10 PM	3	Selection and Isolation of PGPR	Dr. Arun P. Chopra
11	19-11-2022	09:40 AM – 12:10 PM	3	Phosphate solubilizing bacteria	Dr. Arun P. Chopra
12	26-11-2022	09:40 AM – 12:10 PM	3	Qualitative and quantitative estimation of Phosphate	Dr. Arun P. Chopra
13	10-12-2022	10:30 AM – 01:00 PM	3	Packaging and labelling of biofertilizers	Dr. Arun P. Chopra
14	17-12-2022	10:30 AM – 01:00 PM	3	Commercialization of biofertilizers	Dr. Arun P. Chopra
Total Number of Hours covered			42 (35 Hrs)		

Prerequisites: Assumes familiarity with basic knowledge of biology

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MBA DEPARTMENT

Value Added Course

VMBA003 – Essential Computing Skills for Managers

3 Sep, 2022 – 31 Dec, 2022 - Every Saturday: 1:00 PM – 3:00 PM

By

Dr. Raja Pandey
Assistant Professor, MBA Department
Hindustan College of Science & Technology

Registration Dates
26Aug 2022 – 13 Sept 2022
For Registration: Please contact
Mr. Keshav, office Assistant
MBA Department

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MBA DEPARTMENT

Value Added Course

VMBA003 – Essential Computing Skills for Managers

3 Sep, 2022 – 31 Dec, 2022 - Every Saturday: 1:00 PM – 3:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. To make students aware about computers, proper file and folder management techniques in a variety of environments
2. To make students understand and navigate Internet as well as importance and qualities of ethical business research.
3. To enable students work proficiently in MS Word & MS Excel.
4. To inculcate capability among students for creating effective presentations through MS PowerPoint.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to computers awareness about proper file and folder management techniques .	CO1
2	Access and navigate the internet analyze the importance and qualities of ethical business research.	CO2
3	Introduction to MS Word, organizing images & information in a Word document, perform a mail merge.	CO3
4	MS Excel: Creating Charts, Macros, Pivot Tables, Basic formatting & Layout.	CO4
5	MS PowerPoint : Creating a ppt, Modify custom template presentation, Use internet tools to enhance PowerPoint presentations.	CO5

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

MBA DEPARTMENT

Value Added Course

VMBA003 – Essential Computing Skills for Managers

3 Sep, 2022 – 31 Dec, 2022 - Every Saturday: 1:00 PM – 3:00 PM

Course Outcomes

CO1 *Elucidate usage of computers for enhancing managerial efficiency*

CO2 *Acquire knowledge of the usage & navigation of the internet.*

CO3 *Recognize importance and qualities of ethical business research.*

CO4 *Develop proficiency in MS Word & MS Excel.*

CO5 Inculcate the art of creating effective presentations using PowerPoint.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2									2		2	
CO2	3	2								2			2	
CO3	3			3						2	2	2	2	2
CO4			2	3			2					2		2
CO5			2	3			2							2
Average	3	2	2	3			2			2	2	2	2	2

Evaluation Criteria: Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

MBA DEPARTMENT

Value Added Course

VMBA003 – Essential Computing Skills for Managers

3 Sep, 2022 – 31 Dec, 2022 - Every Saturday: 1:00 PM – 3:00 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	3/9/2022	1:00 PM- 3:00 PM	2	Introduction to computers;basic computer concepts and definitions	Dr. Raja Pandey
2	10/9/2022	1:00 PM- 3:00 PM	2	Navigate programs locate files and folders	Dr. Raja Pandey
3	17/09/2022	1:00 PM- 3:00 PM	2	Discuss proper file and folder management techniques	Dr. Raja Pandey
4	24/09/2022	1:00 PM- 3:00 PM	2	Woking with files in a variety of environments	Dr. Raja Pandey
5	1/10/2022	1:00 PM- 3:00 PM	2	Access and navigate the internet	Dr. Raja Pandey
6	8/10/2022	1:00 PM- 3:00 PM	2	Perform basic web searches	Dr. Raja Pandey
7	15-10-2022	1:00 PM- 3:00 PM	2	Discuss the importance and qualities of ethical business research	Dr. Raja Pandey
8	22-10-2022	1:00 PM- 3:00 PM	2	Narrow a search to find more useful results	Dr. Raja Pandey
9	29-10-2022	1:00 PM- 3:00 PM	2	Modify Text, create files in MS Word	Dr. Raja Pandey
10	5/11/2022	1:00 PM- 3:00 PM	2	Create tables to organize information in a Word document	Dr. Raja Pandey
11	12/11/2022	1:00 PM- 3:00 PM	2	Perform a mail merge	Dr. Raja Pandey
12	19/11/2022	1:00 PM- 3:00 PM	2	Basic Formatting and Layout in MS Excel	Dr. Raja Pandey
13	26/11/2022	1:00 PM- 3:00 PM	2	Analyze data with Excel	Dr. Raja Pandey
14	3/12/2022	1:00 PM- 3:00 PM	2	Add and format graphic create & modify Charts	Dr. Raja Pandey
15	10/12/2022	1:00 PM- 3:00 PM	2	Modify PowerPoint custom template presentation	Dr. Raja Pandey
16	17/12/2022	1:00 PM- 3:00 PM	2	CreateTables and use colours in MS Excel	Dr. Raja Pandey
17	24/12/2022	1:00 PM- 3:00 PM	2	Change slide transition effects	Dr. Raja Pandey
18	31/12/2022	1:00 PM- 3:00 PM	2	Creating effective presentations using PowerPoint.	Dr. Raja Pandey
	Total Number of Hours covered		36		

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MBA DEPARTMENT

Value Added Course

VMBA002 – Retail Management & Merchandising

06 Aug, 2022 – 19 Nov, 2022 - Every Saturday: 10:00 AM – 12:00 PM

By

Dr. Raja Pandey
Assistant Professor, MBA Department
Hindustan College of Science & Technology

Registration Dates
01 Aug 2022 – 13 Sept 2022
For Registration: Please contact
Mr. Raj Kumar, office Assistant
MBA Department

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MBA DEPARTMENT

Value Added Course

VMBA002 – Retail Management & Merchandising

06 Aug, 2022 – 19 Nov, 2022 - Every Saturday: 10:00 AM – 12:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. To make students aware about the definition of retail selling, and explore the techniques and the process of retail selling
2. To make students understand importance of global retail channels & distribution
3. Identify Social & Economic Impact of Retailing
4. Assess evolution of modern retail & trends

Course Syllabus

Units	Details	Course Out comes
1	Introduction and history of Retail Management	CO1
2	Selling Techniques and processes in Retail , Production Preparation of media	CO2
3	Introduction to Retailing: Definition, Characteristics, emerging trends in retailing, Evolution of retailing in India, Factors behind the change of Indian retail industry	CO3
4	Retail Merchandising: Buying Organization Formats and Processes, Devising Merchandise Plans, Shrinkage in retail merchandise management	CO4
5	Merchandise Pricing: Concept of Merchandise Pricing, Pricing Objectives, External factors affecting a retail price strategy, Pricing Strategies, Types of Pricing.	CO5

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Value Added Course

VMBA002 – Retail Management & Merchandising

06 Aug, 2022 – 19 Nov, 2022 - Every Saturday: 10:00 AM – 12:00 PM

Course Outcomes

CO1	*Clarify the concept and related terms in retailing*
CO2	*Acquire knowledge of the ways retailers use marketing tools and techniques to interact with their customers.*
CO3	*Understand various formats of retail in the industry*
CO4	*Comprehend retail merchandising, pricing & strategies.*
CO5	Recognize and understand the operations-oriented policies, methods, and procedures of retail management

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											2	
CO2	2	3											2	
CO3	2			3						2	2	2	2	
CO4			2	3						2	2	2		3
CO5			2	3										3
Average	2	3	2	3						2	2	2	2	3

Evaluation Criteria: Evaluation of Practical assignments, Group project, Viva/Quiz

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MBA DEPARTMENT

Value Added Course

VMBA002 – Retail Management & Merchandising

Program Schedule

06 Aug, 2022 – 19 Nov, 2022 - Every Saturday: 10:00 AM – 12:00 PM

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	6/8/2022	10:00 AM – 12:00 PM	2	Introduction and history of Retail management	Dr. Raja Pandey
2	13/08/2022	10:00 AM – 12:00 PM	2	Selling Techniques and processes in Retail	Dr. Raja Pandey
3	20/08/2022	10:00 AM – 12:00 PM	2	Retailing: Definition, Characteristics of retailing	Dr. Raja Pandey
4	27-08-2022	10:00 AM – 12:00 PM	2	Production Preparation of media	Dr. Raja Pandey
5	3/9/2022	10:00 AM – 12:00 PM	2	Emerging trends in retailing	Dr. Raja Pandey
6	10/9/2022	10:00 AM – 12:00 PM	2	Evolution of retailing in India	Dr. Raja Pandey
7	17/09/2022	10:00 AM – 12:00 PM	2	Retail Merchandising	Dr. Raja Pandey
8	24/09/2022	10:00 AM – 12:00 PM	2	Buying Organization Formats and Processes	Dr. Raja Pandey
9	1/10/2022	10:00 AM – 12:00 PM	2	Shrinkage in retail merchandise management	Dr. Raja Pandey
10	8/10/2022	10:00 AM – 12:00 PM	2	Merchandise Pricing: Concept of Merchandise Pricing	Dr. Raja Pandey
11	15/10/2022	10:00 AM – 12:00 PM	2	Pricing Objectives	Dr. Raja Pandey
12	22/10/2022	10:00 AM – 12:00 PM	2	External factors affecting a retail price strategy	Dr. Raja Pandey
13	29/10/2022	10:00 AM – 12:00 PM	2	Pricing Strategies in Retail	Dr. Raja Pandey
14	5/11/2022	10:00 AM – 12:00 PM	2	Types of Pricing in retail	Dr. Raja Pandey
15	12/11/2022	10:00 AM – 12:00 PM	2	Factors behind the change of Indian retail industry	Dr. Raja Pandey
16	19/11/2022	10:00 AM – 4:00 PM	6	Modern retail & trends/Project	Dr. Raja Pandey
Total Number of Hours covered			36		

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with a consolidated score of **55** %

Online Assignments	23.97/25	Proctored Exam	31.25/75

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Jan-Apr 2023

(12 week course)

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Coordinator, NPTEL
IIT Kharagpur

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INVITES YOU FOR A

VALUE ADDED COURSE

ON

PROBLEM SOLVING USING C AND C++ (VACIT-001)

11th April 2022 - 26th June 2022

(Session: 2021 - 2022)

Registration Date: 08 April 2022 - 10 April 2022

For Registration, Please contact:
Mr. Ajay Raj Parashar
Assistant Professor, IT

Head
Department of Information Technology
Hindustan College of Science & Technology
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ABOUT

THE DEPARTMENT

Department of Information Technology was established in the year 1999 with an objective of imparting quality education in the field of Information Technology. Department of IT was accredited by National board of Accreditation (NBA) in 2006.

The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the Industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT

THE PROGRAM

This program is designed to provide a comprehensive overview of C/C++ programming. The syllabus covers a range of topics including functions, arrays and pointers, secure coding practices, exception handling and assertions, disk files and I/O, and generic programming with templates. Through practical exercises and problem sets, students will develop the skills to write efficient and secure code in C/C++. The course also covers the dynamic memory allocation model and the use of smart pointers to mitigate common memory pitfalls. In addition, students will have the opportunity to work with the Standard Template Library and understand its various components such as containers, iterators, and algorithms. This program provides a comprehensive learning experience for anyone looking to enhance their C/C++ programming skills. By the end of the program, students will be well-equipped to tackle complex coding projects and have a deep understanding of how to write efficient and secure code in C/C++.

Objectives

1. To provide a comprehensive overview of C/C++ programming and its various components.
2. To equip students with the skills to write efficient and secure code through the use of functions, arrays and pointers, and secure coding practices.
3. To teach students how to handle errors and exceptions in their code, and implement proper error handling and assertions.
4. To introduce students to the dynamic memory allocation model, including smart pointers and common memory pitfalls.
5. To help students understand and utilize the Standard Template Library and its various components, including containers, iterators, algorithms, and customizing and extending the STL. Allowing them to perform real-world data analysis and extract insights.

COURSE

OUTCOMES

CO-1:
Understand functions and write efficient, secure code in C/C++.

CO-2:
Analyze and use arrays, pointers, dynamic memory allocation, and type inference.

CO-3:
Identify and prevent common string and integer errors using secure coding practices.

CO-4:
Implement error handling, assertions, exceptions, stack unwinding, disk files, I/O streams, and the standard template library (STL), including customization and extension

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CO-PO-PSO MAPPING

Problem Solving using C and C++ (VACIT-001)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	-	3	-	3	2	-	-	2	2	3	-
CO-2	2	3	3	3	-	1	-	2	2	-	-	2	3	3	-
CO-3	1	2	-	2	1	1	-	-	2	-	-	2	3	2	-
CO-4	3	2	2	3	3	3	-	3	2	-	2	2	3	3	-
Avg	2.25	2.50	2.33	2.50	2.00	2.00	0.00	2.67	2.00	0.00	2.00	2.00	2.75	2.75	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

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COURSE OUTLINE

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

- Introduction to functions
- Alt function syntax
- Function return type deduction
- Static, const, and inline functions
- Default parameters
- Overloaded functions (operator and members)
- Friend Functions
- Overriding functions

Module 2: Arrays and Pointers in C/C++

- Introduction to arrays and pointers
- Smart pointers
- Pointers and dynamic memory allocation
- Type inference
- Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

- Common string, integer, and dynamic memory allocation errors
- Integer and dynamic memory allocation vulnerabilities
- String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

- Introduction to errors and exceptions
- Exception mechanisms
- Exceptions and polymorphism
- Stack unwinding and cleanup
- Common error handling issues
- Using streams for input and output
- String streams, file streams, and bidirectional I/O
- Dynamic memory allocation model
- Working with dynamic memory, array-pointer duality, and smart pointers.

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Text Book/References:

- Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.

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LECTURE PLAN

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

Lecture 1: Introduction to functions

Lecture 2: Alt function syntax

Lecture 3: Function return type deduction

Lecture 4: Static, const, and inline functions

Lecture 5: Default parameters

Lecture 6: Overloaded functions (operator and members)

Lecture 7: Friend Functions

Lecture 8: Overriding functions

Module 2: Arrays and Pointers in C/C++

Lecture 9: Introduction to arrays and pointers

Lecture 10: Smart pointers

Lecture 11: Pointers and dynamic memory allocation

Lecture 12: Type inference

Lecture 13: Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

Lecture 14: Common string, integer, and dynamic memory allocation errors

Lecture 15: Integer and dynamic memory allocation vulnerabilities

Lecture 16: String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

Lecture 17: Introduction to errors and exceptions

Lecture 18: Exception mechanisms

Lecture 19: Exceptions and polymorphism

Lecture 20: Stack unwinding and cleanup

Lecture 21: Common error handling issues

Lecture 22: Using streams for input and output

Lecture 23: String streams, file streams, and bidirectional I/O fstream

Lecture 24: Dynamic memory allocation model

Lecture 25: Working with dynamic memory, array-pointer duality, and smart pointers

Lecture 26: Review of functions in C/C++

Lecture 27: Review of arrays and pointers in C/C++indirections

Lecture 28: Review of secure coding practices in C/C++

Lecture 29: Review of exception handling and I/O in C/C++

Lecture 30: Final Exam Review

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INVITES YOU FOR A

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ON

APPLICATION DESIGN (VACIT-003)

14th Feb 2022 - 25th May 2022

Registration Date: 08 Feb 2022 - 12 Feb 2022

For Registration, Please contact:
Mr. Mohit Singh
Assistant Professor, IT

Head
Department of Information Technology
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The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT

THE PROGRAM

The program is designed for individuals who are interested in learning about the design process, software and application. It covers the basics of design and the concept of user-centric design. Students will learn about the various steps involved in designing an application, including market research, problem definition, analysis, planning, and testing the prototype. The program also covers the process of designing an application, including understanding user requirements, creating personas, and designing a prototype. Students will learn how to perform user testing and gather feedback to improve the application. The program provides hands-on experience and equips students with the skills to design an application that is user-friendly and meets the needs of the target market. Overall, the program is a comprehensive introduction to design, software and application and provides a solid foundation for those interested in pursuing a career in this field.

Objectives

1. To provide an overview of the design process and software and application.
2. To introduce the concept of user-centric design and the various steps involved.
3. To familiarize students with the process of finding problems and conducting market research.
4. To teach the process of designing an application, including understanding user requirements, creating personas, and designing a prototype.
5. To equip students with the skills to perform user testing, gather feedback, and make necessary modifications to improve the application.

COURSE

OUTCOMES

CO-1: Understand user-centric design, conduct market research, analyze problems, and design & test prototypes.

CO-2: Gather user requirements, brainstorm, conduct interviews, create personas, and develop user stories.

CO-3: Learn system architecture, create flowcharts, design transitions, work with vector images, and develop prototypes.

CO-4: Prepare questionnaires, conduct user testing, gather feedback, make modifications, and release the final application.

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CO-PO-PSO MAPPING

Application Design (VACIT-003)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	1	3	3	2	3	3	-	2	3	-	-	1	3	1	-
CO-2	2	3	2	2	3	2	-	1	3	-	-	2	3	2	-
CO-3	2	1	3	3	3	3	-	2	3	-	-	2	3	2	-
CO-4	2	2	-	3	3	3	-	2	2	-	-	2	3	3	-
Avg	1.75	2.25	2.67	2.50	3.00	2.75	0.00	1.75	2.75	0.00	0.00	1.75	3.00	2.00	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

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COURSE OUTLINE

Application Design (VACIT-003)

Module 1: Introduction

- Introduction to Design, Software and Application
- Concept behind the user centric design
- Various steps used to design an application, finding problems
- Market research
- Introduction to problem definition, analysis, planning
- Designing & testing the prototype.

Module 2: Designing an Application - I

- Understanding the user requirements
- Brainstorming
- User interviews
- Persona
- User stories

Module 3: Designing an Application - II

- Introduction to System, Subsystem
- Integrated Modules, Procedures and Functions
- Flow Chart, transitions
- vector images, prototype & wireframe.

Module 4: User Testing

- Questionnaire preparation
- User testing
- Feedback & reviews
- Modifications & final release

Text Book/References:

- Brown, T. (2009). Change by design: How design thinking transforms organizations and inspires innovation. HarperCollins.
- Shneiderman, B. (2016). Designing the user interface: Strategies for effective human-computer interaction. Pearson Education India.

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LECTURE PLAN

Application Design (VACIT-003)

Module 1: Introduction

Lecture 1: Introduction to the course, design, software, and applications.

Lecture 2: User-centric design and its importance.

Lecture 3: Steps used to design an application.

Lecture 4: Finding problems and market research.

Lecture 5: Introduction to problem definition.

Lecture 6: Problem analysis and planning.

Lecture 7: Designing a prototype.

Lecture 8: Testing the prototype.

Module 2: Designing an Application – I

Lecture 9: Understanding user requirements.

Lecture 10: Brainstorming techniques.

Lecture 11: User interviews.

Lecture 12: Creating personas.

Lecture 13: User stories and how to create them.

Module 3: Designing an Application – II

Lecture 14: Introduction to the system, subsystems, and integrated modules.

Lecture 15: Procedures and functions.

Lecture 16: Flow charts and transitions.

Lecture 17: Vector images and their uses.

Lecture 18: Introduction to wireframes.

Lecture 19: Creating a prototype using wireframes.

Module 4: User Testing

Lecture 20: Questionnaire preparation for user testing.

Lecture 21: Conducting user testing.

Lecture 22: Feedback and reviews.

Lecture 23: Modifying the prototype based on feedback.

Lecture 24: Finalizing the application for release.

Lecture 25: Best practices for releasing an application.

Lecture 26: Post-release testing and feedback.

Lecture 27: How to handle user feedback and reviews.

Lecture 28: Common mistakes to avoid in application design.

Lecture 29: Future trends in application design.

Lecture 30: Course review and recap.

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Department of Information Technology
Hindustan College of Science & Technology
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Director
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2101 – BASIC MATLAB PROGRAMMING

18th SEP '2021 – 5th FEB 2022 - Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Dr. Sanjeev Kumar
Assistant Professor, Electrical & Electronics Engineering
Research Interest: Power System

Registration Dates
10st Sept 2021 – 17th Sept 2021
For Registration: Please contact
Mr. Sunil Pathak, Office Staff, Department of EEE

Prerequisites: Basics of C Programming

Sanjeev

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Head
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2101 – BASIC MATLAB PROGRAMMING

18th '2021 – 5th FEB 2022 - Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Familiarize students with the MATLAB software, its user interface, and basic functionality.
2. Introduce the syntax and basic concepts of the MATLAB programming language, such as variables, data types, operators, and control structures.
3. Teach students how to perform mathematical operations using MATLAB, including arithmetic, matrix manipulation, and vectorization. Introduce built-in mathematical functions and how to create custom functions.
4. Cover techniques for reading data from files and writing data to files using MATLAB.
5. MATLAB's plotting capabilities and teach students how to create various types of plots, customize their appearance, and annotate them.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to MATLAB : Introduction to MATLAB environment, Variables, data types, and basic operations, Input and output functions, MATLAB scripts and functions, Debugging and error handling	CO1
2	MATLAB Programming Fundamentals : Control flow statements (if-else, for loops, while loops), Vectorization and array operations, Functions and function handles, File input/output, MATLAB programming best practices	CO2
3	Data Visualization and Plotting : Plotting functions and basic plot customization, Multiple plots and subplots, 2D and 3D plots, Interactive visualization tools, Exporting figures and graphics	CO3
4	Advanced MATLAB Programming : Object-oriented programming in MATLAB, MATLAB structures and cell arrays, Handle graphics and GUI development, MATLAB toolboxes and libraries, Optimization and numerical methods	CO4
5	Applications and Projects : Introduction to application domains (e.g., signal processing, image processing, data analysis), Case studies and real-world examples, Mini projects and assignments related to specific application areas, Final project: Design and implement a MATLAB program to solve a real-world problem	CO5

Prerequisites: Basics of C Programming

Sanjeev

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2101 – BASIC MATLAB PROGRAMMING

18th Sept '2021 – 5th FEB 2022 - Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	Students should become familiar with the MATLAB programming environment, including the MATLAB desktop, command window, editor, debugger, syntax of MATLAB programming language and understand basic operations such as arithmetic, logical, and relational operations.
CO2	Students should be able to create and manipulate variables, including scalar values, vectors, matrices, cell arrays, use control flow statements such as if-else statements, loops (for, while), and switch-case statements to control the flow of program execution.
CO3	Students should be able to create and use MATLAB functions and scripts to modularize code, improve code reusability, create basic plots and visualizations using MATLAB's plotting functions, including 2D and 3D plots.
CO4	Students should understand how to read data from files, write data to files using MATLAB's file input/output functions, perform basic data analysis tasks using MATLAB, such as computing statistics, fitting curves, and analyzing data sets.
CO5	Students should gain proficiency in debugging MATLAB code and handling errors by using built-in debugging tools, implementing error handling mechanisms, problem-solving skills by applying MATLAB programming techniques to solve computational problems in various domains, such as engineering, mathematics, and science.

CO-PO & CO-PSO Mappings

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3		3						1	1	2	3
CO2	3	3	3	2	3						1	1	3	2
CO3	3	3	3	2	3						2	2	3	3
CO4	3	3	3	3	3	2	2				2	2	3	3
CO5	3	3	3	3	3	2	2				2	2	3	3
Average	3	3	3	2.5	3	2	2				1.6	1.6	2.8	2.8

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Sanjeev

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2101 – BASIC MATLAB PROGRAMMING

18th Sept '2021 –5th FEB 2022- Every Saturday: 3:00 PM – 5:00 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	18/09/21	3:00 PM - 5:00 PM	2	Introduction to MATLAB	Dr. Sanjeev Kumar
2	25/09/21	3:00 PM - 5:00 PM	2	MATLAB Basics	Dr. Sanjeev Kumar
3	09/10/21	3:00 PM - 5:00 PM	2	MATLAB Functions	Dr. Sanjeev Kumar
4	23/10/21	3:00 PM - 5:00 PM	2	MATLAB Programming Techniques	Dr. Sanjeev Kumar
5	30/10/21	3:00 PM - 5:00 PM	2	File I/O in MATLAB	Dr. Sanjeev Kumar
6	13/11/21	3:00 PM - 5:00 PM	2	Plotting in MATLAB	Dr. Sanjeev Kumar
7	20/11/21	3:00 PM - 5:00 PM	2	Advanced Plotting	Dr. Sanjeev Kumar
8	4/12/21	3:00 PM - 5:00 PM	2	MATLAB Toolboxes	Dr. Sanjeev Kumar
9	11/12/21	3:00 PM - 5:00 PM	2	Symbolic Math in MATLAB	Dr. Sanjeev Kumar
10	18/12/21	3:00 PM - 5:00 PM	2	Advanced Programming Concepts	Dr. Sanjeev Kumar
11	08/01/22	3:00 PM - 5:00 PM	2	Numerical Computing in MATLAB	Dr. Sanjeev Kumar
12	15/01/22	3:00 PM - 5:00 PM	2	Image Processing in MATLAB	Dr. Sanjeev Kumar
13	22/01/22	3:00 PM - 5:00 PM	2	Signal Processing in MATLAB	Dr. Sanjeev Kumar
14	29/01/22	3:00 PM - 5:00 PM	2	Final Project	Dr. Sanjeev Kumar
15	05/02/22	3:00 PM - 5:00 PM	2	MATLAB Tools	Dr. Sanjeev Kumar
Total Number of Hours covered			30		

Sanjeev

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DEPARTMENT MECHANICAL ENGINEERING

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Value Added Course: Auto Cad

VME-2105 – Basics Design and Drafting on AutoCad

18th Sep'2021 – 30th Dec 2021 - Every Saturday: 2:20 PM – 4:00 PM

Students From Any Branch Can Join the Course

By

Mr. Mahesh Kumar Dhakar/Mr. Rajvardhan
Assistant Professor, Mechanical Engineering
Research Interest: Machine Design/Applied Mechanics

Registration Dates

8th Sep'2021 – 14th Sep 2021

For Registration: Please contact
Mrs. Geeta Gupta, Office Staff, Department of ME

Prerequisites: Basics of Knowledge of laws mechanics of solids & Computer

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VME-2105 – Basics Design and Drafting on AutoCad

18th Sep'2021 – 30th Dec 2021 - Every Saturday: 2:20 PM – 4:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Become familiar with the AutoCAD user interface.
2. Understand the fundamental concepts and features of AutoCAD.
3. Use the precision drafting tools in AutoCAD to develop accurate technical drawings.
4. Present drawings in a detailed and visually impressive manner.
5. Develop a level of comfort and confidence with AutoCAD through hands-on experience.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Autodesk AutoCAD, Basic Drawing & Editing Commands, Projects - Creating a Simple Drawing, Drawing Precision in AutoCAD, Making Changes in Your Drawing, Projects - Making Your Drawings More Precise,	CO1
2	Organizing Your Drawing with Layers, Advanced Object Types, Analysing Model and Object Properties , Projects - Drawing Organization & Information , Advanced Editing Commands	CO2
3	Inserting Blocks , Projects - Creating More Complex Objects , Setting Up a Layout, Printing Your Drawing	CO3
4	Preparing to Print, Text, Hatching, Adding Dimensions , Projects - Annotating You're Drawing	CO4

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VME-2105 – Basics Design and Drafting on AutoCad

18th Sep'2021 – 30th Dec 2021 - Every Saturday: 2:20 PM – 4:00 PM

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Course Outcomes

Student will be able to:

1. Utilize the power and precision of AutoCAD as a drafting and design tool used in the mechanical design and manufacturing industries.
2. Apply basic CAD concepts to develop and construct accurate 2D geometry through creation of basic geometric constructions.
3. Create, manipulate and edit 2D drawings and figures.
4. Apply elements of mechanical drafting such as layers, dimensions, drawing formats, and 2D figures in projects with a focus on ANSI industry standards.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	3											1	2
CO2	1	1											1	3
CO3	1		3										2	1
CO4			3		3								2	2
Average	1	2	3		3								2.5	2

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Value Added Course

VME-2105 – Basics Design and Drafting on AutoCad (Practical Oriented)

18th Sep'2021 – 30th Dec 2021 - Every Saturday: 2:20 PM – 4:00 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	18-Sep	2:20 PM - 4:00 PM	2	Introduction to Autodesk AutoCAD	Mr. Mahesh Kumar Dhakar
2	25-Sep	2:20 PM - 4:00 PM	2	Basic Drawing & Editing Commands,	Mr. Mahesh Kumar Dhakar
3	9-Oct	2:20 PM - 4:00 PM	2	Drawing Precision in AutoCAD	Mr. Mahesh Kumar Dhakar
4	23-Oct	2:20 PM - 4:00 PM	2	Making Changes in Your Drawing	Mr. Mahesh Kumar Dhakar
5	30-Oct	2:20 PM - 4:00 PM	2	Projects - Making Your Drawings More Precise	Mr. Mahesh Kumar Dhakar
6	13-Nov	2:20 PM - 4:00 PM	2	Organizing Your Drawing with Layers	Mr. Mahesh Kumar Dhakar
7	20-Nov	2:20 PM - 4:00 PM	2	Advanced Object Types	Mr.Raj Vardhan
8	4-Dec	2:20 PM - 4:00 PM	2	Analysing Model and Object Properties	Mr.Raj Vardhan
9	11-Dec	2:20 PM - 4:00 PM	2	Advanced Editing Commands	Mr.Raj Vardhan
10	18-Dec	2:20 PM - 4:50 PM	3	Inserting Blocks	Mr.Raj Vardhan
11	28-Dec	2:20 PM - 4:50 PM	3	Projects - Creating More Complex Objects	Mr.Raj Vardhan
12	29-Dec	11:50 AM - 4:50 PM	6	Setting Up a Layout,	Mr.Raj Vardhan
13	30-Dec	11:50 AM - 4:50 PM	6	Printing Your Drawing , Projects - Preparing to Print, Text, Adding	Mr.Raj Vardhan
Total Number of Hours covered			36		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701-Process Equipment Design

12th July '2021 – 20th Nov 2021 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Anurag Bajpai
HOD -Chemical Engineering

Registration Dates
6th July 2021 – 10th July 2021

For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

Head
Department of Chemical Engg.
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC -1701* - Process Equipment Design**

12th July '2021 – 20th Nov 2021 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701 - **Process Equipment Design**

12th July '2021 – 20th Nov 2021 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701 - **Process Equipment Design**

Program Schedule

12th July '2021 – 20th Nov 2021 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	17-07-2021	3:10 PM – 4:50 PM	2	Topic 1: Design project procedure, design information from the literature	Mr. Anurag Bajpai
2	24-07-2021	3:10 PM – 4:50 PM	2	Topic 2: Flow diagrams, preliminary design	Mr. Anurag Bajpai
3	31-07-2021	3:10 PM – 4:50 PM	2	Topic 3: Comparison of different processes, equipment design	Mr. Anurag Bajpai
4	07-08-2021	3:10 PM – 4:50 PM	2	Topic 4: Scale-up in design, Materials of construction	Mr. Anurag Bajpai
5	14-08-2021	3:10 PM – 4:50 PM	2	Topic 5: Selection of materials, fabrication of equipment	Mr. Anurag Bajpai
6	21-08-2021	3:10 PM – 4:50 PM	2	Topic 6: Pressure vessels – calculation of thickness of cylindrical and spherical shells	Mr. Anurag Bajpai
7	28-08-2021	3:10 PM – 4:50 PM	2	Topic 7: Subjected to internal pressure, heads or covers	Mr. Anurag Bajpai
8	04-09-2021	3:10 PM – 4:50 PM	2	Topic 8: Storage vessels – storage of nonvolatile liquids, storage of volatile liquids	Mr. Anurag Bajpai
9	11-09-2021	3:10 PM – 4:50 PM	2	Topic 9: Storage of gases. Supports for vessels – bracket or lug supports	Mr. Anurag Bajpai
10	18-09-2021	3:10 PM – 4:50 PM	2	Topic 10: Leg supports, skirt supports, saddle supports	Mr. Anurag Bajpai
11	25-09-2021	3:10 PM – 4:50 PM	2	Topic 11: Design of double pipe heat exchangers	Mr. Anurag Bajpai
12	09-10-2021	3:10 PM – 4:50 PM	2	Topic 12: Shell and tube heat exchangers (1-2,2-4), optimum design and heat recovery	Mr. Anurag Bajpai
13	16-10-2021	3:10 PM – 4:50 PM	2	Topic 13: Selection of suitable heat exchanger	Mr. Anurag Bajpai
14	23-10-2021	3:10 PM – 4:50 PM	2	Topic 14: Design of single and multiple effect evaporators without boiling point elevation	Mr. Anurag Bajpai
15	30-10-2021	3:10 PM – 4:50 PM	2	Topic 15: Finite-stage contactors- bubble cap tray, sieve tray and valve tray units	Mr. Anurag Bajpai
16	06-11-2021	3:10 PM – 4:50 PM	2	Topic 16: Maximum allowable vapor velocities, plate and column efficiency, other design factors	Mr. Anurag Bajpai
17	13-11-2021	3:10 PM – 4:50 PM	2	Topic 17: Continuous contactors – types of packing, liquid distribution, pressure drop	Mr. Anurag Bajpai
18	20-11-2021	3:10 PM – 4:50 PM	2	Topic 18: Packing efficiencies. Relative merits of plate and packed towers, selection of contacting equipment	Mr. Anurag Bajpai
Total Number of Hours covered			**36 (30 Hours)**		

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2104 - Arduino and its Applications

15th Sep '2021 – 30th Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM

Students From Any Branch Can Join the Course

By

Mr. Ajeet Singh

Assistant Professor, Electronics & Communication Engineering

Research Interest: IoT based projects, Microprocessor

Registration Dates

6th Sep 2021 – 14th Sep 2021

For Registration: Please contact

Mr. Sanjay Gupta, Lab Technician, Department of ECE

Prerequisites: Basic knowledge of electronics components with their uses. Also basic understanding of programming.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2104 - Arduino and its Applications

15th Sep '2021 – 30th Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. This course provides a comprehensive understanding of Arduino, a popular open-source electronics platform.
2. The course aims to equip students with the necessary knowledge and skills to effectively work with Arduino boards and microcontrollers.
3. Participants will learn the fundamental concepts of programming and interfacing with Arduino, including the use of sensors, actuators, and various electronic components. Through hands-on projects and practical exercises, students will gain experience in designing, building, and programming Arduino-based systems and prototypes.
4. By the end of the course, participants will be able to apply their newfound skills to create innovative projects and automation solutions, fostering creativity and problem-solving abilities in the field of electronics and embedded systems.

Course Syllabus

Units	Details	Course Out comes
1	**Introduction To Embedded System:** Basics of embedded system, components of embedded system, Microcontroller vs. Microprocessor, common features of microcontroller, different types of microcontrollers, advantages and applications of embedded systems,.	CO1
2	**Getting Started With Arduino:** Introduction to Arduino, ARDUINO History and Family, pin configuration and architecture, concept of digital and analog ports, familiarizing with Arduino Interfacing Board, Setting up the Arduino IDE, programming in Embedded-C.	CO2
3	**Basic Sensors And Actuators:** Introduction to sensors and actuators, types of sensors and their use, how to connect and work with different sensors, such as Humidity, Proximity, IR Motion, Accelerometer, Sound, Light Distance, Pressure etc. to ARDUINO Board, reading various sensor data on serial monitor and LCD Display, functioning of actuator, how to work on Educational & engineering Level Actuator.	CO3
4	**Controlling Devices Using Arduino:** What is relay, types of relay, how to connect relays to ARDUINO Board, controlling Electrical appliances with electromagnetic relays, working of a matrix keypad, Interfacing a RF Module.	CO4
5	**Making It A Reality (Arduino Projects):** Home automation using RFID, solar Street Light system, car parking system, water level management system, automatic Irrigation System.	CO5

Prerequisites: Basic knowledge of electronics components with their uses. Also basic understanding of programming.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2104 - Arduino and its Applications

15th Sep '2021 – 30th Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Develop a comprehensive understanding of embedded systems, microprocessors and microcontrollers.
CO2	Understanding of Arduino and acquire programming skills in Embedded-C for Arduino development.
CO3	Acquire skills in working with sensors and actuators with hands-on experience in connecting and interfacing sensors and actuators with Arduino boards.
CO4	Demonstrate the ability to control devices and appliances using Arduino boards.
CO5	Apply the knowledge gained to design and implement various Arduino-based projects.

CO-PO Mappings

CO5	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2		2									2	3	3
CO2	2	3										2		2
CO3	2											2	3	
CO4	2	3	2									2	3	3
CO5	2		2									2		2
Average	2	3	2									2	3	2.5

Evaluation Criteria: Class attendance, Group project and its presentation, Quiz and Viva.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2104 - Arduino and its Applications

15th Sep '2021 – 30th Dec 2021 – Every Wednesday: 3:10 PM – 4:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	15-09-2021	3:10 PM – 4:50 PM	2	Preamble of the course	Mr. Ajeet Singh
2	22-09-2021	3:10 PM – 4:50 PM	2	Introduction To Embedded System: Basics of embedded system, Components of embedded system.	Mr. Ajeet Singh
3	29-09-2021	3:10 PM – 4:50 PM	2	Microcontroller vs. Microprocessor, Common features of Microcontroller.	Mr. Ajeet Singh
4	06-10-2021	3:10 PM – 4:50 PM	2	Different types of microcontrollers, Advantages and applications of embedded systems,.	Mr. Ajeet Singh
5	13-10-2021	3:10 PM – 4:50 PM	2	Getting Started With Arduino: Introduction to Arduino, ARDUINO history and family.	Mr. Ajeet Singh
6	27-10-2021	3:10 PM – 4:50 PM	2	Pin configuration and architecture	Mr. Ajeet Singh
7	10-11-2021	3:10 PM – 4:50 PM	2	Concept of digital and analog ports.	Mr. Ajeet Singh
8	17-11-2021	3:10 PM – 4:50 PM	2	Familiarizing with Arduino Interfacing Board, Setting up the Arduino IDE	Mr. Ajeet Singh
9	24-11-2021	3:10 PM – 4:50 PM	2	Programming in Embedded-C	Mr. Ajeet Singh
10	01-12-2021	3:10 PM – 4:50 PM	2	Basic Sensors And Actuators: Introduction to sensors and actuators, Types of sensors and their use.	Mr. Ajeet Singh
11	08-12-2021	3:10 PM – 4:50 PM	2	How to connect and work with different sensors, such as Humidity, Proximity, IR Motion, Accelerometer, Sound, Light Distance, Pressure etc. to ARDUINO board	Mr. Ajeet Singh
12	15-12-2021	3:10 PM – 4:50 PM	2	Reading various sensor data on serial monitor and LCD Display, Functioning of actuator, How to work on Educational & Engineering Level Actuator.	Mr. Ajeet Singh
13	28-12-2021	10:10 AM - 1:30 PM	4	Controlling Devices Using Arduino: What is relay, Types of Relay, How to connect relays to ARDUINO board.	Mr. Ajeet Singh
14	29-12-2021	10:10 AM - 1:30 PM	4	Controlling Electrical appliances with electromagnetic relays, Working of a matrix keypad, Interfacing a RF Module.	Mr. Ajeet Singh
15	30-12-2021	10:10 AM - 1:30 PM	4	Making It A Reality (Arduino Projects): Home automation using RFID, Solar Street Light system, Car Parking System, Water level management system.	Mr. Ajeet Singh
Total Number of Lectures covered			**36 (30 Hours)**		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-21-22-VCS2101 - Object Oriented Programming Using C++

18th September '2021 – 19th February 2022- Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Dr. Munish Khanna

Associate Professor, HOD -Computer Science & Engineering

Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates

14th Sep 2021 – 17th Sept 2021

For Registration: Please contact

Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-21-22-VCS2101 - Object Oriented Programming Using C++

18th September '2021 – 19th February 2022- Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. To understand the need for high-level languages including C++ and programming paradigms.
2. To understand the syntax of C++ and writing simple programs in C++
3. To understand the need and role of object oriented programming for real-world applications.
4. To enable the students to write simple programs using OOPs concepts
5. To enable students to solve real time problems using OOPs.

Course Syllabus

Units	Details	Course Out comes
1	Features of C language, POP and OOP. List of OOP languages. Basic format of C++ program. Processor Directives. I/O statements. Language syntax: Keywords, identifiers, constants, variables, classification of variables based on scope and life, operators. Data types: Basic, derived and user-defined data types. Data-type casting. Data abstraction and encapsulation. Simple example programs.	CO1
2	Concepts of control structure. Branching- if, if-else, switch, break, continue. Looping-for, while anddo-while. Derived data type: Arrays, strings, pointers, enumerated data types and functions. Functions-Call by value, address and reference. User-defined data type: structure, union and classes. Example programs	CO2
3	Introduction to class and objects. Limitation of Structure and benefits of class. Class and object creation. Private and public, protected members of class-Variables, arrays and functions. Accessing Class Members. Memory allocation for Objects. Array of objects. Friend Function. Data abstraction and data encapsulation. Simple example programs	CO3
4	Introduction to overloading. Constructors: parameterized constructors, default arguments, overloading and copy constructor. Destructors, Unary and binary operator overloading. Function overloading, functions with default arguments. Inline functions. Simple example programs	CO4
5	Introduction to inheritance. Defining derived classes, Levels of inheritance, Single inheritance, public and private member inheritance, multiple inheritance, Hierarchical inheritance, Hybrid inheritance, polymorphism. Example programs	CO5
6	Pointers-Declaration and initialization. Manipulation of pointers, pointers to objects, pointers to derived classes, pointers with arrays and strings. Introduction to Virtual functions, rules for virtual functions, pure virtual functions. Formatted and Unformatted I/O functions. Simple example programs. Features of other OOPS languages-JAVA and PYTHON.	

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-21-22-VCS2101 - Object Oriented Programming Using C++

18th September '2021 – 19th February 2022- Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	***Understand*** the C++ language features and employ the control structure and data types in C++.
CO2	***Use*** functions and pointers in C++ program as well as understand tokens, expressions, and control structures
CO3	Explain arrays and strings and create programs using them
CO4	Describe and use constructors and destructors
CO5	Understand the concepts of inheritance , polymorphism and virtual functions and I/O statements as well as employed file system

CO-PO & CO-PSO Mappings

CO5	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
CO5			2	3										3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Value Added Course
VAC-21-22-VCS2101 - Object Oriented Programming Using C++
18th September '2021 – 19th February 2022- Every Saturday: 3:00 PM – 5:00 PM

Program Schedule:

Session	Date	Time	No. of Hours	Session Topic	Resource Person
1	18-09-2021	3:00 PM - 5:00 PM	2	Features of C language, POP and OOP.	Dr. Munish Khanna
2	25-09-2021	3:00 PM - 5:00 PM	2	List of OOP languages. Basic format of C++ program. Processor Directives. I/O statements	Dr. Munish Khanna
3	09-10-2021	3:00 PM - 5:00 PM	2	Language syntax: Keywords, identifiers, constants, variables, classification of variables based on scope and life, operators.	Dr. Munish Khanna
4	23-10-2021	3:00 PM - 5:00 PM	2	Data types: Basic, derived and user-defined data types, Data-type casting. Data abstraction and encapsulation Simple example programs	Dr. Munish Khanna
5	10-10-2021	3:00 PM - 5:00 PM	2	Concepts of control structure. Branching- if, if-else, switch, break, continue. Looping-for, while and do-while. Derived data type: Arrays, strings, pointers, enumerated data types and functions	Dr. Munish Khanna
6	13-11-2021	3:00 PM - 5:00 PM	2	Functions-Call by value, address and reference. User-defined data type: structure, union and classes. Example programs	Dr. Munish Khanna
7	20-11-2021	3:00 PM - 5:00 PM	2	Introduction to class and objects. Limitation of Structure and benefits of class	Dr. Munish Khanna
8	04-12-2021	3:00 PM - 5:00 PM	2	Class and object creation. Private and public, protected members of class-Variables, arrays and functions.	Dr. Munish Khanna
9	11-12-2021	3:00 PM - 5:00 PM	2	Accessing Class Members. Memory allocation for Objects, Array of objects. Friend Function. Data abstraction and data encapsulation. Simple example programs.	Dr. Munish Khanna
10	18-12-2021	3:00 PM - 5:00 PM	2	Introduction to overloading. Constructors: parameterized constructors, default arguments, overloading and copy constructor	Dr. Munish Khanna
11	01-01-2022	3:00 PM - 5:00 PM	2	Destructors, Unary and binary operator overloading, Function overloading, functions with default arguments, Inline functions. Simple example programs..	Dr. Munish Khanna
12	08-01-2022	3:00 PM - 5:00 PM	2	Introduction to inheritance. Defining derived classes, Levels of inheritance, Single inheritance.	Dr. Munish Khanna
13	15-01-2022	3:00 PM - 5:00 PM	2	public and private member inheritance, Multiple inheritance, Hierarchical inheritance, Hybrid inheritance, polymorphism, Example programs.	Dr. Munish Khanna
14	22-01-2022	3:00 PM - 5:00 PM	2	Pointers-Declaration . initialization. Manipulation of pointers, pointers to objects, pointers to derived classes,	Dr. Munish Khanna
15	29-01-2022	3:00 PM - 5:00 PM	2	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	Dr. Munish Khanna
16	05-02-2022	3:00 PM - 5:00 PM	2	pointers with arrays and strings, Introduction to Virtual functions, rules for virtual functions, pure virtual functions	Dr. Munish Khanna
17	12-02-2022	3:00 PM - 5:00 PM	2	distributed database, Introduction of ANSI SQL, Formatted and Unformatted I/O functions	Dr. Munish Khanna
18	19-02-2022	3:00 PM - 5:00 PM	2	Simple example programs. Features of other OOPS languages-JAVA and PYTHON, Mini Project	Dr. Munish Khanna

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE2101 - AutoCAD Essential

25th Sept 2021 – 11th Dec 2021 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Rohit Maurya
Assistant Professor, Civil Engineering
Hindustan College of Science & Technology, Farah (Mathura)

H. O. D.
Civil Engineering
Department
Farah Mathura

Director
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Registration Dates
25th Sept '2021 – 11st Dec 2021
For Registration: Please contact
Mr. Anil Kashyap, Office Staff, Department of CE

Prerequisites: Basics of computer skills and engineering drawing

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE2101 - AutoCAD Essential

25th Sept 2021 – 11th Dec 2021 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Learn about Structural Drawings
2. Planning and drawing of various structures
3. Structural Drawing of buildings

Course Syllabus

Units	Details	Course Out comes
1	Introduction of AUTOCAD, Draw commands, Cartesian coordinate system, Modify commands	CO1
2	Text command layers blocks, Isometric drawings, 2D fundamentals, Geometric constructions	CO2
3	Elevations, AutoCAD interface, Sketch entities & sketch tools, Dimensions & Dimensions Styles	CO3
4	Equations, Design Table, & Configurations, Isometric Views, Creating & Editing Text	CO4
5	Sketch Visualization & Sketch Analysis, Geometry & Dimensional Constraints, Principles of planning of building	CO5

Prerequisites: Basics of computer skills and engineering drawing

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE2101 - AutoCAD Essential

25th Sept 2021 – 11th Dec 2021 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes:

After completion of the course student will be able to:

CO1	*Student will be able to complete object-oriented instinctive 2D/3D graphic model generation*
CO2	*Student will know the use of simple command language and built-in command file editor.*
CO3	*Student will be able to draw concrete beams/columns/slabs/footings as per all major.*
CO4	*Student will be able to create tables , make isometric view, also create editing text*
CO5	*Student will be able to Sketch Visualization & Sketch Analysis, Geometry & Dimensional Constraints.*

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2											3		
CO2	3		2										2	1	
CO3		3		2									2		
CO4		3	2	2									3	1	
CO5	2	2		3									2		
Average	2.6	2.5	2	2.3									2.4	1	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Prerequisites: Basics of computer skills and engineering drawing

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE2101 - AutoCAD Essential

25th Sept 2021 – 11th Dec 2021 - Every Saturday: 3:10 PM – 4:50 PM

Course Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	9/25/2021	3:10 PM – 4:50 PM	2	Topic 1: Introduction of AUTOCAD,	Rohit Maurya
2	10/9/2021	3:10 PM – 4:50 PM	2	Topic 2: Draw commands, Cartesian coordinate system,	Rohit Maurya
3	10/15/2021	3:10 PM – 4:50 PM	2	Topic 3: Modify commands, Text command layers blocks,	Rohit Maurya
4	10/23/2021	3:10 PM – 4:50 PM	2	Topic 4: Isometric drawings, 2D fundamentals,	Rohit Maurya
5	10/29/2021	3:10 PM – 4:50 PM	2	Topic 5: Geometric constructions Elevations	Rohit Maurya
6	10/30/2021	3:10 PM – 4:50 PM	3	Topic 6:, AutoCAD interface, Sketch entities & sketch tools,	Rohit Maurya
7	11/12/2021	3:10 PM – 4:50 PM	2	Topic 7: Dimensions & Dimensions Styles	Rohit Maurya
8	11/13/2021	3:10 PM – 4:50 PM	3	Topic 8: Equations, Design Table,	Rohit Maurya
9	11/20/2021	3:10 PM – 4:50 PM	3	Topic 9: & Configurations, Isometric Views,	Rohit Maurya
10	11/26/2021	3:10 PM – 4:50 PM	2	Topic 10: Creating & Editing Text	Rohit Maurya
11	11/27/2021	3:10 PM – 4:50 PM	3	Topic 11: Sketch Visualization & Sketch Analysis, Geometry &	Rohit Maurya
12	12/3/2021	3:10 PM – 4:50 PM	2	Topic 12: Dimensional Constraints,	Rohit Maurya
13	12/4/2021	3:10 PM – 4:50 PM	3	Topic 13: Principles of planning of building	Rohit Maurya
14	12/10/2021	3:10 PM – 4:50 PM	2	Project	Rohit Maurya
15	12/11/2021	3:10 PM – 4:50 PM	3	Project Evaluation	Rohit Maurya
Total Number of Hours covered			**36*(5/6)=30**		

Prerequisites: Basics of computer skills and engineering drawing

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-21-22 VCS2204 Introduction to Artificial Intelligence & Applied Machine learning (Practical oriented)

2nd Feb '2022 – 27th May 2022- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

By

Dr. Munish Khanna
Associate Professor, Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
24th Jan 2022 – 31th Jan 2022
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-21-22 VCS2204 Introduction to Artificial Intelligence & Applied Machine learning (Practical oriented)

2nd Feb '2022 – 27th May 2022- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Course Objectives

The main objective of this value added course are as follows:

1. Provide theoretical and conceptual understanding on regression classification and clustering machine learning algorithm such as linear and logistic regression, regularization, probabilistic inference, SVM and neural network, clustering and dimensionality reduction .
2. Provide hands on implementation experience in building these machine learning algorithm using Python and Sklearn modules .
3. Implementation of a capstone project- To study or devise an innovative solution for a real world problem.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Artificial Intelligence : Structure of Intelligent Agent, Natural Language processing, Introduction to search technique, Artificial Intelligence vs Machine Leaning. Local Search algorithm and optimistic problem, Min-Max Algorithm, Alpha-Beta Pruning, Regression: Linear Regression and Logistic Regression .	CO1
2	Knowledge Representation, Propositional Logic, Inference in first order logic, Utility Theory, Bayes theorem, Bayes Optimal Classifier, Naïve Bayes Classifier, EM algorithm .	CO2
3	Hidden Markov Model (HMM), Understanding of Machine learning, Types of learning well defined learning problems, designing a learning system.	CO3
4	SVM classifier, ANN, Decision tree, Entropy and information theory, information gain, ID-3 algorithm, Statistical learning model, learning with hidden data/ complete data models.	CO4
5	Perceptron's multilayer perceptron, gradient descent and the delta rule, Multilayer networks, derivation of back propagation algorithm, clustering k- means, Classification techniques, Pattern recognition system and its principles.	CO5

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Value Added Course

VAC-21-22 VCS2204 Introduction to Artificial Intelligence & Applied Machine learning (Practical oriented)

2nd Feb '2022 – 27th May 2022- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Course Outcomes

CO1	Understand the mathematical and statistical prospective of machine learning through python programming
CO2	Design and Evaluate the supervised models through python/ Sklearn functions.
CO3	Design and Evaluate the Un-supervised models through python/ Sklearn functions.
CO4	Design and apply various reinforcement algorithm to solve real time complex problems.
CO5	Understand the basic concepts of deep neural network model and design the same.

CO-PO & CO-PSO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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Value Added Course

VAC-21-22 VCS2204 Introduction to Artificial Intelligence & Applied Machine learning

(Practical oriented)

2nd Feb '2022 – 27th May 2022- Every Saturday: 3:10 PM – 04:50 PM

Program Schedule

Students From Any Branch Can Join the Course

	Date	Time	No of Lectures	Session Topic	Resource Person
1	02-02-2022	3:10 PM - 4:50 PM	2	Introduction to Artificial Intelligence	Dr.Munish Khanna
2	12-02-2022	3:10 PM - 4:50 PM	2	Knowledge representation	Dr.Munish Khanna
3	19-02-2022	3:10 PM - 4:50 PM	2	Naïve Bayes classifier	Dr.Munish Khanna
4	26-02-2022	3:10 PM - 4:50 PM	2	Optimistic Problem	Dr.Munish Khanna
5	05-03-2022	3:10 PM - 4:50 PM	2	Understanding of Machine learning	Dr.Munish Khanna
6	12-03-2022	3:10 PM - 4:50 PM	2	SVM classifier	Dr.Munish Khanna
7	26-03-2022	3:10 PM – 4:50 PM	2	ANN	Dr.Munish Khanna
8	02-04-2022	3:10 PM – 4:50 PM	2	Designing a leaninng system,	Dr.Munish Khanna
9	09-04-2022	3:10 PM - 4:50 PM	2	Semantic Web,	Dr.Munish Khanna
10	16-04-2022	3:10 PM - 4:50 PM	2	Perceptron and muti-layer, Back propagation algorithm	Dr.Munish Khanna
11	23.04.2022	3:10PM - 4:50PM	2	Entropy and information theory, information gain,	Dr.Munish Khanna
12	30-04-2022	3:10 PM - 4:50 PM	2	Perceptron and muti-layer, Back propagation algorithm	Dr.Munish Khanna
13	05.05.2022	3:10 PM - 4:50 PM	2	Gradient descent and the delta rule, Semantic Net	Dr.Munish Khanna
14	06.05.2022	3:10 PM - 4:50 PM	2	Pattern recognition system	Dr.Munish Khanna

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Program Schedule

HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH - MATHURA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-21-22 VCS2204 Introduction to Artificial Intelligence & Applied Machine learning (Practical oriented)

2nd Feb '2022 – 27th May 2022- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Session	Date	Time	No of Lectures	Session Topic	Resource Person
15	07.05.2022	3:10 PM - 4:50 PM	2	Gradient descent and the delta rule, Semantic Net	Dr.Munish Khanna
16	20.05.2022	3:10 PM - 4:50 PM	2	Statistical learning model, SVM,	Dr.Munish Khanna
17	21.05.2022	3:10 PM - 4:50 PM	2	Classification Techniques	Dr.Munish Khanna
18	23.05.2022	3:10 PM - 4:50 PM	2	SVM Classifier,	Dr.Munish Khanna
Total Number of Lectures covered			**36 (30 Hrs)**		

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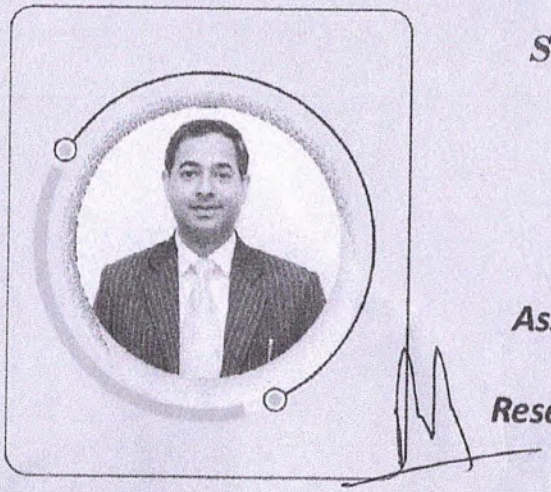
DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2105 - Nature Inspired Engineering and Innovation

18th Sep – 31st Dec, 2021 - Every Saturday: 10:00 AM – 12:00 PM



Students From Any Branch Can Join the Course

By

Dr. Ajay Kumar Sharma

Associate Professor & Head, Department of Biotechnology

Research interests: Application of nature inspired concepts in engineering and innovation

Registration Dates

13th – 16th Sep, 2021

For Registration: Please contact
Mr. Raj Kumar, Office Staff

Prerequisites: Basic interest in Natural phenomenon and good observational skills.

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2101 - Nature Inspired Engineering and Innovation

18th Sep – 31st Dec, 2021 - Every Saturday: 10:00 AM – 12:00 PM

Course Objectives

1. Understand the fundamentals of nature-inspired engineering and its significance in innovation.
2. Explore various principles and strategies derived from nature for engineering design and problem-solving.
3. Analyze and evaluate real-world case studies of nature-inspired engineering solutions.
4. Develop critical thinking and creativity to apply nature-inspired principles in engineering projects.
5. Foster an understanding of sustainability and ethical considerations in engineering practices.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Nature-Inspired Engineering: Definition and scope of nature-inspired engineering, Historical overview and notable examples of nature-inspired innovations, Benefits and challenges of nature-inspired approaches, Case studies illustrating successful applications of nature-inspired engineering	CO1
2	Principles of Biomimicry: Introduction to biomimicry and its relevance in engineering, Fundamental principles of biomimetic design, Analysis of biological systems for engineering inspiration, Biomimetic materials and structures in engineering applications	CO2
3	Biomaterials and Bioinspired Materials: Introduction to biomaterials and their properties, Bioinspired materials: hierarchical structures and functional properties, Design and fabrication of bioinspired materials for engineering applications	CO3
4	Nature-Inspired Energy Systems: Energy harvesting from nature: solar, wind, and tidal energy, Bio-inspired energy conversion and storage systems, Biomimetic approaches for energy-efficient engineering	CO4
5	Sustainability and Ethics in Nature-Inspired Engineering: Environmental sustainability in engineering design, Ethical considerations in nature-inspired engineering, Responsible innovation and social impact assessment	CO5

Prerequisites: Basic interest in Natural phenomenon and good observational skills.

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2101 - Nature Inspired Engineering and Innovation

18th Sep – 31st Dec, 2021 - Every Saturday: 10:00 AM – 12:00 PM

Course Outcomes

CO1	*Understand the scope, benefits, challenges, and successful applications of nature-inspired engineering.*
CO2	*Apply fundamental principles of biomimetic design and analyze biological systems for engineering inspiration.*
CO3	*Learn the approaches used in bioinspired materials with hierarchical structures and functional properties.*
CO4	*Utilize biomimetic approaches for energy-efficient engineering and energy conversion/storage systems.*
CO5	*Incorporate environmental sustainability, ethical considerations, and responsible innovation in nature-inspired engineering practices.*

CO-PO & CO-PSO Mapping

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		1	1											
CO2	2	2	3	2					1	1			3	
CO3			3	1	1				1				1	
CO4	2	2	3	2					1	1			3	1
CO5			2			2	3	3						
Average	2	1.67	2.4	1.67	1	2	3	3	1	1			2.33	1

Evaluation Criteria: Class participation, engagement in discussions, quizzes, assignments, group projects, presentations

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2105- Nature Inspired Engineering and Innovation

18th Sep – 31st Dec, 2021 - Every Saturday: 10:00 AM – 12:00 PM

Program Schedule

Session	Date	Time	No. of Hours	Session Topic	Resource Person
1	18-09-2021	10:00 AM - 12:00 PM	2	Definition and scope of nature-inspired engineering	Dr. Ajay Kumar Sharma
2	25-09-2021	10:00 AM - 12:00 PM	2	Historical overview and notable examples of nature-inspired innovations	Dr. Ajay Kumar Sharma
3	09-10-2021	10:00 AM - 12:00 PM	2	Introduction to biomimicry and its relevance in engineering	Dr. Ajay Kumar Sharma
4	23-10-2021	10:00 AM - 12:00 PM	2	Fundamental principles of biomimetic design	Dr. Ajay Kumar Sharma
5	30-10-2021	10:00 AM - 12:00 PM	2	Introduction to biomaterials and their properties	Dr. Ajay Kumar Sharma
6	13-11-2021	10:00 AM - 12:00 PM	2	Bioinspired materials: hierarchical structures and functional properties	Dr. Ajay Kumar Sharma
7	20-11-2021	10:00 AM - 12:00 PM	2	Design and fabrication of bioinspired materials	Dr. Ajay Kumar Sharma
8	04-12-2021	10:00 AM - 12:00 PM	2	Energy harvesting from nature: solar, wind, and tidal energy	Dr. Ajay Kumar Sharma
9	11-12-2021	10:00 AM - 12:00 PM	2	Bio-inspired energy conversion and storage systems	Dr. Ajay Kumar Sharma
10	18-12-2021	10:00 AM - 12:00 PM	2	Environmental sustainability in engineering design	Dr. Ajay Kumar Sharma
11	28-12-2021	10:00 AM - 12:00 PM	2	Ethical considerations in nature-inspired engineering	Dr. Ajay Kumar Sharma
12	29-12-2021	10:00 AM - 5:00 PM	6	Hands-on projects applying nature-inspired engineering principles,	Dr. Ajay Kumar Sharma
13	30-12-2021	10:00 AM - 5:00 PM	6	Design and prototyping of nature-inspired solutions and presentations	Dr. Ajay Kumar Sharma
14	31-12-2021	10:00 AM - 12:00 PM	2	Design and prototyping of nature-inspired solutions & presentations	Dr. Ajay Kumar Sharma
Total number of hours covered			36		

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ON

ANDROID PROGRAMMING (VACIT-002)

24th April 2021 - 29th June 2021

(Session: 2020 - 2021)

Registration Date: 15 April 2021 - 19 April 2021

For Registration, Please contact:

Mr. Mohit Singh

Assistant Professor, IT

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THE DEPARTMENT

Department of Information Technology was established in the year 1999 with an objective of imparting quality education in the field of Information Technology. Department of IT was accredited by National board of Accreditation (NBA) in 2006.

The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the Industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT
THE PROGRAM

The program is designed to impart a comprehensive understanding of Android development to its participants. The course covers four modules, starting with the basics of Android, including its history and version, setup of Android Studio, and the internal workings of the platform. The second module focuses on Java programming concepts and their application in Android development. In the third module, the participants will learn about various layout managers and UI widgets, and how to design engaging and user-friendly interfaces. The fourth module delves into the usage of fragments, menus, adapters and views, which are important components of any Android application. By the end of the course, participants will have a solid foundation in Android development, and will be able to build their own Android applications with confidence. The course provides hands-on experience through practical examples and exercises, ensuring that participants can apply their knowledge in real-world scenarios.

Objectives

1. To impart a comprehensive understanding of the Android platform and its history.
2. To provide hands-on experience in using Android Studio for developing Android applications.
3. To build a solid foundation in Java programming concepts and their application in Android development.
4. To familiarize students with the design and implementation of user interfaces using various layout managers and UI widgets.
5. To equip students with the skills to use fragments, menus, adapters and views to create dynamic and flexible Android applications.

COURSE
OUTCOMES

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

CO-1:
Understand Android fundamentals, setup development environment, and utilize core building blocks.

CO-2:
Master Java programming, including classes, methods, abstraction, inheritance, exception handling, and threading.

CO-3:
Design layouts, develop activities, handle intents, and utilize UI widgets for interactive Android applications.

CO-4:
Develop dynamic fragments, implement menus, use adapters, and work with various views in Android applications.

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CO-PO-PSO MAPPING

Android Programming (VACIT-002)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	1	3	3	2	3	3	-	2	3	-	-	1	3	1	-
CO-2	2	3	2	2	3	2	-	1	3	-	-	2	3	2	-
CO-3	2	1	3	3	3	3	-	2	3	-	-	2	3	2	-
CO-4	2	2	-	3	3	3	-	2	2	-	-	2	3	3	-
Avg	1.75	2.25	2.67	2.50	3.00	2.75	0.00	1.75	2.75	0.00	0.00	1.75	3.00	2.00	0.00

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

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COURSE OUTLINE

Android Programming (VACIT-002)

Module 1: Basics of Android

- What is Android, History and Version
- Installing softwares, Setup Android Studio,
- Hello Android example,
- Internal Details, Dalvik VM, Software Stack
- Android Core Building Blocks, Android Emulator,
- AndroidManifest.xml

Module 2 : Basics of Java & Programming concepts

- Classes & Objects
- Methods, Method Overriding, Method Overloading
- Abstraction, Encapsulation,
- Polymorphism, Inheritance
- Constructor, Inner Class, Anonymous class, Abstract Class, Interface,
- Exception Handling, Packages, Thread

Module 3 : Layout Manager, Activity, Intent & UI Widgets

- Relative Layout, Linear Layout, Absolute Layout, Table Layout, Grid Layout
- Activity Lifecycle, Activity Example
- Implicit Intent, Explicit Intent
- Working with Text View, Edit Text, Button, Toast, Radio Button,
- Toggle Button, Switch Button, Image Button, Check Box, Image View, Alert Dialog, Spinner, Rating Bar,
- Progress Bar, Analog Clock and Digital Clock

Module 4 : Fragment, Android Menu, Adaptor & View

- Fragment Lifecycle, Fragment Example, Dynamic Fragment
- Option Menu, Context Menu, Popup Menu
- Array Adaptor, ArrayList Adaptor, Base Adaptor
- GridView, WebView, ScrollView, SearchView
- TabHost, DynamicListView, ExpandedListView

Text Book/References:

- "Android Application Development for Dummies" by Michael Burton
- "Java: The Complete Reference" by Herbert Schildt

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LECTURE PLAN

Android Programming (VACIT-002)

Module 1: Basics of Android

Lecture 1: Introduction to Android
Lecture 2: Setting up Android Studio
Lecture 3: Hello Android Example
Lecture 4: Android Core Building Blocks
Lecture 5: Dalvik VM and Android Software Stack
Lecture 6: Android Emulator
Lecture 7: Internal Details of Android
Lecture 8: Android Development Tools
Lecture 9: Google Play Store
Lecture 10: Recap and Revision

Module 2: Basics of Java & Programming concepts

Lecture 11: Introduction to Java
Lecture 12: Java Classes and Objects
Lecture 13: Java Methods
Lecture 14: Java Abstraction and Encapsulation
Lecture 15: Java Polymorphism and Inheritance
Lecture 16: Java Exception Handling
Lecture 17: Java Packages
Lecture 18: Java Threads
Lecture 19: Java Collections Framework
Lecture 20: Recap and Revision

Module 3: Layout Manager, Activity, Intent & UI Widgets

Lecture 21: Layout Managers in Android
Lecture 22: Android Activities and Activity Lifecycle
Lecture 23: Intents and Intent Filters
Lecture 24: Android UI Widgets
Lecture 25: Alert Dialog and Other UI Widgets

Module 4: Fragment, Android Menu, Adaptor & View

Lecture 26: Introduction to Fragments
Lecture 27: Android Menus
Lecture 28: Adaptors in Android
Lecture 29: Views in Android
Lecture 30: Recap and Revision

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ON

PROBLEM SOLVING USING C AND C++ (VACIT-001)

24th April 2021 - 29th June 2021

(Session: 2020 - 2021)

Registration Date: 12 April 2021 - 17 April 2021

For Registration, Please contact:

Mr. Ajay Raj Parashar

Assistant Professor, IT

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The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT

THE PROGRAM

This program is designed to provide a comprehensive overview of C/C++ programming. The syllabus covers a range of topics including functions, arrays and pointers, secure coding practices, exception handling and assertions, disk files and I/O, and generic programming with templates. Through practical exercises and problem sets, students will develop the skills to write efficient and secure code in C/C++. The course also covers the dynamic memory allocation model and the use of smart pointers to mitigate common memory pitfalls. In addition, students will have the opportunity to work with the Standard Template Library and understand its various components such as containers, iterators, and algorithms. This program provides a comprehensive learning experience for anyone looking to enhance their C/C++ programming skills. By the end of the program, students will be well-equipped to tackle complex coding projects and have a deep understanding of how to write efficient and secure code in C/C++.

Objectives

1. To provide a comprehensive overview of C/C++ programming and its various components.
2. To equip students with the skills to write efficient and secure code through the use of functions, arrays and pointers, and secure coding practices.
3. To teach students how to handle errors and exceptions in their code, and implement proper error handling and assertions.
4. To introduce students to the dynamic memory allocation model, including smart pointers and common memory pitfalls.
5. To help students understand and utilize the Standard Template Library and its various components, including containers, iterators, algorithms, and customizing and extending the STL. Allowing them to perform real-world data analysis and extract insights.

COURSE

OUTCOMES

CO-1:
Understand functions and write efficient, secure code in C/C++.

CO-2:
Analyze and use arrays, pointers, dynamic memory allocation, and type inference.

CO-3:
Identify and prevent common string and integer errors using secure coding practices.

CO-4:
Implement error handling, assertions, exceptions, stack unwinding, disk files, I/O streams, and the standard template library (STL), including customization and extension

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CO-PO-PSO MAPPING

Problem Solving using C and C++ (VACIT-001)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	-	3	-	3	2	-	-	2	2	3	-
CO-2	2	3	3	3	-	1	-	2	2	-	-	2	3	3	-
CO-3	1	2	-	2	1	1	-	-	2	-	-	2	3	2	-
CO-4	3	2	2	3	3	3	-	3	2	-	2	2	3	3	-
Avg	2.25	2.50	2.33	2.50	2.00	2.00	0.00	2.67	2.00	0.00	2.00	2.00	2.75	2.75	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
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COURSE OUTLINE

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

- Introduction to functions
- Alt function syntax
- Function return type deduction
- Static, const, and inline functions
- Default parameters
- Overloaded functions (operator and members)
- Friend Functions
- Overriding functions

Module 2: Arrays and Pointers in C/C++

- Introduction to arrays and pointers
- Smart pointers
- Pointers and dynamic memory allocation
- Type inference
- Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

- Common string, integer, and dynamic memory allocation errors
- Integer and dynamic memory allocation vulnerabilities
- String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

- Introduction to errors and exceptions
- Exception mechanisms
- Exceptions and polymorphism
- Stack unwinding and cleanup
- Common error handling issues
- Using streams for input and output
- String streams, file streams, and bidirectional I/O
- Dynamic memory allocation model
- Working with dynamic memory, array-pointer duality, and smart pointers.

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Text Book/References:

- Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.

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LECTURE PLAN

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

Lecture 1: Introduction to functions

Lecture 2: Alt function syntax

Lecture 3: Function return type deduction

Lecture 4: Static, const, and inline functions

Lecture 5: Default parameters

Lecture 6: Overloaded functions (operator and members)

Lecture 7: Friend Functions

Lecture 8: Overriding functions

Module 2: Arrays and Pointers in C/C++

Lecture 9: Introduction to arrays and pointers

Lecture 10: Smart pointers

Lecture 11: Pointers and dynamic memory allocation

Lecture 12: Type inference

Lecture 13: Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

Lecture 14: Common string, integer, and dynamic memory allocation errors

Lecture 15: Integer and dynamic memory allocation vulnerabilities

Lecture 16: String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

Lecture 17: Introduction to errors and exceptions

Lecture 18: Exception mechanisms

Lecture 19: Exceptions and polymorphism

Lecture 20: Stack unwinding and cleanup

Lecture 21: Common error handling issues

Lecture 22: Using streams for input and output

Lecture 23: String streams, file streams, and bidirectional I/O fstream

Lecture 24: Dynamic memory allocation model

Lecture 25: Working with dynamic memory, array-pointer duality, and smart pointers

Lecture 26: Review of functions in C/C++

Lecture 27: Review of arrays and pointers in C/C++indirections

Lecture 28: Review of secure coding practices in C/C++

Lecture 29: Review of exception handling and I/O in C/C++

Lecture 30: Final Exam Review

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2001 – SOLAR TECHNOLOGY

8th AUG '2020 –12th DEC 2020 - Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Mr. Vivek Agrawal
Assistant Professor, Electrical & Electronics Engineering
Research Interest: Control System

Registration Dates
25st Jul 2020 – 30th Jul 2020
For Registration: Please contact
Mr. Sunil Pathak, Office Staff, Department of EEE

Prerequisites: Basics Electrical Engineering

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2001 – SOLAR TECHNOLOGY

8th AUG '2020 –12th DEC 2020 - Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1) Understand the fundamental principles of solar energy and its conversion to electrical power.
2) Explore different types of solar panels and their working mechanisms.
3) Learn about the components and design considerations of solar photovoltaic systems.
4) Gain hands-on experience in solar panel installation, wiring, and troubleshooting.
5) Analyze the economic and environmental aspects of solar energy.
6) Stay updated with the latest advancements in solar technology and future trends.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Solar Energy : Overview of renewable energy sources, solar radiation and its measurement, Solar energy conversion technologies, Photovoltaic effect and solar cell operation, Environmental and economic benefits of solar energy	CO1
2	Solar Panel Technology : Types of solar panels: monocrystalline, polycrystalline, thin-film, etc., Construction and working principles of solar panels, Efficiency, power output, and degradation of solar panels, Factors affecting solar panel performance, Comparison of different solar panel technologies	CO2
3	Solar Photovoltaic Systems : System components: solar panels, inverters, charge controllers, batteries, etc., System design considerations: load estimation, sizing, shading analysis, Grid-tied vs. off-grid systems, Performance monitoring and maintenance of solar PV systems, Safety protocols and regulations for solar installations	CO3
4	Solar Panel Installation and Troubleshooting : Hands-on installation of solar panels on various surfaces, Mounting techniques and wiring practices, Electrical safety and code compliance, Testing and commissioning of solar PV systems, Troubleshooting common issues in solar installations	CO4
5	Advanced Topics and Future Trends : Emerging technologies in solar energy, Energy storage solutions for solar systems, Integration of solar power with smart grids, Policy and market trends in the solar industry, Research and development opportunities in solar technology	CO5

Prerequisites: Basic Electrical Engineering

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Value Added Course

VEE2001 – SOLAR TECHNOLOGY

8th AUG '2020 –12th DEC 2020 - Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1 Students will gain a comprehensive understanding of the fundamental principles underlying solar energy, including the behavior of photons, the conversion of sunlight into electricity, and the various types of solar technologies.

CO2 Students will learn how to design and analyze solar systems, including photovoltaic (PV) systems and solar thermal systems. They will acquire the necessary skills to assess the energy requirements, evaluate site conditions, determine system sizing, and optimize the performance of solar installations.

CO3 Students will develop the ability to assess the solar energy potential of different locations. They will learn how to analyze solar radiation data, evaluate shading effects, and calculate the expected energy output of solar systems in order to make informed decisions regarding system deployment.

CO4 Students will explore the integration of solar technology with existing energy systems, such as the electrical grid and buildings. They will learn about the challenges and opportunities associated with grid-tied solar systems, net metering, energy storage, and the incorporation of solar energy into building design and construction.

CO5 The course will cover the broader aspects of solar technology, including its environmental sustainability and the policy frameworks that govern its implementation.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												2	3
CO2	3	3	3										3	2
CO3	3	3	3		3	3						3	3	3
CO4	3	3	3		3	3						3	3	3
CO5	3	3	3		3	3						3	3	3
Average	3	3	3		3	3						3	3	2.8

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE2001 – SOLAR TECHNOLOGY

8th AUG '2020 –12th DEC 2020 - Every Saturday: 3:00 PM – 5:00 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	08/08/2020	3:00 PM - 5:00 PM	2	Introduction to Solar Energy	Mr. Vivek Agrawal
2	22/08/20	3:00 PM - 5:00 PM	2	Photovoltaic (PV) Cells and Modules	Mr. Vivek Agrawal
3	29/08/20	3:00 PM - 5:00 PM	2	Solar Panel Design and Installation	Mr. Vivek Agrawal
4	05/09/20	3:00 PM - 5:00 PM	2	Solar Energy Conversion Systems	Mr. Vivek Agrawal
5	12/09/20	3:00 PM - 5:00 PM	2	Solar Power Electronics	Mr. Vivek Agrawal
6	19/09/20	3:00 PM - 5:00 PM	2	Solar Resource Assessment and Site Analysis	Mr. Vivek Agrawal
7	26/09/2020	3:00 PM - 5:00 PM	2	Solar Thermal Systems	Mr. Vivek Agrawal
8	03/10/20	3:00 PM - 5:00 PM	2	Concentrated Solar Power (CSP)	Mr. Vivek Agrawal
9	10/10/20	3:00 PM - 5:00 PM	2	Solar Energy Storage	Mr. Vivek Agrawal
10	17/10/20	3:00 PM - 5:00 PM	2	Solar System Economics and Policy	Mr. Vivek Agrawal
11	31/10/20	3:00 PM - 5:00 PM	2	Solar Energy Integration and Grid Interconnection	Mr. Vivek Agrawal
12	07/11/20	3:00 PM - 5:00 PM	2	Solar Energy Applications	Mr. Vivek Agrawal
13	21/11/20	3:00 PM - 5:00 PM	2	Solar Energy in Developing Countries	Mr. Vivek Agrawal
14	28/11/20	3:00 PM - 5:00 PM	2	Solar Energy and the Environment	Mr. Vivek Agrawal
15	05/11/20	3:00 PM - 5:00 PM	2	Emerging Trends in Solar Technology	Mr. Vivek Agrawal
16	12/12/20	3:00 PM - 5:00 PM	2	Solar Energy Storage	Mr. Vivek Agrawal
Total Number of Hours covered			**32**		

Director
Hindustan College of
Science & Technology
FARAH (MATHURA)

Head
Dept. of Electrical & Electronics Engg.
Hindustan College of Science & Technology
Farah, Mathura

HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY,
FARAH -MATHURA

Value Added Course

VCE 2003 - Introduction to STAAD Pro.V8i

2nd April 2021 – 30th July 2021 - Every Friday: 3:10 PM – 4:50 PM

By

Mr. Kuldeep Kushwaha
Assistant Professor, Civil Engineering
Hindustan College of Science & Technology, Farah (Mathura)

Registration Dates
22nd March 2021 – 27th March 2021

For Registration: Please contact
Mr. Anil Kashyap, Office Staff, Department of CE

Prerequisites: Basic computer knowledge, knowledge about structural elements (support conditions, beams, columns, slabs etc.) and IS codes.

H.O.D.
Civil Engineering Department
Farah, Mathura

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2003 - Introduction to STAAD Pro.V8i

2nd April 2021 – 30th July 2021 - Every Friday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. To learn about structural analysis and design using Staad Pro. V8i.
2. To learn about modelling and design of various structures.
3. To learn about use of various IS codes in building designs

Course Syllabus

Units	Details	Course Outcomes
1	Introduction to Staad Pro, Study of various loads on structures and IS codes for design,	CO1
2	Analysis of Continuous beam, Analysis of Steel truss, analysis of single storeyed frame.	CO2
3	Analysis of Electrical Transmission Tower, Overhead Rectangular and Circular Water Tank, Analysis of Multi-storeyed frames.	CO3
4	Design of beams, columns, slabs and Steel Truss, Multi-storeyed building	CO4
5	Analysis of Footings and Bridge Deck	CO5

Prerequisites: Basic computer knowledge, knowledge about structural elements (support conditions, beams, columns, slabs, etc.) and IS codes.

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2003 - Introduction to STAAD Pro.V8i

2nd April 2021 – 30th July 2021 - Every Friday: 3:10 PM – 4:50 PM

Course Outcomes:

After completion of the course student will be able to:

CO1 *Understand the scope of Staad Pro in structural modelling, analysis and design.*

CO2 *complete object-oriented instinctive 2D/3D graphic model generation.*

CO3 *Analyse various 2D structural elements like beams, columns, trusses, slabs etc.*

CO4 *Analyse 3D structures like Transmission Tower, overhead water tank, multi-storey buildings etc.*

CO5 *Use of IS codes in RCC, STEEL and SEISMIC design of various structural elements.*

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	2											2		
CO2	2	3											2		
CO3	2	3											2		
CO4	2	3	3										2	3	
CO5	2	3											2		
Average	2	3	3										2	3	

Evaluation Criteria: 1. Evaluation of Practical Exam, Viva/Quiz

Department of Civil Engg.
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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2003 - Introduction to STAAD Pro.V8i

2nd April 2021 – 30th July 2021 - Every Friday: 3:10 PM – 4:50 PM

Course Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	02-04-2021	03:10 PM - 04:50 PM	2	Topic 1: Introduction to Staad Pro, Study of various loads on structures and IS codes for design	Mr. Kuldeep Kushwaha
2	09-04-2021	03:10 PM - 04:50 PM	2	Topic 2: Analysis of continuous beam	Mr. Kuldeep Kushwaha
3	16-04-2021	03:10 PM - 04:50 PM	2	Topic 3: Analysis of steel truss	Mr. Kuldeep Kushwaha
4	23-04-2021	03:10 PM - 04:50 PM	2	Topic 4: Analysis of single storeyed frame	Mr. Kuldeep Kushwaha
5	07-05-2021	03:10 PM - 04:50 PM	2	Topic 5: Analysis of electrical transmission tower	Mr. Kuldeep Kushwaha
6	14-05-2021	03:10 PM - 04:50 PM	2	Topic 6: Analysis of overhead rectangular water tank	Mr. Kuldeep Kushwaha
7	21-05-2021	03:10 PM - 04:50 PM	2	Topic 7: Analysis of circular water tank	Mr. Kuldeep Kushwaha
8	04-06-2021	03:10 PM - 04:50 PM	2	Topic 8: Analysis of multi-storeyed frames	Mr. Kuldeep Kushwaha
9	11-06-2021	03:10 PM - 04:50 PM	2	Topic 9: Design of beams	Mr. Kuldeep Kushwaha
10	18-06-2021	03:10 PM - 04:50 PM	2	Topic 10: Design of columns	Mr. Kuldeep Kushwaha
11	25-06-2021	03:10 PM - 04:50 PM	2	Topic 11: Design of Slabs	Mr. Kuldeep Kushwaha
12	02-07-2021	02:20 PM - 04:50 PM	3	Topic 12: Design of multi-storeyed buildings	Mr. Kuldeep Kushwaha
13	09-07-2021	02:20 PM - 04:50 PM	3	Topic 13: Analysis of Footings	Mr. Kuldeep Kushwaha
14	16-07-2021	02:20 PM - 04:50 PM	3	Topic 14: Analysis of Bridge Deck	Mr. Kuldeep Kushwaha
15	23-07-2021	02:20 PM - 04:50 PM	3	Quiz and Practical Exam	Mr. Kuldeep Kushwaha
16	30-07-2021	03:10 PM - 04:50 PM	2	Evaluation of Quiz and Practical Exam	Mr. Kuldeep Kushwaha
Total Number of Lectures covered			36 (30 Hrs.)		

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HOD
Department of Civil Engg.
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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE 2003 - Introduction to STAAD Pro.V8i

2nd April 2021 – 30th July 2021 - Every Friday: 3:10 PM – 4:50 PM

Course Execution

Session	Date	Time	No of-Lectures	Session Topic	Resource Person
1	02-04-2021	03:10 PM - 04:50 PM	2	Topic 1: Introduction to Staad Pro, Study of various loads on structures and IS codes for design	Mr. Kuldeep Kushwaha
2	09-04-2021	03:10 PM - 04:50 PM	2	Topic 2: Analysis of Continuous beam	Mr. Kuldeep Kushwaha
3	16-04-2021	03:10 PM - 04:50 PM	2	Topic 3: Analysis of Steel truss	Mr. Kuldeep Kushwaha
4	23-04-2021	03:10 PM - 04:50 PM	2	Topic 4: analysis of single storeyed frame	Mr. Kuldeep Kushwaha
5	07-05-2021	02:20 PM - 04:50 PM	3	Topic 5: Analysis of Electrical Transmission Tower	Mr. Kuldeep Kushwaha
6	14-05-2021	03:10 PM - 04:50 PM	2	Topic 6: Analysis of overhead rectangular water tank	Mr. Kuldeep Kushwaha
7	21-05-2021	03:10 PM - 04:50 PM	2	Topic 7: Analysis of overhead circular water tank	Mr. Kuldeep Kushwaha
8	04-06-2021	02:20 PM - 04:50 PM	3	Topic 8: Analysis of multi-storeyed frames	Mr. Kuldeep Kushwaha
9	11-06-2021	03:10 PM - 04:50 PM	2	Topic 8: Design of beams	Mr. Kuldeep Kushwaha
10	18-06-2021	03:10 PM - 04:50 PM	2	Topic 9: Design of columns	Mr. Kuldeep Kushwaha
11	25-06-2021	03:10 PM - 04:50 PM	3	Topic 9: Design of multi-storeyed building	Mr. Kuldeep Kushwaha
12	09-07-2021	02:20 PM - 04:50 PM	3	Topic 10: Design of slabs and steel trusses,	Mr. Kuldeep Kushwaha
13	16-07-2021	02:20 PM - 04:50 PM	3	Topic 12: Analysis of footings and bridge Deck	Mr. Kuldeep Kushwaha
14	23-07-2021	02:20 PM - 04:50 PM	3	Quiz & Practical Exam	Mr. Kuldeep Kushwaha
15	30-07-2021	03:10 PM - 04:50 PM	2	Evaluation of Quiz and Practical Exam	Mr. Kuldeep Kushwaha
Total Number of Lectures covered			36 (30 Hrs.)		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701-Process Equipment Design

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Anurag Bajpai
HOD -Chemical Engineering

Registration Dates
6th July 2020 – 10th July 2020
For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

Head
Department of Chemical Engg.
Hindustan College of Science & Technology
Farah, Mathura

Director
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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC -1701* - Process Equipment Design**

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

Head
Department of Chemical Engg.
Hindustan College of Science & Technology
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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701 - **Process Equipment Design**

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC-1701* - Process Equipment Design**

Program Schedule

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	25-07-2020	3:10 PM – 4:50 PM	2	Topic 1: Design project procedure, design information from the literature	Mr. Anurag Bajpai
2	01-08-2020	3:10 PM – 4:50 PM	2	Topic 2: Flow diagrams, preliminary design	Mr. Anurag Bajpai
3	08-08-2020	3:10 PM – 4:50 PM	2	Topic 3: Comparison of different processes, equipment design	Mr. Anurag Bajpai
4	22-08-2020	3:10 PM – 4:50 PM	2	Topic 4: Scale-up in design, Materials of construction	Mr. Anurag Bajpai
5	29-08-2020	3:10 PM – 4:50 PM	2	Topic 5: Selection of materials, fabrication of equipment	Mr. Anurag Bajpai
6	05-09-2020	3:10 PM – 4:50 PM	2	Topic 6: Pressure vessels – calculation of thickness of cylindrical and spherical shells	Mr. Anurag Bajpai
7	12-09-2020	3:10 PM – 4:50 PM	2	Topic 7: Subjected to internal pressure, heads or covers	Mr. Anurag Bajpai
8	19-09-2020	3:10 PM – 4:50 PM	2	Topic 8: Storage vessels – storage of nonvolatile liquids, storage of volatile liquids	Mr. Anurag Bajpai
9	26-09-2020	3:10 PM – 4:50 PM	2	Topic 9: Storage of gases. Supports for vessels – bracket or lug supports	Mr. Anurag Bajpai
10	03-10-2020	3:10 PM – 4:50 PM	2	Topic 10: Leg supports, skirt supports, saddle supports	Mr. Anurag Bajpai
11	10-10-2020	3:10 PM – 4:50 PM	2	Topic 11: Design of double pipe heat exchangers	Mr. Anurag Bajpai
12	17-10-2020	3:10 PM – 4:50 PM	2	Topic 12: Shell and tube heat exchangers (1-2,2-4), optimum design and heat recovery	Mr. Anurag Bajpai
13	24-10-2020	3:10 PM – 4:50 PM	2	Topic 13: Selection of suitable heat exchanger	Mr. Anurag Bajpai
14	31-10-2020	3:10 PM – 4:50 PM	2	Topic 14: Design of single and multiple effect evaporators without boiling point elevation	Mr. Anurag Bajpai
15	07-11-2020	3:10 PM – 4:50 PM	2	Topic 15: Finite-stage contactors- bubble cap tray, sieve tray and valve tray units	Mr. Anurag Bajpai
16	14-11-2020	3:10 PM – 4:50 PM	2	Topic 16: Maximum allowable vapor velocities, plate and column efficiency, other design factors	Mr. Anurag Bajpai
17	21-11-2020	3:10 PM – 4:50 PM	2	Topic 17: Continuous contactors – types of packing, liquid distribution, pressure drop	Mr. Anurag Bajpai
18	28-11-2020	3:10 PM – 4:50 PM	2	Topic 18: Packing efficiencies. Relative merits of plate and packed towers, selection of contacting equipment	Mr. Anurag Bajpai
Total Number of Hours covered			**36 (30 Hours)**		

Head
Department of Chemical Engg.
Hindustan College of Science & Technology
Farah, Mathura

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SHARDA GROUP

HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702-Solid Waste Management

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Sandeep Kumar Verma
Chemical Engineering

Registration Dates
6th July 2020 – 10th July 2020
For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

Head
Department of Chemical Engg.
Hindustan College of Science & Technology
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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC -1702* -Solid Waste Management**

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

Head
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC-1702* - Solid Waste Management**

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702 - **Solid Waste Management**

Program Schedule

18th July '2020 – 28th Nov 2020 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	25-07-2020	3:10 PM – 4:50 PM	2	Topic 1:Logistics, importance, methods of logistics	Dr. Sandeep Kumar Verma
2	01-08-2020	3:10 PM – 4:50 PM	2	Topic 2:human components, technological components	Dr. Sandeep Kumar Verma
3	08-08-2020	3:10 PM – 4:50 PM	2	Topic 3:waste handling equipment and technology	Dr. Sandeep Kumar Verma
4	22-08-2020	3:10 PM – 4:50 PM	2	Topic 4:managerial goals, steps in waste management logistics	Dr. Sandeep Kumar Verma
5	29-08-2020	3:10 PM – 4:50 PM	2	Topic 5:Environmental aspects of waste collection	Dr. Sandeep Kumar Verma
6	05-09-2020	3:10 PM – 4:50 PM	2	Topic 6:role of public authority and private sector in waste collection	Dr. Sandeep Kumar Verma
7	12-09-2020	3:10 PM – 4:50 PM	2	Topic 7:organizing collection of residential waste	Dr. Sandeep Kumar Verma
8	19-09-2020	3:10 PM – 4:50 PM	2	Topic 8: fee schemes, public awareness programs	Dr. Sandeep Kumar Verma
9	26-09-2020	3:10 PM – 4:50 PM	2	Topic 9:source-segregated waste	Dr. Sandeep Kumar Verma
10	03-10-2020	3:10 PM – 4:50 PM	2	Topic 10:Purpose of source segregation	Dr. Sandeep Kumar Verma
11	10-10-2020	3:10 PM – 4:50 PM	2	Topic 11:segregation criteria and guidance	Dr. Sandeep Kumar Verma
12	17-10-2020	3:10 PM – 4:50 PM	2	Topic 12:segregation potential and efficiencies	Dr. Sandeep Kumar Verma
13	24-10-2020	3:10 PM – 4:50 PM	2	Topic 13:systems for collecting segregated fraction	Dr. Sandeep Kumar Verma
14	31-10-2020	3:10 PM – 4:50 PM	2	Topic 14:Waste delivery, waste transfer	Dr. Sandeep Kumar Verma
15	07-11-2020	3:10 PM – 4:50 PM	2	Topic 15: transportation of the reloaded waste	Dr. Sandeep Kumar Verma
16	14-11-2020	3:10 PM – 4:50 PM	2	Topic 16:siting and Design of waste transfer station	Dr. Sandeep Kumar Verma
17	21-11-2020	3:10 PM – 4:50 PM	2	Topic 17:economical considerations, recycling solid wastes	Dr. Sandeep Kumar Verma
18	28-11-2020	3:10 PM – 4:50 PM	2	Topic 18: materials recovery facilities	Dr. Sandeep Kumar Verma
Total Number of Hours covered			**36 (30 Hours)**		

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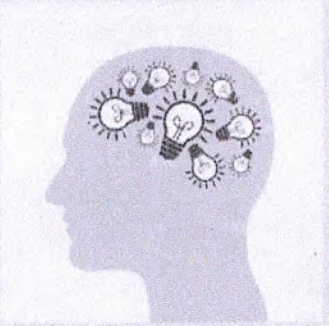
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2003 - - Internet of Things (IOT) with Data Analysis

20th Aug '2020 – 31st Dec 2020 – Every Thursday: 3:10 PM – 4:50 PM

Students From Any Branch Can Join the Course



By

Mr. Honey Kumar

Assistant Professor, Electronics & Communication Engineering

Research Interest: IoT based projects, VLSI Design

Registration Dates

5th Aug 2020 – 19th Aug 2020

For Registration: Please contact

Mr. Sanjay Gupta, Lab Techniques, Department of ECE

Prerequisites: Familiarity with fundamental data analysis concepts with basic knowledge of knowledge of sensors, transducer and programming in Python.

Director
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Dept. of Electronics & Comm. Engg.
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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2003 - - Internet of Things (IOT) with Data Analysis

20th Aug '2020 – 31st Dec 2020 – Every Thursday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. This course is designed to provide participants with a comprehensive understanding of Internet of Things (IoT) technologies and their integration with data analysis techniques. The course aims to equip students with the skills necessary to design, implement, and analyze IoT systems while harnessing the power of data to make informed decisions. Through a combination of theoretical concepts and hands-on exercises, students will gain proficiency in building IoT applications and utilizing data analysis tools.
2. Divided into five modules, we will learn by doing. We will start with basic definitions and concept of IoT and data analysis.
3. This course focuses on the latest microcontrollers with application development, product design and prototyping using IoT supported hardware. Ideally suited for engineering students and graduates with a basic understanding of electronics and microprocessors. They are also able to design & develop IoT Devices. Also understand the data collection from IoT devices and analysis of this data for getting appropriate information.

Course Syllabus

Units	Details	Course Out comes
1	**Introduction to IOT and Data Analysis** : What is Internet of Things ?, How Internet of Things works, How Things Talk to Internet, Exploring the role of data analysis in deriving insights from IoT-generated data, Overview of data collection, storage, and processing techniques for IoT data.	CO1
2	**IOT Architechture:** Three Layer Architecture, Four Layer Architecture, Five Layer Architecture	CO2
3	**Hardware:** Functional blocks of an IoT ecosystem, IoT – Sensors, Actuators, Wearable Electronics, Standard Devices, Smart Objects and Connecting Smart Objects	CO3
4	**Design and Development:** Design Methodology, Embedded computing logic, Microcontroller, System on Chips, IoT system building blocks, IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, Arduino Board	CO4
5	**Data Collection and Data Analysis for IOT:** Techniques for collecting data from sensors and IoT devices, Cleaning, filtering, and preprocessing IoT data for analysis, Introduction to data analysis techniques: descriptive, diagnostic, predictive, and prescriptive, Utilizing data analysis libraries and tools for IoT data	CO5

Prerequisites: Familiarity with fundamental data analysis concepts with basic knowledge of knowledge of sensors, transducer and programming in Python.

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2003 - - Internet of Things (IOT) with Data Analysis

20th Aug '2020 – 31st Dec 2020 – Every Thursday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Understand the fundamental concepts of IoT and its integration with data analysis.
CO2	Discuss the layered architecture of an IoT system and their operations.
CO3	Able to understand the use of various basic hardware to design an IoT system.
CO4	Design and development of IoT devices using IoT supported hardware platforms such as: Raspberry pi, Arduino Board.
CO5	Collect, preprocess and analyze IoT-generated data effectively.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											3	3	
CO2	3		3									3	3	
CO3	3	2	3									3	3	
CO4	3	2	2									3		
CO5	3	2	2									3		2
Average	3	2	2.5									3	3	

Evaluation Criteria: 1. Class attendance, Group project and its presentation, Quiz and Viva.

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC2003 - - Internet of Things (IOT) with Data Analysis

20th Aug '2020 – 31st Dec 2020 – Every Thursday: 3:10 PM – 4:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	20-08-2020	3:10 PM – 4:50 PM	2	Preamble of the course	Mr. Honey Kumar
2	27-08-2020	3:10 PM – 4:50 PM	2	Introduction to IOT : What is Internet of Things ?, How Internet of Things works, How Things Talk to Internet	Mr. Honey Kumar
3	03-09-2020	3:10 PM – 4:50 PM	2	Exploring the role of data analysis in deriving insights from IoT-generated data	Mr. Honey Kumar
4	10-09-2020	3:10 PM – 4:50 PM	2	Overview of data collection, storage, and processing techniques for IoT data.	Mr. Honey Kumar
5	17-09-2020	3:10 PM – 4:50 PM	2	IOT Architecture: Three Layer Architecture	Mr. Honey Kumar
6	24-09-2020	3:10 PM – 4:50 PM	2	Four Layer Architecture	Mr. Honey Kumar
7	01-10-2020	3:10 PM – 4:50 PM	2	Five Layer Architecture	Mr. Honey Kumar
8	08-10-2020	3:10 PM – 4:50 PM	2	Hardware: Functional blocks of an IoT ecosystem	Mr. Honey Kumar
9	22-10-2020	3:10 PM – 4:50 PM	2	IoT – Sensors, Actuators,	Mr. Honey Kumar
10	29-10-2020	3:10 PM – 4:50 PM	2	Wearable Electronics, Standard Devices	Mr. Honey Kumar
11	05-11-2020	3:10 PM – 4:50 PM	2	Smart Objects and Connecting Smart Objects	Mr. Honey Kumar
12	19-11-2020	3:10 PM – 4:50 PM	2	Design And Development: Design Methodology, Embedded computing logic	Mr. Honey Kumar
13	26-11-2020	3:10 PM – 4:50 PM	2	Microcontroller, System on Chips	Mr. Honey Kumar
14	03-12-2020	3:10 PM – 4:50 PM	2	IoT system building blocks	Mr. Honey Kumar
15	10-12-2020	3:10 PM – 4:50 PM	2	IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, Arduino Board	Mr. Honey Kumar
16	17-12-2020	3:10 PM – 4:50 PM	2	Data Collection and Data Analysis for IOT: Techniques for collecting data from sensors and IoT devices, Cleaning, filtering, and preprocessing IoT data for analysis	Mr. Honey Kumar
17	24-12-2020	3:10 PM – 4:50 PM	2	Introduction to data analysis techniques: descriptive, diagnostic, predictive, and prescriptive	Mr. Honey Kumar
18	31-12-2020	3:10 PM – 4:50 PM	2	Utilizing data analysis libraries and tools for IoT data.	Mr. Honey Kumar
Total Number of Lectures covered			**36 (30 Hours)**		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-20-21-VCS2003 - JAVA Programming through Object Oriented Concept

08th August'2020 – 26th December 2020- Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Dr. Munish Khanna
Associate Professor, HOD -Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
4th Aug 2020 – 6th Aug 2020
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-20-21-VCS2003 - JAVA Programming through Object Oriented Concept

08th August'2020 – 26th December 2020- Every Saturday: 3:00 PM – 5:00 PM

Course Syllabus

Course Objectives

The main objective of this value added course are as follows:

1. Understand the basic object oriented programming concepts and apply them in problem solving.
2. Illustrate inheritance concepts for reusing the program.
3. Demonstrate on the multi-tasking by using multiple threads.
4. Develop data-centric applications using JDBC.
5. Understand the basics of java console and GUI based programming.

Units	Details	Course Out comes
1	Introduction to Java : Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.	CO1
2	Basics of objects and classes in Java, Methods and objects, Inbuilt classes like String, Character, String Buffer, File, this reference	CO2
3	Inheritance in Java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in Java, Package in Java, UTIL package	CO3
4	IEvent handling in Java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing	CO4
5	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	CO5
6	Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally, Collections in java, Introduction to JavaBeans and Network Programming	CO5

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-20-21-VCS2003 - JAVA Programming through Object Oriented Concept

08th August'2020 – 26th December 2020- Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs
CO2	Read and make elementary modifications to Java programs that solve real-world problems
CO3	Validate input in a Java program
CO4	Identify and fix defects and common security issues in code.
CO5	Document a Java program using Javadoc and Use a version control system to track source code in a project.

CO-PO & CO-PSO Mappings

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-20-21-VCS2003 - JAVA Programming through Object Oriented Concept

08h August'2020 – 26th December 2020- Every Saturday: 3:00 PM – 5:00 PM

Program Schedule:

Session	Date	Time	No. of Hours	Session Topic	Resource Person
1	08-08-2020	3:00 PM - 5:00 PM	2	Introduction to Java : Basics of Java programming	Dr. Munish Khanna
2	22-08-2020	3:00 PM - 5:00 PM	2	Data types, Variables, Operators, Control structures including selection	Dr. Munish Khanna
3	29-08-2020	3:00 PM - 5:00 PM	2	Looping, Java methods, Overloading, Math class, Arrays in java.	Dr. Munish Khanna
4	05-09-2020	3:00 PM - 5:00 PM	2	Basics of objects and classes in java	Dr. Munish Khanna
5	12-09-2020	3:00 PM - 5:00 PM	2	Constructors, Finalizer, Visibility modifiers	Dr. Munish Khanna
6	19-09-2020	3:00 PM - 5:00 PM	2	Methods and objects, Inbuilt classes like String,	Dr. Munish Khanna
7	26-09-2020	3:00 PM - 5:00 PM	2	Character, String Buffer, File, this reference	Dr. Munish Khanna
8	03-10-2020	3:00 PM - 5:00 PM	2	Inheritance in java, Super and sub class, Overriding	Dr. Munish Khanna
9	10-10-2020	3:00 PM - 5:00 PM	2	Object class, Polymorphism, Dynamic binding,	Dr. Munish Khanna
10	17-10-2020	3:00 PM - 5:00 PM	2	Generic programming, Casting objects, Instance of operator	Dr. Munish Khanna
11	31-10-2020	3:00 PM - 5:00 PM	2	Abstract class, Interface in java, Package in java, UTIL package.	Dr. Munish Khanna
12	07-11-2020	3:00 PM - 5:00 PM	2	Event handling in java, Event types, Mouse and key events, GUI Basics .	Dr. Munish Khanna
13	21-11-2020	3:00 PM - 5:00 PM	2	Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, Text Fields, Text Areas, Combo Boxes, Lists	Dr. Munish Khanna
14	28-11-2020	3:00 PM - 5:00 PM	2	Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing	Dr. Munish Khanna
15	05-12-2020	3:00 PM - 5:00 PM	2	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	Dr. Munish Khanna
16	12-12-2020	3:00 PM - 5:00 PM	2	Thread life cycle and methods, Runnable interface	Dr. Munish Khanna
17	19-12-2020	3:00 PM - 5:00 PM	2	Thread synchronization, Exception handling with try-catch-finally, Collections in java,	Dr. Munish Khanna
18	26-12-2020	3:00 PM - 5:00 PM	2	Introduction to JavaBeans, Network Programming	Dr. Munish Khanna

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Department of Computer Science & Engineering

Description of Value Added Course:

Title of Value Added Course and Code:	***JAVA Programming through Object Oriented Concept(VCS2003)***
Duration	6 month (30 hours)
Session	2020-2021
Prerequisites	Knowledge of c++ programming and oops concepts
Course Objectives	The course should enable the students to: • Understand the basic object oriented programming concepts and apply them in problem solving. • Illustrate inheritance concepts for reusing the program. • Demonstrate on the multi-tasking by using multiple threads. • Develop data-centric applications using JDBC. • Understand the basics of java console and GUI based programming.
Course Description	• This course use object oriented programming concepts to solve real world problems. • Explain the concept of class and objects with access control to represent real world entities. • Demonstrate the behaviour of programs involving the basic programming constructs like control structures, constructors, string handling and garbage collection. • Use overloading methodology on methods and constructors to develop application programs. • Demonstrate the implementation of inheritance (multilevel, hierarchical and multiple) by using extend and implement keywords. • Describe the concept of interface and abstract classes to define generic classes. • Use dynamic and static polymorphism to process objects depending on their class. • Illustrate different techniques on creating and accessing packages (fully qualified name and import statements). • Understand the impact of exception handling to avoid abnormal termination of program using checked and unchecked exceptions. • Demonstrate the user defined exceptions by exception handling keywords (try, catch, throw, throws and finally). • Use multithreading concepts to develop inter process

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	communication. • Understand and implement concepts on file streams and operations in java programming for a given application programs • Describe the backend connectivity process in java program by using JDBC drivers. • Develop java application to interact with database by using relevant software component (JDBC Driver). 15. Understand the process
Course Takeaways (Outcome)	• Show competence in the use of the Java programming language in the development of small to medium-sized application programs that demonstrate professionally acceptable coding and performance standard • Understand the basic principles of the object-oriented programming. • Demonstrate an introductory understanding of graphical user interfaces, multithreaded programming, and event-driven programming.
Assessment Methods	Student's class participation and group discussion (10%)
	Quiz and assignment to evaluate understanding of concepts (20%)
	Minor project and presentation on OOPs related problems (40%)
	End term examination of related course for assessment (30%)
Special Facility Needs	Eclipse, Net beans, VS Code for lectures and practical
Coordinators	Dr. Pratiksha Gautam

Value Added Course Outline:

Month 1: Introduction to Java
Introduction to Java : Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.
Month 2: Objects and Classes
Basics of objects and classes in java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, String Buffer, File, this reference
Month 3: Inheritance and Polymorphism
Inheritance in java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package.
Month 4: Event and GUI programming
Event handling in java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing
Month 5: I/O programming
Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files
Month 6: Multithreading in java
Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally, Collections in java, Introduction to JavaBeans and Network Programming.

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT MECHANICAL ENGINEERING

Value Added Course: Basics of Finite Element Analysis (Practical Oriented)
VAC-20-21-VME0004 -

3rd Apr '2021 – 30th Jun 2021 - Every Saturday: 2:20 PM – 4:00 PM

Students From Any Branch Can Join the Course

By

Mr. Raj Vardhan
Assistant Professor, Mechanical Engineering
Research Interest: Applied Mechanics

Registration Dates
25th Mar 2021 – 30th Mar 2021
For Registration: Please contact
Mrs. Geeta Gupta, Office Staff, Department of ME

Prerequisites: Basics of laws related to mechanics of solids

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-20-21-VME2004 - Basics of Finite Element Analysis (Practical Oriented)

3rd Apr '2021 – 30th Jun 2021 - Every Saturday: 2:20 PM – 4:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Understanding the principles and theory of Finite element Method.
2. Developing modeling skills
3. Analyzing engineering problems:
4. Interpreting results

Course Syllabus

Units	Details	Course Out comes
1	Understanding the principles and theory: Gain a solid understanding of the fundamental principles and theory underlying the finite element method	CO1
2	Learn how to create accurate and efficient finite element models. This involves acquiring skills in CAD modeling.	CO2
3	Finite Element Analysis: Postprocessing and Results Interpretation	CO3
4	Practical Applications and Case Studies.	CO4

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-20-21-VME2004 - Basics of Finite Element Analysis (Practical Oriented)

3rd Apr '2021 – 30th Jun 2021 - Every Saturday: 2:20 PM – 4:00 PM

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Course Outcomes

CO1	Recall potential energy concepts or vibrational methods for solving complex structural geometries of mechanical applications. Explain the shape function concepts of one and two dimensional elements for enriching knowledge on stiffness matrix and load vector
CO2	Apply numerical methods on one dimensional bar elements for obtaining displacements, stresses, strains and reaction forces. Make use of shape functions of two degree of freedom two noded truss and beam elements for obtaining stiffness matrix and load vector
CO3	Demonstrate the physical models of truss and beam elements by applying finite element method for displacements, stresses and strains. Recall the fundamental structural concepts of equilibrium equations, stress-strain relations and strain displacements for solving 2D and 3D elastic problems.
CO4	Illustrate finite element modelling of triangular, axi-symmetric and four noded elements for obtaining shape functions of two dimensional elements. Utilize the concepts of shape functions for developing stiffness matrix of triangular, axisymmetric and four noded elements.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											2	
CO2	1	2												2
CO3	1			3										2
CO4			2	3										2
Average	2	2.5	2	3									2	3

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-20-21-VME2004 - Basics of Finite Element Analysis (Practical Oriented)

3rd Apr '2021 – 30th Jun 2021 - Every Saturday:2:20 PM –4:00 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	3-Apr	2:20 PM - 4:00 PM	2	Introduction to Finite Element Analysis (FEA)	Mr.Raj Vardhan
2	10-Apr	2:20 PM - 4:00 PM	2	Fundamentals of FEA Finite element	Mr.Raj Vardhan
3	17-Apr	2:20 PM - 4:00 PM	2	Discretization and element types	Mr.Raj Vardhan
4	24-Apr	2:20 PM - 4:00 PM	2	Mathematical background and principles of FEA	Mr.Raj Vardhan
5	8-May	2:20 PM - 4:00 PM	2	CAD modeling and geometry preparation	Mr.Raj Vardhan
6	15-May	2:20 PM - 4:00 PM	2	Mesh generation and refinement techniques	Mr.Raj Vardhan
7	22-May	2:20 PM - 4:00 PM	2	Assigning material properties and boundary conditions	Mr.Raj Vardhan
8	5-Jun	2:20 PM - 4:00 PM	2	Assembly and solution of finite element equations	Mr.Raj Vardhan
9	12-Jun	2:20 PM - 4:00 PM	2	Solving linear and nonlinear problems	Mr.Raj Vardhan
10	19-Jun	2:20 PM - 4:00 PM	2	Extraction of relevant engineering quantities	Mr.Raj Vardhan
11	26-Jun	2:20 PM - 4:00 PM	2	Application of FEA to real-world engineering problems	Mr.Raj Vardhan
12	28-Jun	2:20 PM - 4:00 PM	2	Structural analysis, heat transfer analysis, and fluid flow analysis	Mr.Raj Vardhan
13	29-Jun	11:00 AM - 4:50 PM	6	Introduction to the specific finite element analysis	Mr.Raj Vardhan
14	30-Jun	11:00 AM - 4:50 PM	6	Project	Mr.Raj Vardhan
Total Number of Hours covered			36(30hrs)		

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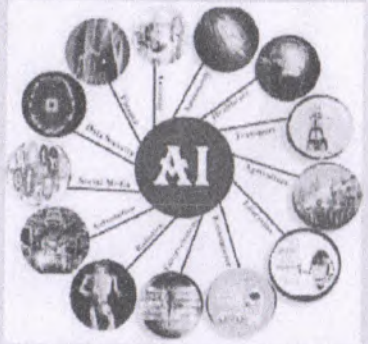
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-20-21 VCS2102 Basic Understanding of Artificial Intelligence

03 April 2021 – 24 July 2021- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course



By

Mr. Praveen Gupta
Assistant Professor, Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
20 *March* 2021 – 01 April 2021
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites: Assumes familiarity with linear algebra, probability theory, and programming in Python.

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS2102 Basic Understanding of Artificial Intelligence

03 April 2021 – 24 July 2021- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Course Objectives

The main objective of this value added course are as follows:

1. Understand the concepts of AI and searching techniques.
2. To develop the logical skills of knowledge and its representational structure.
3. Understand the concepts of natural languages processing.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Artificial Intelligence : The Foundations of Artificial Intelligence, The History of Artificial Intelligence, The history of Artificial Intelligence and the state of the Art. Solving problems by searching: problem- solving Agents, Formulation problems.	CO1
2	Intelligent Agents: Introduction , How Agents should Act, Structure of Intelligent Agents Environments. Agent that Reason logically, A knowledge based Agent.	CO2
3	Planning A simple Planning Agent from problem solving to planning. Planning in situation calculations. Basics representations for planning.	CO3
4	Leaning in Artificial neural networks., How the Brain works, Neural Network, perceptions, Multi-layered feed forward networks applications, back propagation algorithm , applications of neural network.	CO4
5	knowledge representations: semantic Net, semantic Web ,conceptual Dependencies, conceptual Graphics,script,frames, Natural language processing.	CO5

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS2102 Basic Understanding of Artificial Intelligence 03 April 2021 – 24 July 2021- Every Saturday: 3:10 PM – 04:50 PM

Course Outcomes

CO1	Understand the concepts of AI and related searching algorithm
CO2	Develop the knowledge skills and its representational structure in AI.
CO3	Study how design the programming skill in PROLOG and concepts of pattern recognition approaches
CO4	Design and apply various reinforcement algorithm to solve real time complex problems.
CO5	Study the concepts of supervised or unsupervised machine learning and game technique.

CO-PO & CO-PSO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Program Schedule

Value Added Course

VCS2102 Basic Understanding of Artificial Intelligence

03 April 2021 – 24 July 2021- Every Saturday: 3:10 PM – 04:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	03-04-2021	3:10 PM - 4:50 PM	2	Introduction to Artificial Intelligence	Mr. Praveen Gupta
2	10-04-2021	3:10 PM - 4:50 PM	2	Intelligent Agents	Mr. Praveen Gupta
3	17-04-2021	3:10 PM - 4:50 PM	2	A knowledge based Agent	Mr. Praveen Gupta
4	24-04-2021	3:10 PM - 4:50 PM	2	Optimistic Problem	Mr. Praveen Gupta
5	01-05-2021	3:10 PM - 4:50 PM	2	Basic representation for planning	Mr. Praveen Gupta
6	08-05-2021	3:10 PM - 4:50 PM	2	Perceptron's & multilayer perceptron	Mr. Praveen Gupta
7	15-05-2021	3:10 PM – 4:50 PM	2	Statistic learning model	Mr. Praveen Gupta
8	22-05-2021	3:10 PM – 4:50 PM	2	Conceptual Dependencies	Mr. Praveen Gupta
9	05-06-2021	3:10 PM - 4:50 PM	2	Back propagation algorithm	Mr. Praveen Gupta
10	12-06-2021	3:10 PM – 4:50 PM	2	Natural language processing	Mr. Praveen Gupta
11	19-06-2021	3:10 PM – 4:50 PM	2	Semantic Net	Mr. Praveen Gupta
12	26-06-2021	3:10 PM – 4:50 PM	2	Multi-layered feed forward networks	Mr. Praveen Gupta
13	03-07-2021	3:10 PM – 4:50 PM	2	knowledge representations	Mr. Praveen Gupta
14	10-07-2021	3:10 PM – 4:50 PM	2	semantic Net	Mr. Praveen Gupta
15	17-07-2021	3:10 PM – 4:50 PM	2	conceptual Dependencies,	Mr. Praveen Gupta

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Program Schedule

Value Added Course

VCS2102 Basic Understanding of Artificial Intelligence

03 April 2021 – 24 July 2021- Every Saturday: 3:10 PM – 04:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
16	31-07-2021	3:10 PM - 4:50 PM	2	conceptual Graphics	Mr. Praveen Gupta
17	07-07-2021	3:10 AM – 4:50 PM	2	Srcipt	Mr. Praveen Gupta
18	14-08-2021	3:10 PM – 4:50 PM	2	Frane	Mr. Praveen Gupta
19	21-08-2021	3:10 PM - 4:50 PM	2	Semantic Web	Mr. Praveen Gupta
Total Number of Lectures covered			38 (31.66 Hrs)		

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Program Schedule

Value Added Course

VCS2102 Basic Understanding of Artificial Intelligence

03 April 2021 – 24 July 2021- Every Saturday: 3:10 PM – 04:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	03-04-2021	3:10 PM - 4:50 PM	2	Introduction to Artificial Intelligence	Mr. Praveen Gupta
2	10-04-2021	3:10 PM - 4:50 PM	2	Intelligent Agents	Mr. Praveen Gupta
3	17-04-2021	3:10 PM - 4:50 PM	2	A knowledge based Agent	Mr. Praveen Gupta
4	24-04-2021	3:10 PM - 4:50 PM	2	Optimistic Problem	Mr. Praveen Gupta
5	01-05-2021	3:10 PM - 4:50 PM	2	Basic representation for planning	Mr. Praveen Gupta
6	08-05-2021	3:10 PM - 4:50 PM	2	Perceptron's & multilayer perceptron	Mr. Praveen Gupta
7	15-05-2021	3:10 PM – 4:50 PM	2	Statistic learning model	Mr. Praveen Gupta
8	22-05-2021	3:10 PM – 4:50 PM	2	Conceptual Dependencies	Mr. Praveen Gupta
9	05-06-2021	3:10 PM - 4:50 PM	2	Back propagation algorithm	Mr. Praveen Gupta
10	12-06-2021	3:10 PM – 4:50 PM	2	Natural language processing	Mr. Praveen Gupta
11	19-06-2021	3:10 PM – 4:50 PM	2	Semantic Net	Mr. Praveen Gupta
12	26-06-2021	3:10 PM – 4:50 PM	2	Multi-layered feed forward networks	Mr. Praveen Gupta
13	03-07-2021	3:10 PM – 4:50 PM	2	knowledge representations	Mr. Praveen Gupta
14	10-07-2021	3:10 PM – 4:50 PM	2	semantic Net	Mr. Praveen Gupta
15	17-07-2021	3:10 PM – 4:50 PM	2	conceptual Dependencies,	Mr. Praveen Gupta

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2004 – Practical approach on Mushroom Cultivation Technology.

03rd April, 2021 – 30th June, 2021 - Every Saturday: 10:00 AM – 1:00 PM

By

Dr. Arun Prasad Chopra
Associate Professor, Department of Biotechnology Engineering
Research Interest: Identification of novel genes for crop improvement, Mushroom cultivation technology, Improvement of natural farming technology

Registration Dates
1st April 2021 – 2nd April 2021

For Registration: Please contact
Mr. Raj Kumar, office Assistant
Department of Biotechnology

Prerequisites: Assumes familiarity with basic knowledge of biology.

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2004 – Practical approach on Mushroom Cultivation Technology.

03rd April, 2021 – 30th June, 2021 - Every Saturday: 10:00 AM – 1:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Enable the students to identify edible and poisonous mushrooms
2. Provide hands on training for the preparation of bed for mushroom cultivation and spawn production
3. Give the students exposure to the experiences of experts and functioning mushroom farms

Course Syllabus

Units	Details	Course Out comes
1	Introduction to mushrooms: Mushrooms -Taxonomical rank -History and Scope of mushroom cultivation Edible and Poisonous Mushrooms-Vegetative character.	CO1
2	Common edible mushrooms: Button mushroom (*Agaricus bisporus*), Milky mushroom (*Calocybe indica*), Oyster mushroom (*Pleurotus florida* (Oyster White), *Pleurotus sajor*caju, *Pleurotus djmore*) and paddy straw mushroom (*Volvariella volvcea*).	CO2
3	Principles of mushroom cultivation: Structure and construction of mushroom house. Sterilization of substrates. Spawn production -culture media preparation- production of pure culture, mother spawn, and multiplication of spawn. Composting technology, mushroom bed preparation. Spawning, spawn running, harvesting. Cultivation of oyster and paddy straw mushroom. Problems in cultivation - diseases, pests and nematodes, weed moulds and their management strategies.	CO3
4	Health benefits of mushrooms: Nutritional and medicinal values of mushrooms. Therapeutic aspects-antitumor effect	CO4
5	Preservation of mushrooms - freezing, dry freezing, drying, canning, quality assurance and entrepreneurship. Value added products of mushrooms.	CO5

Prerequisites: Assumes familiarity with basic knowledge of biology

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT2004 – Practical approach on Mushroom Cultivation Technology.

03rd April, 2021 – 30th June, 2021 - Every Saturday: 10:00 AM – 1:00 PM

Course Outcomes

CO1 *Identify edible mushrooms*

CO2 *Acquire knowledge of storage and revival of pure cultures of edible fungi, Preparation of mother spawns, Knowledge of edible mushrooms grown in different parts of India, Climatic conditions associated with different mushrooms .*

CO3 *Cultivation technology of commonly grown edible mushrooms, Cultivation of different variety of mushroom spawns*

CO4 *Manage the diseases and pests of mushrooms*

CO5 *Mushroom technology as entrepreneurship*

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											2	
CO2	2	3											2	
CO3	2			3						2	2	2	2	
CO4			2	3						2	2	2		3
CO5			2	3										3
Average	2	3	2	3						2	2	2	2	3

Evaluation Criteria: Evaluation of Practical assignments, Group project, Viva/Quiz

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Value Added Course

VBT2004 – Practical approach on Mushroom Cultivation Technology.

03rd April, 2021 – 30th June, 2021 - Every Saturday: 10:00 AM – 1:00 PM

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Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	03-04-2021	10:00 AM – 1:00 PM	3	Introduction to Mushroom cultivation, objectives	Dr. Arun P. Chopra
2	10-04-2021	10:00 AM – 1:00 PM	3	Edible, non edible and medicinal mushrooms	Dr. Arun P. Chopra
3	17-04-2021	10:00 AM – 1:00 PM	3	Growing conditions of types of mushrooms in different seasons	Dr. Arun P. Chopra
4	05-05-2021	10:00 AM – 1:00 PM	3	Structure and construction of mushroom cultivation room	Dr. Arun P. Chopra
5	12-05-2021	10:00 AM – 1:00 PM	3	Media preparation, Spawn production	Dr. Arun P. Chopra
6	19-05-2021	10:00 AM – 1:00 PM	3	Diseases associated with mushroom cultivation	Dr. Arun P. Chopra
7	26-05-2021	10:00 AM – 1:00 PM	3	Post harvest technologies, Quality assurance and entrepreneurship	Dr. Arun P. Chopra
8	28-05-2021	10:00 AM – 5:00 PM	6	Project	Dr. Arun P. Chopra
9	29-05-2021	10:00 AM – 5:00 PM	6	Project	Dr. Arun P. Chopra
10	30-05-2021	10:00 AM – 1:00 PM	3	Project	Dr. Arun P. Chopra
Total Number of Hours covered			36		

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ON

PROBLEM SOLVING USING C AND C++ (VACIT-001)

20th Feb 2020 - 11th June 2020

(Session: 2019 - 2020)

Registration Date: 03 Feb 2020 - 10 Feb 2020

For Registration, Please contact:
Mr. Ajay Raj Parashar
Assistant Professor, IT

Head
Department of Information Technology
Hindustan College of Science & Technology
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ABOUT

THE DEPARTMENT

Department of Information Technology was established in the year 1999 with an objective of imparting quality education in the field of Information Technology. Department of IT was accredited by National board of Accreditation (NBA) in 2006.

The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT

THE PROGRAM

This program is designed to provide a comprehensive overview of C/C++ programming. The syllabus covers a range of topics including functions, arrays and pointers, secure coding practices, exception handling and assertions, disk files and I/O, and generic programming with templates. Through practical exercises and problem sets, students will develop the skills to write efficient and secure code in C/C++. The course also covers the dynamic memory allocation model and the use of smart pointers to mitigate common memory pitfalls. In addition, students will have the opportunity to work with the Standard Template Library and understand its various components such as containers, iterators, and algorithms. This program provides a comprehensive learning experience for anyone looking to enhance their C/C++ programming skills. By the end of the program, students will be well-equipped to tackle complex coding projects and have a deep understanding of how to write efficient and secure code in C/C++.

Objectives

1. To provide a comprehensive overview of C/C++ programming and its various components.
2. To equip students with the skills to write efficient and secure code through the use of functions, arrays and pointers, and secure coding practices.
3. To teach students how to handle errors and exceptions in their code, and implement proper error handling and assertions.
4. To introduce students to the dynamic memory allocation model, including smart pointers and common memory pitfalls.
5. To help students understand and utilize the Standard Template Library and its various components, including containers, iterators, algorithms, and customizing and extending the STL. Allowing them to perform real-world data analysis and extract insights.

COURSE

OUTCOMES

CO-1:
Understand functions and write efficient, secure code in C/C++.

CO-2:
Analyze and use arrays, pointers, dynamic memory allocation, and type inference.

CO-3:
Identify and prevent common string and integer errors using secure coding practices.

CO-4:
Implement error handling, assertions, exceptions, stack unwinding, disk files, I/O streams, and the standard template library (STL), including customization and extension

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CO-PO-PSO MAPPING

Problem Solving using C and C++ (VACIT-001)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	-	3	-	3	2	-	-	2	2	3	-
CO-2	2	3	3	3	-	1	-	2	2	-	-	2	3	3	-
CO-3	1	2	-	2	1	1	-	-	2	-	-	2	3	2	-
CO-4	3	2	2	3	3	3	-	3	2	-	2	2	3	3	-
Avg	2.25	2.50	2.33	2.50	2.00	2.00	0.00	2.67	2.00	0.00	2.00	2.00	2.75	2.75	0.00

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

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COURSE OUTLINE

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

- Introduction to functions
- Alt function syntax
- Function return type deduction
- Static, const, and inline functions
- Default parameters
- Overloaded functions (operator and members)
- Friend Functions
- Overriding functions

Module 2: Arrays and Pointers in C/C++

- Introduction to arrays and pointers
- Smart pointers
- Pointers and dynamic memory allocation
- Type inference
- Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

- Common string, integer, and dynamic memory allocation errors
- Integer and dynamic memory allocation vulnerabilities
- String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

- Introduction to errors and exceptions
- Exception mechanisms
- Exceptions and polymorphism
- Stack unwinding and cleanup
- Common error handling issues
- Using streams for input and output
- String streams, file streams, and bidirectional I/O
- Dynamic memory allocation model
- Working with dynamic memory, array-pointer duality, and smart pointers.

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Text Book/References:

- Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.

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LECTURE PLAN

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

Lecture 1: Introduction to functions

Lecture 2: Alt function syntax

Lecture 3: Function return type deduction

Lecture 4: Static, const, and inline functions

Lecture 5: Default parameters

Lecture 6: Overloaded functions (operator and members)

Lecture 7: Friend Functions

Lecture 8: Overriding functions

Module 2: Arrays and Pointers in C/C++

Lecture 9: Introduction to arrays and pointers

Lecture 10: Smart pointers

Lecture 11: Pointers and dynamic memory allocation

Lecture 12: Type inference

Lecture 13: Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

Lecture 14: Common string, integer, and dynamic memory allocation errors

Lecture 15: Integer and dynamic memory allocation vulnerabilities

Lecture 16: String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

Lecture 17: Introduction to errors and exceptions

Lecture 18: Exception mechanisms

Lecture 19: Exceptions and polymorphism

Lecture 20: Stack unwinding and cleanup

Lecture 21: Common error handling issues

Lecture 22: Using streams for input and output

Lecture 23: String streams, file streams, and bidirectional I/O fstream

Lecture 24: Dynamic memory allocation model

Lecture 25: Working with dynamic memory, array-pointer duality, and smart pointers

Lecture 26: Review of functions in C/C++

Lecture 27: Review of arrays and pointers in C/C++indirections

Lecture 28: Review of secure coding practices in C/C++

Lecture 29: Review of exception handling and I/O in C/C++

Lecture 30: Final Exam Review

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ON

APPLICATION DESIGN (VACIT-003)

01st Feb 2020 - 10th June 2020

(Session: 2019 - 2020)

Registration Date: 25 Jan 2020 - 31 Jan 2020

For Registration, Please contact:

Mr. Mohit Singh

Assistant Professor, IT

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The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the Industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT
THE PROGRAM

The program is designed for individuals who are interested in learning about the design process, software and application. It covers the basics of design and the concept of user-centric design. Students will learn about the various steps involved in designing an application, including market research, problem definition, analysis, planning, and testing the prototype. The program also covers the process of designing an application, including understanding user requirements, creating personas, and designing a prototype. Students will learn how to perform user testing and gather feedback to improve the application. The program provides hands-on experience and equips students with the skills to design an application that is user-friendly and meets the needs of the target market. Overall, the program is a comprehensive introduction to design, software and application and provides a solid foundation for those interested in pursuing a career in this field.

Objectives

1. To provide an overview of the design process and software and application.
2. To introduce the concept of user-centric design and the various steps involved.
3. To familiarize students with the process of finding problems and conducting market research.
4. To teach the process of designing an application, including understanding user requirements, creating personas, and designing a prototype.
5. To equip students with the skills to perform user testing, gather feedback, and make necessary modifications to improve the application.

COURSE
OUTCOMES

CO-1: Understand user-centric design, conduct market research, analyze problems, and design & test prototypes.

CO-2: Gather user requirements, brainstorm, conduct interviews, create personas, and develop user stories.

CO-3: Learn system architecture, create flowcharts, design transitions, work with vector images, and develop prototypes.

CO-4: Prepare questionnaires, conduct user testing, gather feedback, make modifications, and release the final application.

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CO-PO-PSO MAPPING

Application Design (VACIT-003)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	1	3	3	2	3	3	-	2	3	-	-	1	3	1	-
CO-2	2	3	2	2	3	2	-	1	3	-	-	2	3	2	-
CO-3	2	1	3	3	3	3	-	2	3	-	-	2	3	2	-
CO-4	2	2	-	3	3	3	-	2	2	-	-	2	3	3	-
Avg	1.75	2.25	2.67	2.50	3.00	2.75	0.00	1.75	2.75	0.00	0.00	1.75	3.00	2.00	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

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COURSE OUTLINE

Application Design (VACIT-003)

Module 1: Introduction

- Introduction to Design, Software and Application
- Concept behind the user centric design
- Various steps used to design an application, finding problems
- Market research
- Introduction to problem definition, analysis, planning
- Designing & testing the prototype.

Module 2: Designing an Application - I

- Understanding the user requirements
- Brainstorming
- User interviews
- Persona
- User stories

Module 3: Designing an Application - II

- Introduction to System, Subsystem
- Integrated Modules, Procedures and Functions
- Flow Chart, transitions
- vector images, prototype & wireframe.

Module 4: User Testing

- Questionnaire preparation
- User testing
- Feedback & reviews
- Modifications & final release

Text Book/References:

- Brown, T. (2009). Change by design: How design thinking transforms organizations and inspires innovation. HarperCollins.
- Shneiderman, B. (2016). Designing the user interface: Strategies for effective human-computer interaction. Pearson Education India.

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COURSE OUTLINE

Application Design (VACIT-003)

Module 1: Introduction

Lecture 1: Introduction to the course, design, software, and applications.

Lecture 2: User-centric design and its importance.

Lecture 3: Steps used to design an application.

Lecture 4: Finding problems and market research.

Lecture 5: Introduction to problem definition.

Lecture 6: Problem analysis and planning.

Lecture 7: Designing a prototype.

Lecture 8: Testing the prototype.

Module 2: Designing an Application – I

Lecture 9: Understanding user requirements.

Lecture 10: Brainstorming techniques.

Lecture 11: User interviews.

Lecture 12: Creating personas.

Lecture 13: User stories and how to create them.

Module 3: Designing an Application – II

Lecture 14: Introduction to the system, subsystems, and integrated modules.

Lecture 15: Procedures and functions.

Lecture 16: Flow charts and transitions.

Lecture 17: Vector images and their uses.

Lecture 18: Introduction to wireframes.

Lecture 19: Creating a prototype using wireframes.

Module 4: User Testing

Lecture 20: Questionnaire preparation for user testing.

Lecture 21: Conducting user testing.

Lecture 22: Feedback and reviews.

Lecture 23: Modifying the prototype based on feedback.

Lecture 24: Finalizing the application for release.

Lecture 25: Best practices for releasing an application.

Lecture 26: Post-release testing and feedback.

Lecture 27: How to handle user feedback and reviews.

Lecture 28: Common mistakes to avoid in application design.

Lecture 29: Future trends in application design.

Lecture 30: Course review and recap.

DEPARTMENT OF INFORMATION TECHNOLOGY

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Farah, Mathura

Director
Hindustan College of
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SHARDA GROUP

HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course
VEE1901 – ELECTRIC VEHICLE

3rd AUG '2019 – 7th DEC 2019 - Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Mr. Vivek Agrawal
Assistant Professor, Electrical & Electronics Engineering
Research Interest: Control System

Registration Dates
25st Jul 2019 – 30th Jul 2019
For Registration: Please contact
Mr. Sunil Pathak, Office Staff, Department of EEE

Prerequisites: Basics Electrical Engineering

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE1901 – ELECTRIC VEHICLE

3rd AUG '2019 – 7st DEC 2019 - Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. The course aims to provide a comprehensive understanding of the basic principles and components of electric vehicles (EVs).
2. The objective focuses on evaluating the environmental benefits and energy efficiency of electric vehicles compared to conventional internal combustion engine vehicles.
3. The objective aims to delve into the design and engineering aspects specific to electric vehicles.
4. The objective focuses on the charging infrastructure required to support electric vehicles.
5. The objective aims to provide insights into the policy framework and market dynamics shaping the adoption and growth of electric vehicles.

Prerequisites: Basic Electrical Engineering

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE1901 – ELECTRIC VEHICLE

3rd AUG '2019 – 7th DEC 2019 - Every Saturday: 3:00 PM – 5:00 PM

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Electric Vehicles : Overview of Electric Vehicles, Definition and history of electric vehicles, Advantages and challenges of electric vehicles, Types of electric vehicles: BEVs, PHEVs, and HEVs, Electric vehicle architecture and system overview, Electric powertrain components: batteries, electric motors, power electronics, Energy storage systems: lithium-ion batteries, super capacitors, Overview of charging infrastructure for electric vehicles, Types of charging stations: Level 1, Level 2, and DC fast charging, Charging standards: CCS, CHAdeMO, Tesla Supercharger, etc.	CO1
2	Electric Vehicle Technology : Electric Motors and Controllers, Types of electric motors used in electric vehicles, Motor characteristics and performance parameters, Motor controllers and their role in controlling motor operation, Battery Technologies, Lithium-ion battery chemistry and operation, Battery pack design and management systems, Battery charging and discharging characteristics, Power electronics components and their functions, DC-DC converters and inverters in electric vehicles, Power electronics control strategies and efficiency optimization	CO2
3	Electric Vehicle Design and Manufacturing : Electric Vehicle Design Considerations, Vehicle platform selection and integration, Safety considerations in electric vehicle design, Aerodynamics and energy efficiency optimization, Electric Vehicle Manufacturing Processes, Manufacturing techniques for electric vehicle components, Assembly processes for electric vehicle production, Quality control and testing in electric vehicle manufacturing, Electric Vehicle Safety and Regulations, Safety standards and regulations for electric vehicles, Crash testing and safety features in electric vehicles, Battery safety and handling considerations	CO3
4	Electric Vehicle Infrastructure and Charging : Charging Infrastructure Planning, Infrastructure planning for residential, commercial, and public charging, Grid integration and smart charging solutions, Managing peak loads and demand response strategies, Charging Station Installation and Maintenance, Charging station installation requirements and considerations, Safety regulations and guidelines for charging infrastructure, Maintenance and troubleshooting of charging stations, Vehicle-to-Grid (V2G) and Vehicle-to-Home (V2H) Technologies, Introduction to V2G and V2H concepts, Benefits and applications of V2G and V2H technologies, Challenges and future prospects of V2G and V2H	CO4
5	Electric Vehicle Market and Future Trends : Market Trends and Economics of Electric Vehicles, Global and regional electric vehicle market analysis, Government policies and incentives driving electric vehicle adoption, Total cost of ownership and economic considerations, Recent advancements in electric vehicle technology, Battery advancements: solid-state batteries, new chemistries, Autonomous driving and connected vehicle technologies, Future trends and developments in electric vehicles, Environmental sustainability and lifecycle analysis, Addressing infrastructure challenges and range anxiety	CO5

Prerequisites: Basic Electrical Engineering

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE1901 – ELECTRIC VEHICLE

3rd AUG '2019 – 7st DEC 2019 - Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	Students will gain a comprehensive understanding of the key principles and concepts underlying electric vehicle technology. This includes knowledge of electric motors, batteries, power electronics, and energy management systems in electric vehicles.
CO2	Students will learn how to analyze and evaluate the performance of various electric vehicle systems, including range, efficiency, power delivery, and charging infrastructure. They will develop skills in conducting performance tests and interpreting the results to assess the overall performance and efficiency of electric vehicles.
CO3	This course will equip students with the skills to design and implement electric vehicle components and systems. They will learn about the design considerations for electric vehicle motors, batteries, power electronics, and control systems. Students will gain practical experience in designing electric vehicle systems through hands-on projects and simulations..
CO4	Students will learn to identify the challenges and explore potential solutions. They will study emerging technologies and trends in electric vehicle development to address issues such as range anxiety, battery degradation, and charging infrastructure expansion.
CO5	Students will be able to evaluate the overall benefits and challenges associated with the widespread adoption of electric vehicles.

CO-PO Mappings

CO5	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												2	3
CO2	3	3	3										3	2
CO3	3	3	3		3	3						3	3	3
CO4	3	3	3		3	3						3	3	3
CO5	3	3	3		3	3						3	3	3
Average	3	3	3		3	3						3	3	2.8

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE1901 – ELECTRIC VEHICLE

3rd AUG '2019 – 7th DEC 2019 - Every Saturday: 3:00 PM – 5:00 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	03/08/19	3:00 PM - 5:00 PM	2	Overview of Electric Vehicles	Mr. Vivek Agrawal
2	10/08/19	3:00 PM - 5:00 PM	2	Electric Vehicle Components	Mr. Vivek Agrawal
3	17/08/19	3:00 PM - 5:00 PM	2	Charging Infrastructure	Mr. Vivek Agrawal
4	31/08/19	3:00 PM - 5:00 PM	2	Electric Motors and Controllers	Mr. Vivek Agrawal
5	07/09/19	3:00 PM - 5:00 PM	2	Battery Technologies	Mr. Vivek Agrawal
6	14/09/19	3:00 PM - 5:00 PM	2	Power Electronics in Electric Vehicles	Mr. Vivek Agrawal
7	21/09/19	3:00 PM - 5:00 PM	2	Electric Vehicle Design Considerations	Mr. Vivek Agrawal
8	28/09/19	3:00 PM - 5:00 PM	2	Electric Vehicle Manufacturing Processes	Mr. Vivek Agrawal
9	05/10/19	3:00 PM - 5:00 PM	2	Electric Vehicle Safety and Regulations	Mr. Vivek Agrawal
10	12/10/19	3:00 PM - 5:00 PM	2	Charging Infrastructure Planning	Mr. Vivek Agrawal
11	02/11/19	3:00 PM - 5:00 PM	2	Charging Station Installation and Maintenance	Mr. Vivek Agrawal
12	19/11/19	3:00 PM - 5:00 PM	2	Vehicle-to-Grid (V2G) and Vehicle-to-Home (V2H) Technologies	Mr. Vivek Agrawal
13	16/11/19	3:00 PM - 5:00 PM	2	Market Trends and Economics of Electric Vehicles	Mr. Vivek Agrawal
14	23/11/19	3:00 PM - 5:00 PM	2	Emerging Technologies in Electric Vehicles	Mr. Vivek Agrawal
15	30/11/19	3:00 PM - 5:00 PM	2	Future Outlook and Challenges	Mr. Vivek Agrawal
16	07/12/19	3:00 PM - 5:00 PM	2	Battery Technology	Mr. Vivek Agrawal
Total Number of Hours covered			**32**		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY
FARAH -MATHURA

DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE1902 – Introduction to GeoStudio

27th Jan 2020 – 29th June 2020 - Every Saturday: 3:10 PM – 4:50 PM

GeoStudio

By

Mr. Rohit Maurya
Assistant Professor, Civil Engineering
Hindustan College of Science & Technology, Farah (Mathura)

Registration Dates
27th Jan '2020 – 29th June 2020

For Registration: Please contact
Mr. Anil Kashyap, Office Staff, Department of CE

Civil Engineering Department

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY
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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE1902 – Introduction to GeoStudio

27th Jan 2020 – 29th June 2020 - Every Monday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Learn about Geotechnical Modeling
2. Modeling and Simulation of various earth structures
3. Design and Analysis of Slope stability and seepage

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Geostudio, tools, commands, functions, Basic theory and features of SLOPE/W and SEEP/W, Methods of analysis	CO1
2	Learn making geometry, meshing, boundary condition, Material properties Allocation	CO2
3	various geotechnical structures and there geometry with design	CO3
4	Slope Analysis and simulation, water bodies , Example workflow of a SLOPE/W analysis	CO4
5	Analysis of earth structure, seepage, lateral earth pressure, Introduction to QUAKE/W for seismic areas structures	CO5

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE1902 – Introduction to GeoStudio

27th Jan 2020 – 29th June 2020 - Every Monday: 3:10 PM – 4:50 PM

Course Outcomes:

After completion of the course student will be able to:

CO1	Overview of the basic components of setting up and reviewing a GeoStudio analysis.
CO2	This course covers the basics of setting up a SEEP/W
CO3	Analysis and boundary conditions and convergence issues.
CO4	Basics of setting up SLOPE/W stability analyses, in addition to slip surface optimization.
CO5	Basics of setting up 3D analyses in GeoStudio and reviews how the 3D commands are used to create 3D geometry.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3												2		
CO2	2	2	3										3		
CO3	2			3									2		
CO4		2	3										3	2	
CO5	3		2										2		
Average	2.5	2	2.6	3									2.4	2	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE1902 – Introduction to GeoStudio

27th Jan 2020 – 29th June 2020 - Every Monday: 3:10 PM – 4:50 PM

Course Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	1/27/2020	3:10 PM – 4:50 PM	2	Topic 1: Introduction to Geotechnical Software	Mr. Rohit Maurya
2	2/3/2020	3:10 PM – 4:50 PM	2	Topic 2:Basic theory and features of SLOPE/W and SEEP/W	Mr. Rohit Maurya
3	2/10/2020	3:10 PM – 4:50 PM	2	Topic 3:Methods of analysis	Mr. Rohit Maurya
4	2/17/2020	3:10 PM – 4:50 PM	2	Topic 4: Axis setup for Geometry	Mr. Rohit Maurya
5	2/24/2020	3:10 PM – 4:50 PM	2	Topic 5:Geometry creation	Mr. Rohit Maurya
6	3/2/2020	3:10 PM – 4:50 PM	2	Topic 6:Material properties Allocation	Mr. Rohit Maurya
7	4/13/2020	3:10 PM – 4:50 PM	2	Topic 7:Assignment of Material Properties to the Geometry	Mr. Rohit Maurya
8	4/20/2020	3:10 PM – 4:50 PM	2	Topic 8: Setup of various boundary conditions	Mr. Rohit Maurya
9	4/27/2020	3:10 PM – 4:50 PM	2	Topic 9: Allocation of boundary conditions	Mr. Rohit Maurya
10	5/4/2020	3:10 PM – 4:50 PM	2	Topic 10: Slip surface options	Mr. Rohit Maurya
11	5/11/2020	3:10 PM – 4:50 PM	2	Topic 11: Finite element meshing	Mr. Rohit Maurya
12	5/18/2020	3:10 PM – 4:50 PM	2	Topic 12: Example workflow of a SLOPE/W analysis	Mr. Rohit Maurya
13	6/1/2020	3:10 PM – 4:50 PM	2	Topic 13: Example workflow of a SEEP/W steady-state and transient analyses	Mr. Rohit Maurya
14	6/8/2020	3:10 PM – 4:50 PM	2	Project	Mr. Rohit Maurya
15	6/15/2020	3:10 PM – 4:50 PM	2	Project	Mr. Rohit Maurya
16	6/22/2020	2:20 PM - 4:50 PM	3	Project	Mr. Rohit Maurya
17	6/29/2020	2:20 PM - 4:50 PM	3	Project Evaluation	Mr. Rohit Maurya
Total Number of Hours covered			36*(5/6)=30		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701-Process Equipment Design

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Anurag Bajpai
HOD -Chemical Engineering

Registration Dates
2nd July 2019 – 06th July 2019
For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

Head
Department of Chemical Engg.
Hindustan College of Science & Technology
Farah, Mathura

Director
Hindustan College of
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC -1701 - **Process Equipment Design**

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701 - Process Equipment Design

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701 - **Process Equipment Design**

Program Schedule

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	13-07-2019	3:10 PM – 4:50 PM	2	Topic 1: Design project procedure, design information from the literature	Mr. Anurag Bajpai
2	20-07-2019	3:10 PM – 4:50 PM	2	Topic 2: Flow diagrams, preliminary design	Mr. Anurag Bajpai
3	27-07-2019	3:10 PM – 4:50 PM	2	Topic 3: Comparison of different processes, equipment design	Mr. Anurag Bajpai
4	03-08-2019	3:10 PM – 4:50 PM	2	Topic 4: Scale-up in design, Materials of construction	Mr. Anurag Bajpai
5	10-08-2019	3:10 PM – 4:50 PM	2	Topic 5: Selection of materials, fabrication of equipment	Mr. Anurag Bajpai
6	17-08-2019	3:10 PM – 4:50 PM	2	Topic 6: Pressure vessels – calculation of thickness of cylindrical and spherical shells	Mr. Anurag Bajpai
7	24-08-2019	3:10 PM – 4:50 PM	2	Topic 7: Subjected to internal pressure, heads or covers	Mr. Anurag Bajpai
8	31-08-2019	3:10 PM – 4:50 PM	2	Topic 8: Storage vessels – storage of nonvolatile liquids, storage of volatile liquids	Mr. Anurag Bajpai
9	07-09-2019	3:10 PM – 4:50 PM	2	Topic 9: Storage of gases. Supports for vessels – bracket or lug supports	Mr. Anurag Bajpai
10	14-09-2019	3:10 PM – 4:50 PM	2	Topic 10: Leg supports, skirt supports, saddle supports	Mr. Anurag Bajpai
11	21-09-2019	3:10 PM – 4:50 PM	2	Topic 11: Design of double pipe heat exchangers	Mr. Anurag Bajpai
12	28-09-2019	3:10 PM – 4:50 PM	2	Topic 12: Shell and tube heat exchangers (1-2,2-4), optimum design and heat recovery	Mr. Anurag Bajpai
13	05-10-2019	3:10 PM – 4:50 PM	2	Topic 13: Selection of suitable heat exchanger	Mr. Anurag Bajpai
14	12-10-2019	3:10 PM – 4:50 PM	2	Topic 14: Design of single and multiple effect evaporators without boiling point elevation	Mr. Anurag Bajpai
15	19-10-2019	3:10 PM – 4:50 PM	2	Topic 15: Finite-stage contactors- bubble cap tray, sieve tray and valve tray units	Mr. Anurag Bajpai
16	26-10-2019	3:10 PM – 4:50 PM	2	Topic 16: **Maximum allowable vapor velocities, plate and column efficiency, other design factors**	Mr. Anurag Bajpai
17	02-11-2019	3:10 PM – 4:50 PM	2	Topic 17: Continuous contactors – types of packing, liquid distribution, pressure drop	Mr. Anurag Bajpai
18	09-11-2019	3:10 PM – 4:50 PM	2	Topic 18: Packing efficiencies. Relative merits of plate and packed towers, selection of contacting equipment	Mr. Anurag Bajpai
Total Number of Hours covered			**36 (30 Hours)**		

Head
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702-Solid Waste Management

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Sandeep Kumar Verma
Chemical Engineering

Registration Dates
2nd July 2019 – 06th July 2019
For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

Head
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC -1702 -Solid Waste Management

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702 - Solid Waste Management

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702 - **Solid Waste Management**

Program Schedule

13th July '2019 – 9th Nov 2019 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	13-07-2019	3:10 PM – 4:50 PM	2	Topic 1:Logistics, importance, methods of logistics	Dr. Sandeep Kumar Verma
2	20-07-2019	3:10 PM – 4:50 PM	2	Topic 2: human components, technological components	Dr. Sandeep Kumar Verma
3	27-07-2019	3:10 PM – 4:50 PM	2	Topic 3:waste handling equipment and technology	Dr. Sandeep Kumar Verma
4	03-08-2019	3:10 PM – 4:50 PM	2	Topic 4:managerial goals, steps in waste management logistics	Dr. Sandeep Kumar Verma
5	10-08-2019	3:10 PM – 4:50 PM	2	Topic 5:Environmental aspects of waste collection	Dr. Sandeep Kumar Verma
6	17-08-2019	3:10 PM – 4:50 PM	2	Topic 6:role of public authority and private sector in waste collection	Dr. Sandeep Kumar Verma
7	24-08-2019	3:10 PM – 4:50 PM	2	Topic 7:organizing collection of residential waste	Dr. Sandeep Kumar Verma
8	31-08-2019	3:10 PM – 4:50 PM	2	Topic 8: fee schemes, public awareness programs	Dr. Sandeep Kumar Verma
9	07-09-2019	3:10 PM – 4:50 PM	2	Topic 9:source-segregated waste	Dr. Sandeep Kumar Verma
10	14-09-2019	3:10 PM – 4:50 PM	2	Topic 10:Purpose of source segregation	Dr. Sandeep Kumar Verma
11	21-09-2019	3:10 PM – 4:50 PM	2	Topic 11:segregation criteria and guidance	Dr. Sandeep Kumar Verma
12	28-09-2019	3:10 PM – 4:50 PM	2	Topic 12:segregation potential and efficiencies	Dr. Sandeep Kumar Verma
13	05-10-2019	3:10 PM – 4:50 PM	2	Topic 13:systems for collecting segregated fraction	Dr. Sandeep Kumar Verma
14	12-10-2019	3:10 PM – 4:50 PM	2	Topic 14:Waste delivery, waste transfer	Dr. Sandeep Kumar Verma
15	19-10-2019	3:10 PM – 4:50 PM	2	Topic 15: transportation of the reloaded waste	Dr. Sandeep Kumar Verma
16	26-10-2019	3:10 PM – 4:50 PM	2	Topic 16:siting and Design of waste transfer station	Dr. Sandeep Kumar Verma
17	02-11-2019	3:10 PM – 4:50 PM	2	Topic 17:economical considerations, recycling solid wastes	Dr. Sandeep Kumar Verma
18	09-11-2019	3:10 PM – 4:50 PM	2	Topic 18: materials recovery facilities	
Total Number of Hours covered			**36 (30 Hours)**		

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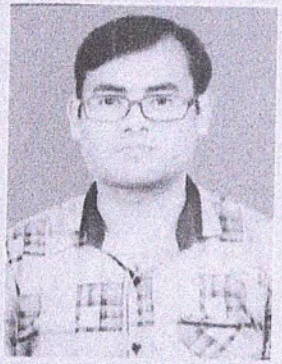
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1902 – Arduino with Fundamentals of Programming

10th Aug '2019 – 30th Nov 2019 – Every Saturday: 3:10 PM – 4:50 PM

Students From Any Branch Can Join the Course



By

Mr. Ajeet Singh

Assistant Professor, Electronics & Communication Engineering

Research Interest: IoT based projects, Microprocessor

Registration Dates

29th July 2019 – 09th Aug 2019

For Registration: Please contact

Mr. Sanjay Gupta, Lab Technician, Department of ECE

Prerequisites: Basic knowledge of electronics components with their uses. Also basic understanding of programming.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1902 - Arduino with Fundamentals of Programming

10th Aug '2019 – 30th Nov 2019 – Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. This course provides a comprehensive understanding of Arduino, a popular open-source electronics platform.
2. The course aims to equip students with the necessary knowledge and skills to effectively work with Arduino boards and microcontrollers.
3. Participants will learn the fundamental concepts of programming and interfacing with Arduino, including the use of sensors, actuators, and various electronic components. Through hands-on projects and practical exercises, students will gain experience in designing, building, and programming Arduino-based systems and prototypes.
4. By the end of the course, participants will be able to apply their newfound skills to create innovative projects and automation solutions, fostering creativity and problem-solving abilities in the field of electronics and embedded systems.

Course Syllabus

Units	Details	Course Out comes
1	**Getting Started With Arduino:** Introduction to Arduino, ARDUINO history and family, Basics of embedded system, Microcontroller vs. Microprocessor, Pin configuration and architecture, Concept of digital and analog ports.	CO1
2	**Arduino Programming Fundamentals:** Introduction to Arduino IDE and programming language, Setting up the Arduino IDE, Basics of Embedded C programming for Arduino, Variables, data types, and operators, Control structures (if-else, loops), Functions and libraries, Familiarizing with Arduino Interfacing Board.	CO2
3	**Basic Sensors And Actuators:** Introduction to sensors and actuators, types of sensors and their use, how to connect and work with different sensors, such as Humidity, Proximity, IR Motion, Accelerometer, Sound, Light Distance, Pressure etc. to ARDUINO Board, reading various sensor data on serial monitor and LCD Display, functioning of actuator, how to work on Educational & engineering Level Actuator.	CO3
4	**Controlling Devices Using Arduino:** What is relay, types of relay, how to connect relays to ARDUINO Board, controlling Electrical appliances with electromagnetic relays, working of a matrix keypad, Interfacing a RF Module.	CO4
5	**Making It A Reality (Arduino Projects):** Home automation using RFID, solar Street Light system, car parking system, water level management system, automatic Irrigation System.	CO5

Prerequisites: Basic knowledge of electronics components with their uses. Also basic understanding of programming.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1902 - Arduino with Fundamentals of Programming

10th Aug '2019 – 30th Nov 2019 – Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Understanding of Arduino and develop an understanding of embedded systems, microprocessors and microcontrollers.
CO2	Gain proficiency in programming Arduino boards using the Arduino IDE.
CO3	Acquire skills in working with sensors and actuators with hands-on experience in connecting and interfacing sensors and actuators with Arduino boards.
CO4	Demonstrate the ability to control devices and appliances using Arduino boards.
CO5	Apply the knowledge gained to design and implement various Arduino-based projects.

CO-PO Mappings

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2											2	2	3
CO2	2											2		2
CO3	2	3										2	2	
CO4	2	2	3									2	2	3
CO5	2		3									2		2
Average	2	2.5	3									2	2	2.5

Evaluation Criteria: Class attendance, Group project and its presentation, Quiz and Viva.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1902- Arduino with Fundamentals of Programming

10th Aug '2019 – 30th Nov 2019 – Every Saturday: 3:10 PM – 4:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	10-08-2019	3:10 PM – 4:50 PM	2	Preamble of the course	Mr. Ajeet Singh
2	17-08-2019	3:10 PM – 4:50 PM	2	Getting Started With Arduino: Introduction to Arduino, ARDUINO history and family	Mr. Ajeet Singh
3	31-08-2019	3:10 PM – 4:50 PM	2	Basics of embedded system, Microcontroller vs. Microprocessor	Mr. Ajeet Singh
4	07-09-2019	3:10 PM – 4:50 PM	2	Pin configuration and architecture, Concept of digital and analog ports	Mr. Ajeet Singh
5	14-09-2019	3:10 PM – 4:50 PM	2	Arduino Programming Fundamentals: Introduction to Arduino IDE and programming language, Setting up the Arduino IDE	Mr. Ajeet Singh
6	21-09-2019	3:10 PM – 4:50 PM	2	Basics of Embedded C programming for Arduino, Variables, data types, and operators	Mr. Ajeet Singh
7	28-09-2019	3:10 PM – 4:50 PM	2	Control structures (if-else, loops), Functions and libraries	Mr. Ajeet Singh
8	05-10-2019	3:10 PM – 4:50 PM	2	Familiarizing with Arduino Interfacing Board	Mr. Ajeet Singh
9	12-10-2019	3:10 PM – 4:50 PM	2	Basic Sensors And Actuators: Introduction to sensors and actuators, Types of sensors and their use	Mr. Ajeet Singh
10	19-10-2019	3:10 PM – 4:50 PM	2	How to connect and work with different sensors, such as Humidity, Proximity, IR Motion, Accelerometer, Sound, Light Distance, Pressure etc. to ARDUINO board.	Mr. Ajeet Singh
11	02-11-2019	3:10 PM – 4:50 PM	2	Reading various sensor data on serial monitor and LCD Display,	Mr. Ajeet Singh
12	09-11-2019	3:10 PM – 4:50 PM	2	Functioning of actuator, How to work on Educational & Engineering Level Actuator.	Mr. Ajeet Singh
13	23-11-2019	3:10 PM – 4:50 PM	2	Controlling Devices using ARDUINO: What is relay, Types of Relay, How to connect relays to ARDUINO board.	Mr. Ajeet Singh
14	29-11-2019	10:10 AM - 1:30 PM	4	Controlling Electrical appliances with electromagnetic relays, Working of a matrix keypad, Interfacing a RF Module.	Mr. Ajeet Singh
15	30-11-2019	11:00 AM - 4:50 PM	6	Making It A Reality (Arduino Projects): Home automation using RFID, Solar Street Light system., Car Parking System, Water level management system.	Mr. Ajeet Singh
Total Number of Lectures covered			**36 (30 Hours)**		

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-19-20 VCS1901 - Object Oriented Programming Using C++

3th August '2019 – 21st December 2019- Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Dr. Munish Khanna
Associate Professor, HOD -Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
25th Jul 2019– 27th Jul y2019
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-19-20 VCS1901 - Object Oriented Programming Using C++

3th August '2019 – 21st December 2019- Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. To understand the need for high-level languages including C++ and programming paradigms.
2. To understand the syntax of C++ and writing simple programs in C++
3. To understand the need and role of object oriented programming for real-world applications.
4. To enable the students to write simple programs using OOP concepts

Course Syllabus

Units	Details	Course Out comes
1	Features of C language, POP and OOP. List of OOP languages. Basic format of C++ program. Processor Directives. I/O statements. Language syntax: Keywords, identifiers, constants, variables, classification of variables based on scope and life, operators. Data types: Basic, derived and user-defined data types. Data-type casting. Data abstraction and encapsulation. Simple example programs.	CO1
2	Concepts of control structure. Branching- if, if-else, switch, break, continue. Looping-for, while anddo-while. Derived data type: Arrays, strings, pointers, enumerated data types and functions. Functions-Call by value, address and reference. User-defined data type: structure, union and classes. Example programs	CO2
3	Introduction to class and objects. Limitation of Structure and benefits of class. Class and object creation. Private and public, protected members of class-Variables, arrays and functions. Accessing Class Members. Memory allocation for Objects. Array of objects. Friend Function. Data abstraction and data encapsulation. Simple example programs	CO3
4	Introduction to overloading. Constructors: parameterized constructors, default arguments, overloading and copy constructor. Destructors, Unary and binary operator overloading. Function overloading, functions with default arguments. Inline functions. Simple example programs	CO4
5	Introduction to inheritance. Defining derived classes, Levels of inheritance, Single inheritance, public and private member inheritance, multiple inheritance, Hierarchical inheritance, Hybrid inheritance, polymorphism. Example programs	CO5
6	Pointers-Declaration and initialization. Manipulation of pointers, pointers to objects, pointers to derived classes, pointers with arrays and strings. Introduction to Virtual functions, rules for virtual functions, pure virtual functions. Formatted and Unformatted I/O functions. Simple example programs. Features of other OOPS languages-JAVA and PYTHON.	

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-19-20 VCS1901 - Object Oriented Programming Using C++

3th August '2019 – 21st December 2019- Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	***Understand*** the C++ language features and employ the control structure and data types in C++.
CO2	***Use*** functions and pointers in C++ program as well as understand tokens, expressions, and control structures
CO3	Explain arrays and strings and create programs using them
CO4	Describe and use constructors and destructors
CO5	Understand the concepts of inheritance , polymorphism and virtual functions and I/O statements as well as employed file system

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
CO5			2	3										3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Value Added Course
VAC-19-20 VCS1901 - Object Oriented Programming Using C++
3th August '2019 – 21st December 2019- Every Saturday: 3:00 PM – 5:00 PM

Program Schedule:

Session	Date	Time	No. of Hours	Session Topic	Resource Person
1	03-08-2019	3:00 PM - 5:00 PM	2	Features of C language, POP and OOP.	Dr. Munish Khanna
2	10-08-2019	3:00 PM - 5:00 PM	2	List of OOP languages. Basic format of C++ program. Processor Directives, I/O statements	Dr. Munish Khanna
3	17-08-2019	3:00 PM - 5:00 PM	2	Language syntax: Keywords, identifiers, constants, variables, classification of variables based on scope and life, operators.	Dr. Munish Khanna
4	31-08-2019	3:00 PM - 5:00 PM	2	Data types: Basic, derived and user-defined data types, Data-type casting. Data abstraction and encapsulation Simple example programs .	Dr. Munish Khanna
5	07-09-2019	3:00 PM - 5:00 PM	2	Concepts of control structure. Branching- if, if-else, switch. break, continue. Looping-for, while and do-while. Derived data type: Arrays, strings, pointers, enumerated data types and functions	Dr. Munish Khanna
6	14-09-2019	3:00 PM - 5:00 PM	2	Functions-Call by value, address and reference, User-defined data type: structure, union and classes. Example programs	Dr. Munish Khanna
7	21-09-2019	3:00 PM - 5:00 PM	2	Introduction to class and objects. Limitation of Structure and benefits of class	Dr. Munish Khanna
8	28-09-2019	3:00 PM - 5:00 PM	2	Class and object creation. Private and public, protected members of class-Variables, arrays and functions.	Dr. Munish Khanna
9	05-10-2019	3:00 PM - 5:00 PM	2	Accessing Class Members. Memory allocation for Objects, Array of objects. Friend Function. Data abstraction and data encapsulation. Simple example programs.	Dr. Munish Khanna
10	12-10-2019	3:00 PM - 5:00 PM	2	Introduction to overloading. Constructors: parameterized constructors, default arguments, overloading and copy constructor	Dr. Munish Khanna
11	19-10-2019	3:00 PM - 5:00 PM	2	Destructors, Unary and binary operator overloading, Function overloading, functions with default arguments, Inline functions. Simple example programs.	Dr. Munish Khanna
12	02-11-2019	3:00 PM - 5:00 PM	2	Introduction to inheritance. Defining derived classes, Levels of inheritance, Single inheritance.	Dr. Munish Khanna
13	09-11-2019	3:00 PM - 5:00 PM	2	public and private member inheritance, Multiple inheritance. Hierarchical inheritance, Hybrid inheritance, polymorphism. Example programs.	Dr. Munish Khanna
14	23-11-2019	3:00 PM - 5:00 PM	2	Pointers-Declaration , initialization. Manipulation of pointers, pointers to objects, pointers to derived classes,	Dr. Munish Khanna
15	30-11-2019	3:00 PM - 5:00 PM	2	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	Dr. Munish Khanna
16	07-12-2019	3:00 PM - 5:00 PM	2	pointers with arrays and strings, Introduction to Virtual functions, rules for virtual functions, pure virtual functions	Dr. Munish Khanna
17	14-12-2019	3:00 PM - 5:00 PM	2	distributed database, Introduction of ANSI SQL, Formatted and Unformatted I/O functions	Dr. Munish Khanna
18	21-12-2019	3:00 PM - 5:00 PM	2	Simple example programs. Features of other OOPS languages-JAVA and PYTHON, Mini Project	Dr. Munish Khanna

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DEPARTMENT MECHANICAL ENGINEERING

Value Added Course: Solid Works
VAC-19-20-VME1903

25th Jan '2020 – 30th Apr2020 - Every Saturday: 2:20 PM – 4:00 PM

Students From Any Branch Can Join the Course

By

Mr. Raj Vardhan
Assistant Professor, Mechanical Engineering
Research Interest: Applied Mechanics

Registration Dates
14th Jan 2020 – 18th Jan 2020
For Registration: Please contact
Mrs. Geeta Gupta, Office Staff, Department of ME

Prerequisites: Basics of laws related to mechanics of solids

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-19-20-VME1903 – Solid Works

25th Jan '2020 – 30th Apr2020 - Every Saturday: 2:20 PM – 4:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. 2D sketching
2. Using 3D features to build bodies
3. Using assembly features to combine more than one part
4. Basic introduction of SolidWorks simulator

Course Syllabus

Units	Details	Course Out comes
1	SolidWorks Basics and the User Interface, Introduction to Sketching, Basic Part Modeling	CO1
2	Symmetry and Draft, Patterning, Revolved Features, Shelling and Ribs	CO2
3	Editing: Repairs, Editing: Design Changes, Configurations, Using Drawings	CO3
4	Bottom-Up Assembly Modeling , Use of Assemblies, Project Evaluation	CO4

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-19-20-VME1903 - Solid Works

25th Jan '2020 – 30th Apr2020 - Every Saturday: 2:20 PM – 4:00 PM

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Course Outcomes

CO1 Demonstrate competency with multiple drawing and modification commands in SolidWorks.

CO2 Create three-dimensional solid models.

CO3 Create three-dimensional assemblies incorporating multiple solid models.

CO4 Apply industry standards in the preparation of technical mechanical drawings.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											3	
CO2	1	1												3
CO3	1		3										2	
CO4			2		2									2
Average	2	2	2.5		2								2.5	2.5

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-19-20-VME1903 - Solid Works

25th Jan '2020 – 30th Apr 2020 - Every Saturday: 2:20 PM – 4:00 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	25-Jan	2:20 PM - 4:00 PM	2	SolidWorks Basics and the User Interface	Mr.Raj Vardhan
2	1-Feb	2:20 PM - 4:00 PM	2	Introduction to Sketching	Mr.Raj Vardhan
3	8-Feb	2:20 PM - 4:00 PM	2	Basic Part Modeling	Mr.Raj Vardhan
4	7-Mar	2:20 PM - 4:00 PM	2	Symmetry and Draft	Mr.Raj Vardhan
5	14-Mar	2:20 PM - 4:00 PM	2	Patterning	Mr.Raj Vardhan
6	28-Mar	2:20 PM - 4:00 PM	2	Revolved Features	Mr.Raj Vardhan
7	4-Apr	2:20 PM - 4:00 PM	2	Shelling and Ribs	Mr.Raj Vardhan
8	11-Apr	2:20 PM - 4:00 PM	2	Editing: Repairs	Mr.Raj Vardhan
9	18-Apr	2:20 PM - 4:00 PM	2	Editing: Design Changes	Mr.Raj Vardhan
10	27-Apr	2:20 PM - 4:50 PM	3	Configurations	Mr.Raj Vardhan
11	28-Apr	2:20 PM - 4:50 PM	3	Drawings	Mr.Raj Vardhan
12	29-Apr	11:00 AM - 4:50 PM	6	Bottom-Up Assembly Modeling	Mr.Raj Vardhan
13	30-Apr	11:00 AM - 4:50 PM	6	Assemblies Drawing	Mr.Raj Vardhan
Total Number of Hours covered			**36(30Hrs)**		

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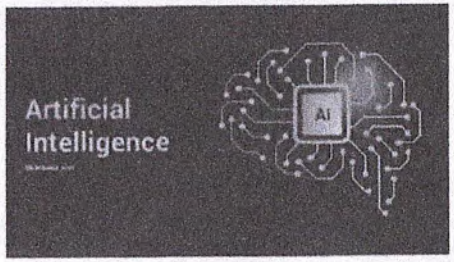
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-19-20 VCS2004 Introduction to Artificial Intelligence & Applied Machine Learning (Practical Oriented)

25th Jan '2020 – 02th May 2020- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course



By

Dr. Robin Bhadoria
Assistant Professor, Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
14th January 2020 – 24th Jan 2020
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites Knowledge of c++ programming and oops concepts

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Value Added Course

VAC-19-20 VCS2004 Introduction to Artificial Intelligence & Applied Machine Learning (Practical Oriented)

25th Jan '2020 – 02th May 2020- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Course Objectives

The main objective of this value added course are as follows:

1. Provide theoretical and conceptual understanding on regression classification and clustering machine learning algorithm such as linear and logistic regression, regularization, probabilistic inference, SVM and neural network, clustering and dimensionality reduction .
2. Provide hands on implementation experience in building these machine learning algorithm using Python and Sklearn modules .
3. Implementation of a capstone project- To study or devise an innovative solution for a real world problem.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Artificial Intelligence : Structure of Intelligent Agent, Natural Language processing, Introduction to search technique, Artificial Intelligence vs Machine Leaning. Local Search algorithm and optimistic problem, Min-Max Algorithm, Alpha-Beta Pruning, Regression: Linear Regression and Logistic Regression .	CO1
2	Knowledge Representation, Propositional Logic, Inference in first order logic, Utility Theory, Bayes theorem, Bayes Optimal Classifier, Naïve Bayes Classifier, EM algorithm .	CO2
3	Hidden Markov Model (HMM), Understanding of Machine learning, Types of learning well defined learning problems, designing a learning system.	CO3
4	SVM classifier, ANN, Decision tree, Entropy and information theory, information gain, ID-3 algorithm, Statistical learning model, learning with hidden data/ complete data models.	CO4
5	Perceptron's multilayer perceptron, gradient descent and the delta rule, Multilayer networks, derivation of back propagation algorithm, clustering k- means, Classification techniques, Pattern recognition system and its principles.	CO5

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-19-20 VCS2004 Introduction to Artificial Intelligence & Applied Machine Learning (Practical Oriented)

25th Jan '2020 – 02th May 2020- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Course Outcomes

CO1.	Understand the mathematical and statistical prospective of machine learning through python programming
CO2	Design and Evaluate the supervised models through python/ Sklearn functions.
CO3	Design and Evaluate the Un-supervised models through python/ Sklearn functions.
CO4	Design and apply various reinforcement algorithm to solve real time complex problems.
CO5	Understand the basic concepts of deep neural network model and design the same.

CO-PO & CO-PSO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH - MATHURA

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-19-20 VCS2004 Introduction to Artificial Intelligence & Applied Machine Learning (Practical Oriented)

25th Jan '2020 – 02th May 2020- Every Saturday: 3:10 PM – 04:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	25-01-2020	3:10 PM - 4:50 PM	2	Introduction to Artificial Intelligence	Dr. Robin
2	01-02-2020	3:10 PM - 4:50 PM	2	Knowledge representation	Dr. Robin
3	08-02-2020	3:10 PM - 4:50 PM	2	Naïve Bayes classifier	Dr. Robin
4	22-02-2020	3:10 PM - 4:50 PM	2	Optimistic Problem	Dr. Robin
5	07-03-2020	3:10 PM - 4:50 PM	2	Understanding of Machine learning	Dr. Robin
6	14-03-2020	3:10 PM - 4:50 PM	2	SVM classifier	Dr. Robin
7	21-03-2020	3:10 PM – 4:50 PM	2	ANN	Dr. Robin
8	28-03-2020	3:10 PM – 4:50 PM	2	Designing a learning system,	Dr. Robin
9	04-04-2020	3:10 PM - 4:50 PM	2	Semantic Web	Dr. Robin
10	11-04-2020	3:10 PM – 4:50 PM	2	Perceptron and muti-layer, Back propagation algorithm	Dr. Robin
11	16-04-2020	3:10 PM – 4:50 PM	2	Entropy and information theory, information gain,	Dr. Robin
12	17-04-2020	3:10 PM – 4:50 PM	2	Perceptron and muti-layer, Back propagation algorithm	Dr. Robin
13	18-04-2020	3:10 PM – 4:50 PM	2	Gradient descent and the delta rule, Semantic Net	Dr. Robin
14	27-04-2020	3:10 PM – 4:50 PM	2	Pattern recognition system	Dr. Robin

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-19-20 VCS2004 Introduction to Artificial Intelligence & Applied Machine Learning (Practical Oriented)

25th Jan '2020 – 02th May 2020- Every Saturday: 3:10 PM – 04:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
15	28-04-2020	3:10 PM – 4:50 PM	2	Gradient descent and the delta rule	Dr. Robin
16	29-04-2020	3:10 PM – 4:50 PM	2	SVM, Statistical learning model	Dr. Robin
17	30-04-2020	3:10 PM – 4:50 PM	2	GBT	Dr. Robin
18	01-05-2020	3:10 PM – 4:50 PM	2	Classification Techniques	Dr. Robin
19	02-05-2020	3:10 PM – 4:50 PM	2	Regression Techniques	Dr. Robin
Total Number of Lectures covered			38 (31.66 Hrs)		

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY
FARAH, MATHURA

DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1903 - Nature Inspired Engineering

8th Feb – 4th May, 2020 - Every Saturday: 10:00 AM – 12:00 PM

Students From Any Branch Can Join the Course

By

Dr. Ajay Kumar Sharma
Associate Professor, Department of Biotechnology

Research interests: Application of nature inspired concepts in engineering and innovation

Head
Dept. of Bio-Technology
Hindustan College of Science & Technology
Farah, Mathura

Registration Dates
4th – 6th Feb, 2020
For Registration: Please contact
Mr. Raj Kumar, Office Staff

Prerequisites: Basic interest in Natural phenomenon and good observational skills.

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1903 - Nature Inspired Engineering

8th Feb – 4th May, 2020 - Every Saturday: 10:00 AM – 12:00 PM

Course Objectives

1. Understand the fundamentals of nature-inspired engineering.
2. Explore various principles and strategies derived from nature for engineering design and problem-solving.
3. Analyze and evaluate real-world case studies of nature-inspired engineering solutions.
4. Develop critical thinking and creativity to apply nature-inspired principles in engineering projects.
5. Foster an understanding of sustainability and ethical considerations in engineering practices.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Nature-Inspired Engineering: Definition and scope of nature-inspired engineering, Historical overview and notable examples of nature-inspired engineering, Benefits and challenges of nature-inspired approaches, Case studies illustrating successful applications of nature-inspired engineering	CO1
2	Principles of Biomimicry: Introduction to biomimicry and its relevance in engineering, Fundamental principles of biomimetic design, Analysis of biological systems for engineering inspiration, Biomimetic materials and structures in engineering applications	CO2
3	Biomaterials and Bioinspired Materials: Introduction to biomaterials and their properties, Bioinspired materials: hierarchical structures and functional properties, Design and fabrication of bioinspired materials for engineering applications	CO3
4	Nature-Inspired Energy Systems: Energy harvesting from nature: solar, wind, and tidal energy, Bio-inspired energy conversion and storage systems, Biomimetic approaches for energy-efficient engineering	CO4
5	Sustainability and Ethics in Nature-Inspired Engineering: Environmental sustainability in engineering design, Ethical considerations in nature-inspired engineering, Social impact assessment	CO5

Prerequisites: Basic interest in Natural phenomenon and good observational skills.

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1903 - Nature Inspired Engineering

8th Feb – 4th May, 2020 - Every Saturday: 10:00 AM – 12:00 PM

Course Outcomes

CO1	*Understand the scope, benefits, challenges, and successful applications of nature-inspired engineering.*
CO2	*Apply fundamental principles of biomimetic design and analyze biological systems for engineering inspiration.*
CO3	*Learn the approaches used in bioinspired materials with hierarchical structures and functional properties.*
CO4	*Utilize biomimetic approaches for energy-efficient engineering and energy conversion/storage systems.*
CO5	*Incorporate environmental sustainability and ethical considerations in nature-inspired engineering practices.*

CO-PO Mapping

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		1	1									
CO2	2	2	3	2					1	1		
CO3			3	1	1				1			
CO4	2	2	3	2					1	1		
CO5			2			2	3	3				
Average	2	1.67	2.4	1.67	1	2	3	3	1	1		

Evaluation Criteria: Class participation, engagement in discussions, quizzes, assignments, group projects, presentations

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1903 - Nature Inspired Engineering

8th Feb – 4th May, 2020 - Every Saturday: 10:00 AM – 12:00 PM

Program Schedule

Session	Date	Time	No. of Hours	Session Topic	Resource Person
1	08-02-2020	10:00 AM - 12:00 PM	2	Definition and scope of nature-inspired engineering	Dr. Ajay Kumar Sharma
2	07-03-2020	10:00 AM - 12:00 PM	2	Historical overview and notable examples of nature-inspired engineering	Dr. Ajay Kumar Sharma
3	14-03-2020	10:00 AM - 12:00 PM	2	Introduction to biomimicry and its relevance in engineering	Dr. Ajay Kumar Sharma
4	28-03-2020	10:00 AM - 12:00 PM	2	Fundamental principles of biomimetic design	Dr. Ajay Kumar Sharma
5	04-04-2020	10:00 AM - 12:00 PM	2	Introduction to biomaterials and their properties	Dr. Ajay Kumar Sharma
6	11-04-2020	10:00 AM - 12:00 PM	2	Bioinspired materials: hierarchical structures and functional properties	Dr. Ajay Kumar Sharma
7	18-04-2020	10:00 AM - 12:00 PM	2	Design and fabrication of bioinspired materials	Dr. Ajay Kumar Sharma
8	27-04-2020	10:00 AM - 12:00 PM	2	Energy harvesting from nature: solar, wind, and tidal energy	Dr. Ajay Kumar Sharma
9	28-04-2020	10:00 AM - 12:00 PM	2	Bio-inspired energy conversion and storage systems	Dr. Ajay Kumar Sharma
10	29-04-2020	10:00 AM - 12:00 PM	2	Environmental sustainability in engineering design	Dr. Ajay Kumar Sharma
11	30-04-2020	10:00 AM - 12:00 PM	2	Ethical considerations in nature-inspired engineering	Dr. Ajay Kumar Sharma
12	01-05-2020	10:00 AM - 5:00 PM	6	Hands-on projects applying nature-inspired engineering principles,	Dr. Ajay Kumar Sharma
13	02-05-2020	10:00 AM - 5:00 PM	6	Design and prototyping of nature-inspired solutions and presentations	Dr. Ajay Kumar Sharma
14	04-05-2020	10:00 AM - 12:00 PM	2	Design and prototyping of nature- continue	Dr. Ajay Kumar Sharma
Total number of hours covered			36		

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Roll No: NPTEL20CS13S1175550

To
PRATIBHA SHARMA
GHASS KI MANDI LAXMI NAGAR
HATHRAS
UTTAR PRADESH - 204101
PH. NO :9149132963

No. of credits recommended by NPTEL:3
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

Covid-19 Impacted January 2020 semester

This certificate is awarded to

PRATIBHA SHARMA

for passing the course

Compiler Design

*with Score** 82 %

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Jan-Apr 2020
(12 week course)

A. Goswami

Prof. Adrijit Goswami
Dean, Continuing Education & NPTEL Coordinator
IIT Kharagpur

Indian Institute of Technology Kharagpur

FREE ONLINE EDUCATION swayam

*Continuous online assessment score

To validate and check scores: https://nptel.ac.in/noc

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL19CS46S11010021

To
PRATIBHA SHARMA
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MATHURA
UTTAR PRADESH
281122
PH. NO :9149132963

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

PRATIBHA SHARMA

for successfully completing the course

Data Base Management System

with a consolidated score of **79** %

Online Assignments	21.88/25	Proctored Exam	57/75

Total number of candidates certified in this course: **3475**

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A. Goswami

Jul-Sep 2019
(8 week course)

Prof. Adrijit Goswami
Dean, Continuing Education & NPTEL Coordinator
IIT Kharagpur

Indian Institute of Technology Kharagpur

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF MATHEMATICS

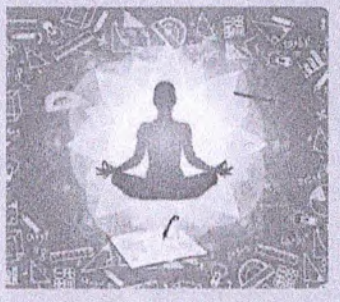
Value Added Course

VAS1801 – Fundamentals of Vedic Mathematics

12th Jan '2019 – 4th May 2019 - Every Saturday: 3:00 PM – 5:00 PM

By

Mr. Girraj Kumar Verma
Assistant Professor, Mathematics
Research Interest: Cryptography and Network security



Registration Dates
7h Jan 2019 – 10th Jan 2019
For Registration: Please contact
Mr. Rishi Pal Singh, Office Staff, Department of Ist yr

Prerequisites: Assumes familiarity with Basic Arithmetic, Algebra, Geometry

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF MATHEMATICS

Value Added Course

VAS1801 – Fundamentals of Vedic Mathematics

12th Jan '2019 – 4th May 2019 - Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Foster love for maths and remove its fear through Vedic Mathematics
2. Enhance computation skills in students through Vedic Mathematics
3. Develop logical and analytical thinking
4. Promote joyful learning of mathematics
5. Discuss the rich heritage of mathematical temper of Ancient India

Course Syllabus

Units	Details	Course Out comes
1	History of Vedic Maths and its Features, *Vedic Maths formulae: Sutras and Upsutras,* Addition in Vedic Maths: Without carrying, Dot Method, Subtraction in Vedic Maths: *Nikhilam Navatashcaramam Dashatah,* Fraction –Addition and Subtraction	CO1
2	Multiplication in Vedic Maths: Base Method (any two numbers upto three digits) Multiplication by *Urdhva Tiryak Sutra* Miracle multiplication: Any three-digit number by series of 1's and 9's Division by *Urdhva Tiryak Sutra (Vinculum method)*	CO2
3	Squares of any two-digit numbers: Base method Square of numbers ending in 5: *Ekadhikena Purvena SutraEasy square roots: Dwandwa Yoga (duplex) Sutra* Square root of 2: *Baudhayana Shulbasutra* Cubing: *Yavadunam Sutra*	CO3
4	Factoring Quadratic equation: *Anurupyena , Adyamadyenantyamantya Sutra* Concept of *Baudhayana (Pythagoras)*	CO4
5	*Theorem* Circling a square: *Baudhayana Shulbasutra Concept of pi: Baudhayana Shulbasutra* Concept angle (θ) 0°, 30°, 45°, 60° and 90°: *Baudhayana number.*	CO5

Prerequisites: Assumes familiarity with linear algebra, probability theory, and programming in Python.

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DEPARTMENT OF MATHEMATICS

Value Added Course

VAS1801 – Fundamentals of Vedic Mathematics

12th Jan '2019 – 4th May 2019 - Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	Overcome the fear of maths
CO2	Improved critical thinking
CO3	Familiarity with the mathematical underpinnings and techniques
CO4	Ability to do basic maths faster and with ease.
CO5	Appreciate the Mathematical advancements of Ancient India

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	1	1												
CO2	2	2										1	1	
CO3	2	2										1	1	
CO4	2	2										1	1	
CO5	2	1										1		
Average	1.8	1.8										1	1	

Evaluation Criteria: 1. Evaluation of assignments, Viva/Quiz

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DEPARTMENT OF MATHEMATICS

Value Added Course

VAS1801 – Fundamentals of Vedic Mathematics

12th Jan '2019 – 4th May 2019 - Every Saturday: 3:00 PM – 5:00 PM

HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	12-Jan-2019	3:00 PM - 5:00 PM	2	History of Vedic Maths and its Features	*Mr. Girraj Kumar Verma*
2	19-Jan-2019	3:00 PM - 5:00 PM	2	*Sutras and Upsutras*, Addition in Vedic Maths:	*Mr. Girraj Kumar Verma*
3	26-Jan-2019	3:00 PM - 5:00 PM	2	Dot Method, Subtraction in Vedic Maths	*Mr. Girraj Kumar Verma*
4	2-Feb-2019	3:00 PM - 5:00 PM	2	Multiplication in Vedic Maths	*Mr. Girraj Kumar Verma*
5	9-Feb-2019	3:00 PM - 5:00 PM	2	Multiplication by *Urdhva Tiryak Sutra* Miracle multiplication	*Mr. Girraj Kumar Verma*
6	16-Feb-2019	3:00 PM - 5:00 PM	2	Division by *Urdhva Tiryak Sutra (Vinculum method)*	*Mr. Girraj Kumar Verma*
7	23-Feb-2019	3:00 PM - 5:00 PM	2	Squares of any two-digit numbers	*Mr. Girraj Kumar Verma*
8	2-Mar-2019	3:00 PM - 5:00 PM	2	*Purvena SutraEasy square roots*	*Mr. Girraj Kumar Verma*
9	9-Mar-2019	3:00 PM - 5:00 PM	2	*Sutra* Square root of 2: *Baudhayana Shulbasutra* Cubing: *Yavadunam Sutra*	*Mr. Girraj Kumar Verma*
10	16-Mar-2019	3:00 PM - 5:00 PM	2	Factoring Quadratic equation	*Mr. Girraj Kumar Verma*
11	23-Mar-2019	3:00 PM - 5:00 PM	2	*Sutra* Concept of *Baudhayana (Pythagoras)*	*Mr. Girraj Kumar Verma*
12	30-Mar-2019	3:00 PM - 5:00 PM	2	*Theorem* Circling a square	*Mr. Girraj Kumar Verma*
13	6-Apr-2019	3:00 PM - 5:00 PM	2	*Concept of pi*	*Mr. Girraj Kumar Verma*
14	13-Apr-2019	3:00 PM - 5:00 PM	2	Numerical Problems discussions	*Mr. Girraj Kumar Verma*
15	20-Apr-2019	3:00 PM - 5:00 PM	2	Numerical Problems discussions	*Mr. Girraj Kumar Verma*
16	27-Apr-2019	3:00 PM - 5:00 PM	2	Assignment	*Mr. Girraj Kumar Verma*
17	4-May-2019	3:00 PM - 5:00 PM	2	Assignment evaluation & Feedback	*Mr. Girraj Kumar Verma*
Total Number of Hours covered			34		

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INVITES YOU FOR A

VALUE ADDED COURSE

ON

PROBLEM SOLVING USING C AND C++ (VACIT-001)

06th Feb 2019 - 16th April 2019

(Session: 2018 - 2019)

Registration Date: 28 Jan 2019 - 02 Feb 2019

For Registration, Please contact:
Mr. Ajay Raj Parashar
Assistant Professor, IT

Head
Department of Information Technology
Hindustan College of Science & Technology
Farah, Mathura

DEPARTMENT OF INFORMATION TECHNOLOGY

www.hcst.edu.in

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ABOUT
THE DEPARTMENT

Department of Information Technology was established in the year 1999 with an objective of imparting quality education in the field of Information Technology. Department of IT was accredited by National board of Accreditation (NBA) in 2006.

The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the Industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT
THE PROGRAM

This program is designed to provide a comprehensive overview of C/C++ programming. The syllabus covers a range of topics including functions, arrays and pointers, secure coding practices, exception handling and assertions, disk files and I/O, and generic programming with templates. Through practical exercises and problem sets, students will develop the skills to write efficient and secure code in C/C++. The course also covers the dynamic memory allocation model and the use of smart pointers to mitigate common memory pitfalls. In addition, students will have the opportunity to work with the Standard Template Library and understand its various components such as containers, iterators, and algorithms. This program provides a comprehensive learning experience for anyone looking to enhance their C/C++ programming skills. By the end of the program, students will be well-equipped to tackle complex coding projects and have a deep understanding of how to write efficient and secure code in C/C++.

Objectives

1. To provide a comprehensive overview of C/C++ programming and its various components.
2. To equip students with the skills to write efficient and secure code through the use of functions, arrays and pointers, and secure coding practices.
3. To teach students how to handle errors and exceptions in their code, and implement proper error handling and assertions.
4. To introduce students to the dynamic memory allocation model, including smart pointers and common memory pitfalls.
5. To help students understand and utilize the Standard Template Library and its various components, including containers, iterators, algorithms, and customizing and extending the STL. Allowing them to perform real-world data analysis and extract insights.

COURSE
OUTCOMES

CO-1:
Understand functions and write efficient, secure code in C/C++.

CO-2:
Analyze and use arrays, pointers, dynamic memory allocation, and type inference.

CO-3:
Identify and prevent common string and integer errors using secure coding practices.

CO-4:
Implement error handling, assertions, exceptions, stack unwinding, disk files, I/O streams, and the standard template library (STL), including customization and extension

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CO-PO-PSO MAPPING

Problem Solving using C and C++ (VACIT-001)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	3	2	2	-	3	-	3	2	-	-	2	2	3	-
CO-2	2	3	3	3	-	1	-	2	2	-	-	2	3	3	-
CO-3	1	2	-	2	1	1	-	-	2	-	-	2	3	2	-
CO-4	3	2	2	3	3	3	-	3	2	-	2	2	3	3	-
Avg	2.25	2.50	2.33	2.50	2.00	2.00	0.00	2.67	2.00	0.00	2.00	2.00	2.75	2.75	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

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Director
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Director
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FARAH (MATHURA)

CONVENOR

Dr. Shankar Thawkar
Associate Professor
HOD, IT

CO-CONVENOR

Mrs. Deepti Mittal
Assistant Professor
Dy. HOD, IT

VAC COORDINATOR

Mr. Ajay Raj Parashar
Assistant Professor
IT Department

Head
Department of Information Technology
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SPEAKERS

Mr. Ajay Raj Parashar
Assistant Professor
IT Department

Head
Department of Information Technology
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Farah, Mathura

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COURSE OUTLINE

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

- Introduction to functions
- Alt function syntax
- Function return type deduction
- Static, const, and inline functions
- Default parameters
- Overloaded functions (operator and members)
- Friend Functions
- Overriding functions

Module 2: Arrays and Pointers in C/C++

- Introduction to arrays and pointers
- Smart pointers
- Pointers and dynamic memory allocation
- Type inference
- Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

- Common string, integer, and dynamic memory allocation errors
- Integer and dynamic memory allocation vulnerabilities
- String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

- Introduction to errors and exceptions
- Exception mechanisms
- Exceptions and polymorphism
- Stack unwinding and cleanup
- Common error handling issues
- Using streams for input and output
- String streams, file streams, and bidirectional I/O
- Dynamic memory allocation model
- Working with dynamic memory, array-pointer duality, and smart pointers.

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Text Book/References:

- Horowitz and Sahani, "Fundamentals of Data Structures", Galgotia Publications Pvt Ltd Delhi India.

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LECTURE PLAN

Problem Solving using C and C++ (VACIT-001)

Module 1: Functions in C/C++

Lecture 1: Introduction to functions

Lecture 2: Alt function syntax

Lecture 3: Function return type deduction

Lecture 4: Static, const, and inline functions

Lecture 5: Default parameters

Lecture 6: Overloaded functions (operator and members)

Lecture 7: Friend Functions

Lecture 8: Overriding functions

Module 2: Arrays and Pointers in C/C++

Lecture 9: Introduction to arrays and pointers

Lecture 10: Smart pointers

Lecture 11: Pointers and dynamic memory allocation

Lecture 12: Type inference

Lecture 13: Array and pointer arithmetic and indirections

Module 3: Secure Coding Practices in C/C++

Lecture 14: Common string, integer, and dynamic memory allocation errors

Lecture 15: Integer and dynamic memory allocation vulnerabilities

Lecture 16: String vulnerabilities and mitigation strategies

Module 4: Exception Handling and I/O in C/C++

Lecture 17: Introduction to errors and exceptions

Lecture 18: Exception mechanisms

Lecture 19: Exceptions and polymorphism

Lecture 20: Stack unwinding and cleanup

Lecture 21: Common error handling issues

Lecture 22: Using streams for input and output

Lecture 23: String streams, file streams, and bidirectional I/O fstream

Lecture 24: Dynamic memory allocation model

Lecture 25: Working with dynamic memory, array-pointer duality, and smart pointers

Lecture 26: Review of functions in C/C++

Lecture 27: Review of arrays and pointers in C/C++indirections

Lecture 28: Review of secure coding practices in C/C++

Lecture 29: Review of exception handling and I/O in C/C++

Lecture 30: Final Exam Review

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INVITES YOU FOR A

VALUE ADDED COURSE

ON

ANDROID PROGRAMMING (VACIT-002)

07th Feb 2019 - 13th April 2019

(Session: 2018 - 2019)

Registration Date: 23 Jan 2019 - 30 Jan 2019

For Registration, Please contact:

Mr. Mohit Singh

Assistant Professor, IT

Head
Department of Information Technology
Hindustan College of Science & Technology
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ABOUT

THE DEPARTMENT

Department of Information Technology was established in the year 1999 with an objective of imparting quality education in the field of Information Technology. Department of IT was accredited by National board of Accreditation (NBA) in 2006.

The department is located in a sprawling environment with a highly qualified and experienced faculty. The department works with the objective of addressing critical challenges faced by the Industry, society and the academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

The department also have a student association QuBIT that provides a platform to future engineers to learn new technological innovations and also provide industry exposure to the students, by organizing workshops, seminars & other events.

ABOUT

THE PROGRAM

The program is designed to impart a comprehensive understanding of Android development to its participants. The course covers four modules, starting with the basics of Android, including its history and version, setup of Android Studio, and the internal workings of the platform. The second module focuses on Java programming concepts and their application in Android development. In the third module, the participants will learn about various layout managers and UI widgets, and how to design engaging and user-friendly interfaces. The fourth module delves into the usage of fragments, menus, adapters and views, which are important components of any Android application. By the end of the course, participants will have a solid foundation in Android development, and will be able to build their own Android applications with confidence. The course provides hands-on experience through practical examples and exercises, ensuring that participants can apply their knowledge in real-world scenarios.

Objectives

1. To impart a comprehensive understanding of the Android platform and its history.
2. To provide hands-on experience in using Android Studio for developing Android applications.
3. To build a solid foundation in Java programming concepts and their application in Android development.
4. To familiarize students with the design and implementation of user interfaces using various layout managers and UI widgets.
5. To equip students with the skills to use fragments, menus, adapters and views to create dynamic and flexible Android applications.

COURSE

OUTCOMES

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

CO-1:
Understand Android fundamentals, setup development environment, and utilize core building blocks.

CO-2:
Master Java programming, including classes, methods, abstraction, inheritance, exception handling, and threading.

CO-3:
Design layouts, develop activities, handle intents, and utilize UI widgets for interactive Android applications.

CO-4:
Develop dynamic fragments, implement menus, use adapters, and work with various views in Android applications.

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CO-PO-PSO MAPPING

Android Programming (VACIT-002)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	1	3	3	2	3	3	-	2	3	-	-	1	3	1	-
CO-2	2	3	2	2	3	2	-	1	3	-	-	2	3	2	-
CO-3	2	1	3	3	3	3	-	2	3	-	-	2	3	2	-
CO-4	2	2	-	3	3	3	-	2	2	-	-	2	3	3	-
Avg	1.75	2.25	2.67	2.50	3.00	2.75	0.00	1.75	2.75	0.00	0.00	1.75	3.00	2.00	0.00

PSO1:
Equip students with the latest IT knowledge and skills to tackle real-world challenges.

PSO2:
Foster leadership, critical thinking, problem-solving, and communication skills for IT careers.

PSO3:
Encourage entrepreneurship and innovation through research, start-up projects, industry collaborations, and business skills.

PO1	Engineering Knowledge
PO2	Problem Analysis
PO3	Design/development of solutions
PO4	Conduct investigations of complex Problems
PO5	Modern tool usage
PO6	The engineer and society
PO7	Environment and sustainability
PO8	Ethics
PO9	Individual and team work
PO10	Communication
PO11	Project management and finance
PO12	Life-long learning

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CONVENOR

Dr. Shankar Thawkar
Associate Professor
HOD, IT

CO-CONVENOR

Mrs. Deepti Mittal
Assistant Professor
Dy. HOD, IT

VAC COORDINATOR

Mr. Ajay Raj Parashar
Assistant Professor
IT Department

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SPEAKERS

Mr. Mohit Singh
Assistant Professor
IT Department

Head
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COURSE OUTLINE

Android Programming (VACIT-002)

Module 1: Basics of Android

- What is Android, History and Version
- Installing softwares, Setup Android Studio,
- Hello Android example,
- Internal Details, Dalvik VM, Software Stack
- Android Core Building Blocks, Android Emulator,
- AndroidManifest.xml

Module 2 : Basics of Java & Programming concepts

- Classes & Objects
- Methods, Method Overriding, Method Overloading
- Abstraction, Encapsulation,
- Polymorphism, Inheritance
- Constructor, Inner Class, Anonymous class, Abstract Class, Interface,
- Exception Handling, Packages, Thread

Module 3 : Layout Manager, Activity, Intent & UI Widgets

- Relative Layout, Linear Layout, Absolute Layout, Table Layout, Grid Layout
- Activity Lifecycle, Activity Example
- Implicit Intent, Explicit Intent
- Working with Text View, Edit Text, Button, Toast, Radio Button,
- Toggle Button, Switch Button, Image Button, Check Box, Image View, Alert Dialog, Spinner, Rating Bar,
- Progress Bar, Analog Clock and Digital Clock

Module 4 : Fragment, Android Menu, Adaptor & View

- Fragment Lifecycle, Fragment Example, Dynamic Fragment
- Option Menu, Context Menu, Popup Menu
- Array Adaptor, ArrayList Adaptor, Base Adaptor
- GridView, WebView, ScrollView, SearchView
- TabHost, DynamicListView, ExpandedListView

Text Book/References:

- "Android Application Development for Dummies" by Michael Burton
- "Java: The Complete Reference" by Herbert Schildt

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LECTURE PLAN

Android Programming (VACIT-002)

Module 1: Basics of Android

Lecture 1: Introduction to Android
Lecture 2: Setting up Android Studio
Lecture 3: Hello Android Example
Lecture 4: Android Core Building Blocks
Lecture 5: Dalvik VM and Android Software Stack
Lecture 6: Android Emulator
Lecture 7: Internal Details of Android
Lecture 8: Android Development Tools
Lecture 9: Google Play Store
Lecture 10: Recap and Revision

Module 2: Basics of Java & Programming concepts

Lecture 11: Introduction to Java
Lecture 12: Java Classes and Objects
Lecture 13: Java Methods
Lecture 14: Java Abstraction and Encapsulation
Lecture 15: Java Polymorphism and Inheritance
Lecture 16: Java Exception Handling
Lecture 17: Java Packages
Lecture 18: Java Threads
Lecture 19: Java Collections Framework
Lecture 20: Recap and Revision

Module 3: Layout Manager, Activity, Intent & UI Widgets

Lecture 21: Layout Managers in Android
Lecture 22: Android Activities and Activity Lifecycle
Lecture 23: Intents and Intent Filters
Lecture 24: Android UI Widgets
Lecture 25: Alert Dialog and Other UI Widgets

Module 4: Fragment, Android Menu, Adaptor & View

Lecture 26: Introduction to Fragments
Lecture 27: Android Menus
Lecture 28: Adaptors in Android
Lecture 29: Views in Android
Lecture 30: Recap and Revision

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Value Added Course

VEE1801 – SOLAR TECHNOLOGY

4 th AUG '2018– 1 st DEC 2018 - Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Mr. Vivek Agrawal

Assistant Professor, Electrical & Electronics Engineering

Research Interest: Control System

Registration Dates

25st Jul 2018 – 30th Jul 2018

For Registration: Please contact

Mr. Sunil Pathak, Office Staff, Department of EEE

Prerequisites: Basics Electrical Engineering

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VEE1801 – SOLAR TECHNOLOGY

4th AUG '2018 – 1st DEC 2018 - Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1) Understand the fundamental principles of solar energy and its conversion to electrical power.
2) Explore different types of solar panels and their working mechanisms.
3) Learn about the components and design considerations of solar photovoltaic systems.
4) Gain hands-on experience in solar panel installation, wiring, and troubleshooting.
5) Analyze the economic and environmental aspects of solar energy.
6) Stay updated with the latest advancements in solar technology and future trends.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Solar Energy : Overview of renewable energy sources, solar radiation and its measurement, Solar energy conversion technologies, Photovoltaic effect and solar cell operation, Environmental and economic benefits of solar energy	CO1
2	Solar Panel Technology : Types of solar panels: monocrystalline, polycrystalline, thin-film, etc., Construction and working principles of solar panels, Efficiency, power output, and degradation of solar panels, Factors affecting solar panel performance, Comparison of different solar panel technologies	CO2
3	Solar Photovoltaic Systems : System components: solar panels, inverters, charge controllers, batteries, etc., System design considerations: load estimation, sizing, shading analysis, Grid-tied vs. off-grid systems, Performance monitoring and maintenance of solar PV systems, Safety protocols and regulations for solar installations	CO3
4	Solar Panel Installation and Troubleshooting : Hands-on installation of solar panels on various surfaces, Mounting techniques and wiring practices, Electrical safety and code compliance, Testing and commissioning of solar PV systems, Troubleshooting common issues in solar installations	CO4
5	Advanced Topics and Future Trends : Emerging technologies in solar energy, Energy storage solutions for solar systems, Integration of solar power with smart grids, Policy and market trends in the solar industry, Research and development opportunities in solar technology	CO5

Prerequisites: Basic Electrical Engineering

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Course Outcomes

CO1 Students will gain a comprehensive understanding of the fundamental principles underlying solar energy, including the behavior of photons, the conversion of sunlight into electricity, and the various types of solar technologies.

CO2 Students will learn how to design and analyze solar systems, including photovoltaic (PV) systems and solar thermal systems. They will acquire the necessary skills to assess the energy requirements, evaluate site conditions, determine system sizing, and optimize the performance of solar installations.

CO3 Students will develop the ability to assess the solar energy potential of different locations. They will learn how to analyze solar radiation data, evaluate shading effects, and calculate the expected energy output of solar systems in order to make informed decisions regarding system deployment.

CO4 Students will explore the integration of solar technology with existing energy systems, such as the electrical grid and buildings. They will learn about the challenges and opportunities associated with grid-tied solar systems, net metering, energy storage, and the incorporation of solar energy into building design and construction.

CO5 The course will cover the broader aspects of solar technology, including its environmental sustainability and the policy frameworks that govern its implementation.

CO-PO Mappings

CO5	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3												2	3
CO2	3	3	3										3	2
CO3	3	3	3		3	3						3	3	3
CO4	3	3	3		3	3						3	3	3
CO5	3	3	3		3	3						3	3	3
Average	3	3	3		3	3						3	3	2.8

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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Value Added Course

VEE1801 – SOLAR TECHNOLOGY

4 th AUG '2018 – 1st DEC2018- Every Saturday: 3:00 PM – 5:00 PM

Program Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	04/08/18	3:00 PM - 5:00 PM	2	Introduction to Solar Energy	Mr. Vivek Agrawal
2	11/08/18	3:00 PM - 5:00 PM	2	Photovoltaic (PV) Cells and Modules	Mr. Vivek Agrawal
3	18/08/18	3:00 PM - 5:00 PM	2	Solar Panel Design and Installation	Mr. Vivek Agrawal
4	25/08/18	3:00 PM - 5:00 PM	2	Solar Energy Conversion Systems	Mr. Vivek Agrawal
5	01/09/18	3:00 PM - 5:00 PM	2	Solar Power Electronics	Mr. Vivek Agrawal
6	15/09/18	3:00 PM - 5:00 PM	2	Solar Resource Assessment and Site Analysis	Mr. Vivek Agrawal
7	22/09/18	3:00 PM - 5:00 PM	2	Solar Thermal Systems	Mr. Vivek Agrawal
8	29/09/18	3:00 PM - 5:00 PM	2	Concentrated Solar Power (CSP)	Mr. Vivek Agrawal
9	06/10/18	3:00 PM - 5:00 PM	2	Solar Energy Storage	Mr. Vivek Agrawal
10	13/10/18	3:00 PM - 5:00 PM	2	Solar System Economics and Policy	Mr. Vivek Agrawal
11	27/10/18	3:00 PM - 5:00 PM	2	Solar Energy Integration and Grid Interconnection	Mr. Vivek Agrawal
12	03/11/18	3:00 PM - 5:00 PM	2	Solar Energy Applications	Mr. Vivek Agrawal
13	10/11/18	3:00 PM - 5:00 PM	2	Solar Energy in Developing Countries	Mr. Vivek Agrawal
14	17/11/18	3:00 PM - 5:00 PM	2	Solar Energy and the Environment	Mr. Vivek Agrawal
15	24/11/18	3:00 PM - 5:00 PM	2	Emerging Trends in Solar Technology	Mr. Vivek Agrawal
16	01/12/18	3:00 PM - 5:00 PM	2	Solar Energy Conversion Systems	Mr. Vivek Agrawal
Total Number of Hours covered			32		

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course (VAC 2018-19)

VCE1801 – AutoCAD Essentials

27th July '2018 – 30st Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Rohit Maurya
Assistant Professor, Civil Engineering
Hindustan College of Science & Technology, Farah (Mathura)

Registration Dates
24th July '2018 – 27st July 2018

For Registration: Please contact
Mr. Anil Kashyap, Office Staff, Department of CE

Prerequisites: Basic computer knowledge, knowledge about structural elements (support conditions, beams, columns, slabs etc.) and IS codes.

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE1801 – AutoCAD Essential

27th July '2018 – 30st Nov 2018 - Every Friday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Learn about Structural Drawings
2. Planning and drawing of various structures
3. Structural Drawing of buildings

Course Syllabus

Units	Details	Course Out comes
1	Introduction of AUTOCAD, Draw commands, Cartesian coordinate system, Modify commands	CO1
2	Text command layers blocks, Isometric drawings, 2D fundamentals, Geometric constructions	CO2
3	Elevations, AutoCAD interface, Sketch entities & sketch tools, Dimensions & Dimensions Styles	CO3
4	Equations, Design Table, & Configurations, Isometric Views, Creating & Editing Text	CO4
5	Sketch Visualization & Sketch Analysis, Geometry & Dimensional Constraints, Principles of planning of building	CO5

Prerequisites: Basics of computer skills and engineering drawing

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Value Added Course

VCE1801 – AutoCAD Essential

27th July '2018 – 30st Nov 2018 - Every Friday : 3:10 PM – 4:50 PM

Course Outcomes:

After completion of the course student will be able to:

CO1	*Student will be able to complete object-oriented instinctive 2D/3D graphic model generation*
CO2	*Student will know the use of simple command language and built-in command file editor.*
CO3	*Student will be able to draw concrete beams/columns/slabs/footings as per all major.*
CO4	*Student will be able to create tables , make isometric view, also create editing text*
CO5	*Student will be able to Sketch Visualization & Sketch Analysis, Geometry & Dimensional Constraints.*

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2											3		
CO2	3		2										2	1	
CO3		3		2									2		
CO4		3	2	2									3	1	
CO5	2	2		3									2		
Average	2.6	2.5	2	2.3									2.4	1	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Prerequisites: Basics of computer skills and engineering drawing

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DEPARTMENT OF CIVIL ENGINEERING

Value Added Course

VCE2101 - Introduction to Auto Cad

27th July '2018 – 30st Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

Course Schedule

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	7/27/2018	3:10 PM - 4:50 PM	2	Topic 1: Introduction of AUTOCAD,	Rohit Maurya
2	8/3/2018	3:10 PM - 4:50 PM	2	Topic 2: Draw commands, Cartesian coordinate system,	Rohit Maurya
3	8/10/2018	3:10 PM - 4:50 PM	2	Topic 3: Modify commands, Text command layers blocks,	Rohit Maurya
4	8/17/2018	3:10 PM - 4:50 PM	2	Topic 4: Isometric drawings, 2D fundamentals,	Rohit Maurya
5	8/24/2018	3:10 PM - 4:50 PM	2	Topic 5: Geometric constructions Elevations	Rohit Maurya
6	8/31/2018	3:10 PM - 4:50 PM	2	Topic 6: AutoCAD interface, Sketch entities & sketch tools,	Rohit Maurya
7	9/7/2018	3:10 PM - 4:50 PM	2	Topic 7: Dimensions & Dimensions Styles	Rohit Maurya
8	9/14/2018	3:10 PM - 4:50 PM	2	Topic 8: Equations, Design Table,	Rohit Maurya
9	9/28/2018	3:10 PM - 4:50 PM	2	Topic 9: Configurations,	Rohit Maurya
10	10/5/2018	3:10 PM - 4:50 PM	2	Topic 10:Isometric Views,	Rohit Maurya
11	10/12/2018	2:20 PM - 4:50 PM	3	Topic 11:Creating & Editing Text	Rohit Maurya
12	10/26/2018	2:20 PM - 4:50 PM	3	Topic 12:Sketch Visualization &	Rohit Maurya
13	11/2/2018	2:20 PM - 4:50 PM	3	Topic 13:Sketch Analysis, Geometry &	Rohit Maurya
14	11/16/2018	2:20 PM - 4:50 PM	3	Topic 14:Dimensional Constraints,	Rohit Maurya
15	11/30/2018	2:20 PM - 4:50 PM	3	Topic 15:Principles of planning of building	Rohit Maurya
Total Number of Hours covered			**36(5X6)=30**		

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC-1701*-Process Equipment Design**

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Anurag Bajpai
HOD -Chemical Engineering

Registration Dates
2nd July 2018 – 07th July 2018
For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

Head
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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC -1701* - Process Equipment Design**

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1701 - Process Equipment Design

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC-1701* - Process Equipment Design**

Program Schedule

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	21-07-2018	3:10 PM – 4:50 PM	2	Topic 1: Design project procedure, design information from the literature	Mr. Anurag Bajpai
2	28-07-2018	3:10 PM – 4:50 PM	2	Topic 2: Flow diagrams, preliminary design	Mr. Anurag Bajpai
3	04-08-2018	3:10 PM – 4:50 PM	2	Topic 3: Comparison of different processes, equipment design	Mr. Anurag Bajpai
4	11-08-2018	3:10 PM – 4:50 PM	2	Topic 4: Scale-up in design, Materials of construction	Mr. Anurag Bajpai
5	18-08-2018	3:10 PM – 4:50 PM	2	Topic 5: Selection of materials, fabrication of equipment	Mr. Anurag Bajpai
6	25-08-2018	3:10 PM – 4:50 PM	2	Topic 6: Pressure vessels – calculation of thickness of cylindrical and spherical shells	Mr. Anurag Bajpai
7	01-09-2018	3:10 PM – 4:50 PM	2	Topic 7: Subjected to internal pressure, heads or covers	Mr. Anurag Bajpai
8	08-09-2018	3:10 PM – 4:50 PM	2	Topic 8: Storage vessels – storage of nonvolatile liquids, storage of volatile liquids	Mr. Anurag Bajpai
9	15-09-2018	3:10 PM – 4:50 PM	2	Topic 9: Storage of gases. Supports for vessels – bracket or lug supports	Mr. Anurag Bajpai
10	22-09-2018	3:10 PM – 4:50 PM	2	Topic 10: Leg supports, skirt supports, saddle supports	Mr. Anurag Bajpai
11	29-09-2018	3:10 PM – 4:50 PM	2	Topic 11: Design of double pipe heat exchangers	Mr. Anurag Bajpai
12	06-10-2018	3:10 PM – 4:50 PM	2	Topic 12: Shell and tube heat exchangers (1-2,2-4), optimum design and heat recovery	Mr. Anurag Bajpai
13	13-10-2018	3:10 PM – 4:50 PM	2	Topic 13: Selection of suitable heat exchanger	Mr. Anurag Bajpai
14	20-10-2018	3:10 PM – 4:50 PM	2	Topic 14: Design of single and multiple effect evaporators without boiling point elevation	Mr. Anurag Bajpai
15	27-10-2018	3:10 PM – 4:50 PM	2	Topic 15: Finite-stage contactors- bubble cap tray, sieve tray and valve tray units	Mr. Anurag Bajpai
16	03-11-2018	3:10 PM – 4:50 PM	2	Topic 16: Maximum allowable vapor velocities, plate and column efficiency, other design factors	Mr. Anurag Bajpai
17	10-11-2018	3:10 PM – 4:50 PM	2	Topic 17: Continuous contactors – types of packing, liquid distribution, pressure drop	Mr. Anurag Bajpai
18	17-11-2018	3:10 PM – 4:50 PM	2	Topic 18: Packing efficiencies. Relative merits of plate and packed towers, selection of contacting equipment	Mr. Anurag Bajpai
Total Number of Hours covered			**36 (30 Hours)**		

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702-Solid Waste Management

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

By

Mr. Sandeep Kumar Verma
Chemical Engineering

Registration Dates
2nd July 2018 – 07th July 2018
For Registration: Please contact
Mr. Raj Kumar, Office Staff, Department of Chemical Engineering

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC -1702* -Solid Waste Management**

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. Plan logistics for waste collection and disposal .
2. Formulate strategies for segregation of waste and waste reduction.
3. Plan appropriate recycles facility for heterogeneous wastes.
4 Plan and design waste collection systems.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to waste management Logistics, importance, methods of logistics, human components, technological components- waste handling equipment and technology, and managerial goals, steps in waste management logistics	CO1
2	Waste collection system and organization Environmental aspects of waste collection, role of public authority and private sector in waste collection, organizing collection of residential waste, fee schemes, public awareness programs	CO2
3	Source segregation and collection source-segregated waste, Purpose of source segregation, segregation criteria and guidance, segregation potential and efficiencies, systems for collecting segregated fraction	CO3
4	Waste transfer stations Waste delivery, waste transfer, transportation of the reloaded waste, siting and Design of waste transfer station, economical considerations, recycling solid wastes, materials recovery facilities	CO4

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

VAC-1702 - Solid Waste Management

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Plan logistics for waste collection and disposal
CO2	Formulate strategies for segregation of waste and waste reduction.
CO3	Plan appropriate recycles facility for heterogeneous wastes.
CO4	Plan and design waste collection systems.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	2	3											2		
CO3	2			3						2	2	2	2		
CO4			2	3						2	2	2		3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF CHEMICAL ENGINEERING

Value Added Course

***VAC-1702* - Solid Waste Management**

Program Schedule

14th July 2018 – 17th Nov 2018 - Every Saturday: 3:10 PM – 4:50 PM

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	21-07-2018	3:10 PM – 4:50 PM	2	Topic 1:Logistics, importance, methods of logistics	Dr. Sandeep Kumar Verma
2	28-07-2018	3:10 PM – 4:50 PM	2	Topic 2:human components, technological components	Dr. Sandeep Kumar Verma
3	04-08-2018	3:10 PM – 4:50 PM	2	Topic 3:waste handling equipment and technology	Dr. Sandeep Kumar Verma
4	11-08-2018	3:10 PM – 4:50 PM	2	Topic 4:managerial goals, steps in waste management logistics	Dr. Sandeep Kumar Verma
5	18-08-2018	3:10 PM – 4:50 PM	2	Topic 5:Environmental aspects of waste collection	Dr. Sandeep Kumar Verma
6	25-08-2018	3:10 PM – 4:50 PM	2	Topic 6:role of public authority and private sector in waste collection	Dr. Sandeep Kumar Verma
7	01-09-2018	3:10 PM – 4:50 PM	2	Topic 7:organizing collection of residential waste	Dr. Sandeep Kumar Verma
8	08-09-2018	3:10 PM – 4:50 PM	2	Topic 8: fee schemes, public awareness programs	Dr. Sandeep Kumar Verma
9	15-09-2018	3:10 PM – 4:50 PM	2	Topic 9:source-segregated waste	Dr. Sandeep Kumar Verma
10	22-09-2018	3:10 PM – 4:50 PM	2	Topic 10:Purpose of source segregation	Dr. Sandeep Kumar Verma
11	29-09-2018	3:10 PM – 4:50 PM	2	Topic 11:segregation criteria and guidance	Dr. Sandeep Kumar Verma
12	06-10-2018	3:10 PM – 4:50 PM	2	Topic 12:segregation potential and efficiencies	Dr. Sandeep Kumar Verma
13	13-10-2018	3:10 PM – 4:50 PM	2	Topic 13:systems for collecting segregated fraction	Dr. Sandeep Kumar Verma
14	20-10-2018	3:10 PM – 4:50 PM	2	Topic 14:Waste delivery, waste transfer	Dr. Sandeep Kumar Verma
15	27-10-2018	3:10 PM – 4:50 PM	2	Topic 15: transportation of the reloaded waste	Dr. Sandeep Kumar Verma
16	03-11-2018	3:10 PM – 4:50 PM	3	Topic 16:siting and Design of waste transfer station	Dr. Sandeep Kumar Verma
17	10-11-2018	3:10 PM – 4:50 PM	3	Topic 17:economical considerations, recycling solid wastes	Dr. Sandeep Kumar Verma
18	17-11-2018	3:10 PM – 4:50 PM		Topic 18: materials recovery facilities	Dr. Sandeep Kumar Verma
Total Number of Hours covered			**36 (30 Hours)**		

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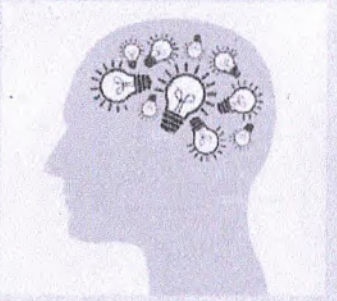
DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1301 – Introduction to Internet of Things (IOT)

30th Jan '2019 – 07th May 2019 – Every Wednesday: 3:10 PM – 4:50 PM

Students From Any Branch Can Join the Course



By

Mr. Honey Kumar

Assistant Professor, Electronics & Communication Engineering

Research Interest: IoT based projects, VLSI Design

Registration Dates

21st Jan 2019 – 29th Jan 2019

For Registration: Please contact

Mr. Sanjay Gupta, Lab Technician, Department of ECE

Prerequisites: Basic knowledge of knowledge of sensors, transducer, microprocessor and microcontroller, and programming in Python.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1801 - Introduction to Internet of Things (IOT)

30th Jan '2019 – 07th May 2019 – Every Wednesday: 3:10 PM – 4:50 PM

Course Objectives

The main objective of this value added course are as follows:

1. This course gives a foundation in the Internet of Things, including the components, tools, and analysis by teaching the concepts behind the IoT and a look at real-world solutions. This course will describe the technology used to build these kinds of devices, how they store data, and the kinds of distributed systems needed to support them.
2. Divided into five modules, we will learn by doing. We will start with basic definitions and concept of IoT.
3. This course focuses on the latest microcontrollers with application development, product design and prototyping using IoT supported hardwares. Ideally suited for engineering students and graduates with a basic understanding of electronics and microprocessors. They are also able to design & develop IoT Devices. Also gain insights about the current trends of Associated IOT technologies. The overall goal of this course is to enable you to build an IoT system from the ground up.

Course Syllabus

Units	Details	Course Out comes
1	**INTRODUCTION TO IOT** : What is Internet of Things ?, Getting started with IoT, How IOT became 21st Century Hottest Topic, How Internet of Things works, How Things Talk to Internet	CO1
2	**IOT ARCHITECHTURE:** Three Layer Architecture, Four Layer Architecture, Five Layer Architecture	CO2
3	**HARDWARE:** Functional blocks of an IoT ecosystem, IoT – Sensors, Actuators, Wearable Electronics, Standard Devices, Smart Objects and Connecting Smart Objects	CO3
4	**DESIGN AND DEVELOPMENT:** Design Methodology, Embedded computing logic, Microcontroller, System on Chips, IoT system building blocks, IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, Arduino Board	CO4
5	**ASSOCIATED IOT TECHNOLOGIES:** Cloud Computing: Introduction, Cloud Models, Service-Level Agreement in Cloud Computing, Cloud Implementation, Sensor-Cloud: Sensors-as-a-Service.	CO5

Prerequisites: Basic knowledge of knowledge of sensors, transducer, microprocessor and microcontroller, and programming in Python.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1801 - Introduction to Internet of Things (IOT)

30th Jan '2019 – 07th May 2019 – Every Wednesday: 3:10 PM – 4:50 PM

Course Outcomes

CO1	Understand the definition and concept of Internet of Things.
CO2	Discuss the layered architecture of an IoT system and their operations.
CO3	Able to understand the use of various basic hardware to design an IoT system.
CO4	Design and development of IoT devices using IoT supported hardware platforms such as: Raspberry pi, Arduino Board.
CO5	Explain Associated IoT Technologies.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3											3	2	
CO2	2	2	2									3	2	
CO3	3	2	3									3		3
CO4	3		3									3		3
CO5	3	2	2									3		3
Average	2.8	2	2.5									3	2	3

Evaluation Criteria: 1. Class attendance, Group project and its presentation, Quiz and Viva.

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DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

Value Added Course

VEC1801 - Introduction to Internet of Things (IOT)

30th Jan '2019 – 07th May 2019 – Every Wednesday: 3:10 PM – 4:50 PM

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	30-01-2019	3:10 PM – 4:50 PM	2	Preamble of the course	Mr. Honey Kumar
2	06-02-2019	3:10 PM – 4:50 PM	2	Introduction to IOT : What is Internet of Things ?	Mr. Honey Kumar
3	13-02-2019	3:10 PM – 4:50 PM	2	Getting started with IoT, How IOT became 21st Century Hottest Topic	Mr. Honey Kumar
4	27-02-2019	3:10 PM – 4:50 PM	2	How Internet of Things works	Mr. Honey Kumar
5	06-03-2019	3:10 PM – 4:50 PM	2	IOT Architecture: Three Layer Architecture	Mr. Honey Kumar
6	13-03-2019	3:10 PM – 4:50 PM	2	Four Layer Architecture,	Mr. Honey Kumar
7	27-03-2019	3:10 PM – 4:50 PM	2	Five Layer Architecture	Mr. Honey Kumar
8	03-04-2019	3:10 PM – 4:50 PM	2	Functional blocks of an IoT ecosystem	Mr. Honey Kumar
9	10-04-2019	3:10 PM – 4:50 PM	2	IoT – Sensors, Actuators	Mr. Honey Kumar
10	24-04-2019	3:10 PM – 4:50 PM	2	Wearable Electronics, Standard Devices	Mr. Honey Kumar
11	02-05-2019	3:10 PM – 4:50 PM	2	Smart Objects and Connecting Smart Objects	Mr. Honey Kumar
12	03-05-2019	3:10 PM – 4:50 PM	2	Design and Development: Design Methodology	Mr. Honey Kumar
13	04-05-2019	11:00 AM - 4:50 PM	6	Embedded computing logic, Microcontroller, System on Chips, IoT system building blocks	Mr. Honey Kumar
14	06-05-2019	11:00 AM - 4:50 PM	6	IoT Platform overview: Overview of IoT supported Hardware platforms such as: Raspberry pi, Arduino Board	Mr. Honey Kumar
15	07-05-2019	11:00 AM - 4:50 PM	6	Associated IOT Technologies: Cloud Computing: Introduction, Cloud Models, Service-Level Agreement in Cloud Computing, Cloud Implementation, Sensor-Cloud: Sensors-as-a-Service.	Mr. Honey Kumar
Total Number of Lectures covered			**42 (35 Hours)**		

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-18-19-VCS1803 - JAVA Programming through Object Oriented Concept

04th August'2018 – 29th December 2018- Every Saturday: 3:00 PM – 5:00 PM

Students From Any Branch Can Join the Course

By

Mr. Munish Khanna
Assistant Professor, HOD -Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
30th Jul 2018– 01th Aug 2018
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-18-19-VCS1803 - JAVA Programming through Object Oriented Concept

04th August'2018 – 29th December 2018- Every Saturday: 3:00 PM – 5:00 PM

Course Outcomes

CO1	Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs
CO2	Read and make elementary modifications to Java programs that solve real-world problems
CO3	Validate input in a Java program
CO4	Identify and fix defects and common security issues in code.
CO5	Document a Java program using Javadoc and Use a version control system to track source code in a project.

CO-PO & CO-PSO Mappings

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-18-19-VCS1803 - JAVA Programming through Object Oriented Concept

04th August'2018 – 29th December 2018- Every Saturday: 3:00 PM – 5:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Understand the basic object oriented programming concepts and apply them in problem solving.
2. Illustrate inheritance concepts for reusing the program.
3. Demonstrate on the multi-tasking by using multiple threads.
4. Develop data-centric applications using JDBC.
5. Understand the basics of java console and GUI based programming.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Java : Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.	CO1
2	Basics of objects and classes in java, Methods and objects, Inbuilt classes like String, Character, String Buffer, File, this reference	CO2
3	Inheritance in java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package	CO3
4	JEvent handling in java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing	CO4
5	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	CO5
6	Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally, Collections in java, Introduction to JavaBeans and Network Programming	CO5

Prerequisites Knowledge of c++ programming and oops concepts

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VAC-18-19-VCS1803 - JAVA Programming through Object Oriented Concept

04th August'2018 – 29th December 2018- Every Saturday: 3:00 PM – 5:00 PM

Program Schedule:

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	04-08-2018	3:00 PM - 5:00 PM	2	Introduction to Java : Basics of Java programming	Dr. Munish Khanna
2	11-08-2018	3:00 PM - 5:00 PM	2	Data types, Variables, Operators, Control structures including selection	Dr. Munish Khanna
3	18-08-2018	3:00 PM - 5:00 PM	2	Looping, Java methods, Overloading, Math class, Arrays in java.	Dr. Munish Khanna
4	25-08-2018	3:00 PM - 5:00 PM	2	Basics of objects and classes in java	Dr. Munish Khanna
5	01-09-2018	3:00 PM - 5:00 PM	2	Constructors, Finalizer, Visibility modifiers	Dr. Munish Khanna
6	08-09-2018	3:00 PM - 5:00 PM	2	Methods and objects, Inbuilt classes like String,	Dr. Munish Khanna
7	15-09-2018	3:00 PM - 5:00 PM	2	Character, String Buffer, File, this reference	Dr. Munish Khanna
8	22-09-2018	3:00 PM - 5:00 PM	2	Inheritance in java, Super and sub class, Overriding	Dr. Munish Khanna
9	29-09-2018	3:00 PM - 5:00 PM	2	Object class, Polymorphism, Dynamic binding,	Dr. Munish Khanna
10	06-10-2018	3:00 PM - 5:00 PM	2	Generic programming, Casting objects, Instance of operator	Dr. Munish Khanna
11	13-10-2018	3:00 PM - 5:00 PM	2	Abstract class, Interface in java, Package in java, UTIL package.	Dr. Munish Khanna
12	27-10-2018	3:00 PM - 5:00 PM	2	Event handling in java, Event types, Mouse and key events, GUI Basics .	Dr. Munish Khanna
13	03-11-2018	3:00 PM - 5:00 PM	2	Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, Text Fields, Text Areas, Combo Boxes, Lists	Dr. Munish Khanna
14	10-11-2018	3:00 PM - 5:00 PM	2	Scroll Bars, Sliders, Windows, Menus, Dialog Box, Applet and its life cycle, Introduction to swing	Dr. Munish Khanna
15	24-11-2018	3:00 PM - 5:00 PM	2	Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files	Dr. Munish Khanna
16	01-12-2018	3:00 PM - 5:00 PM	2	Thread life cycle and methods, Runnable interface	Dr. Munish Khanna
17	08-12-2018	3:00 PM - 5:00 PM	2	Thread synchronization, Exception handling with try-catch-finally, Collections in java,	Dr. Munish Khanna
18	15-12-2018	3:00 PM - 5:00 PM	2	Introduction to JavaBeans, Network Programming	Dr. Munish Khanna
19	22-12-2018	3:00 PM - 5:00 PM	2	Final Assessment	Dr. Munish Khanna
20	29-12-2018	3:00 PM - 5:00 PM	2	Mini Project	Dr. Munish Khanna

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DEPARTMENT MECHANICAL ENGINEERING

Value Added Course: Basics of Finite Element Analysis (Practical Oriented)
VAC-18-19-VME1802

2nd Feb '2019– 8th May 2019 - Every Saturday: 2:20 PM – 4:00 PM

Students From Any Branch Can Join the Course

By

Mr. Raj Vardhan
Assistant Professor, Mechanical Engineering
Research Interest: Applied Mechanics

Registration Dates
24th Jan 2019 –28th Jan 2019
For Registration: Please contact
Mrs. Geeta Gupta, Office Staff, Department of ME

Prerequisites: Basics of laws related to mechanics of solids

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-18-19-VME1802 - Basics of Finite Element Analysis (Practical Oriented)

2nd Feb '20219– 8th May 2019 - Every Saturday: 2:20 PM – 4:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Understanding the principles and theory of Finite element Method.
2. Developing modeling skills
3. Analyzing engineering problems:
4. Interpreting results

Course Syllabus

Units	Details	Course Out comes
1	Understanding the principles and theory: Gain a solid understanding of the fundamental principles and theory underlying the finite element method	CO1
2	Learn how to create accurate and efficient finite element models. This involves acquiring skills in CAD modeling.	CO2
3	Finite Element Analysis: Postprocessing and Results Interpretation	CO3
4	Practical Applications and Case Studies.	CO4

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Department of Mechanical Engg.
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HINDUSTAN COLLEGE OF SCIENCE & TECHNOLOGY, FARAH -MATHURA

DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-18-19-VME1802 - Basics of Finite Element Analysis (Practical Oriented)

2nd Feb '20219– 8th May 2019 - Every Saturday: 2:20 PM – 4:00 PM

Evaluation Criteria: 1. Evaluation of Practical assignments, Group project, Viva/Quiz

Course Outcomes

CO1	Recall potential energy concepts or vibrational methods for solving complex structural geometries of mechanical applications. Explain the shape function concepts of one and two dimensional elements for enriching knowledge on stiffness matrix and load vector
CO2	Apply numerical methods on one dimensional bar elements for obtaining displacements, stresses, strains and reaction forces. Make use of shape functions of two degree of freedom two noded truss and beam elements for obtaining stiffness matrix and load vector
CO3	Demonstrate the physical models of truss and beam elements by applying finite element method for displacements, stresses and strains. Recall the fundamental structural concepts of equilibrium equations, stress-strain relations and strain displacements for solving 2D and 3D elastic problems.
CO4	Illustrate finite element modelling of triangular, axi-symmetric and four noded elements for obtaining shape functions of two dimensional elements. Utilize the concepts of shape functions for developing stiffness matrix of triangular, axisymmetric and four noded elements.

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											2	
CO2	1	2												2
CO3	1			3										2
CO4			2	3										2
Average	2	2.5	2	3									2	3

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

VAC-18-19-VME1802 - Basics of Finite Element Analysis (Practical Oriented)

2nd Feb '20219– 8th May 2019 - Every Saturday: 2:20 PM – 4:00 PM

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Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	2-Feb	2:20 PM - 4:00 PM	2	Introduction to Finite Element Analysis (FEA)	Mr.Raj Vardhan
2	9-Feb	2:20 PM - 4:00 PM	2	Fundamentals of FEA Finite element	Mr.Raj Vardhan
3	16-Feb	2:20 PM - 4:00 PM	2	Discretization and element types	Mr.Raj Vardhan
4	23-Feb	2:20 PM - 4:00 PM	2	Mathematical background and principles of FEA	Mr.Raj Vardhan
5	2-Mar	2:20 PM - 4:00 PM	2	CAD modeling and geometry preparation	Mr.Raj Vardhan
6	16-Mar	2:20 PM - 4:00 PM	2	Mesh generation and refinement techniques	Mr.Raj Vardhan
7	30-Mar	2:20 PM - 4:00 PM	2	Assigning material properties and boundary conditions	Mr.Raj Vardhan
8	6-Apr	2:20 PM - 4:00 PM	2	Assembly and solution of finite element equations	Mr.Raj Vardhan
9	2-May	2:20 PM - 4:00 PM	2	Solving linear and nonlinear problems	Mr.Raj Vardhan
10	3-May	2:20 PM - 4:00 PM	2	Extraction of relevant engineering quantities	Mr.Raj Vardhan
11	4-May	2:20 PM - 4:00 PM	2	Application of FEA to real-world engineering problems	Mr.Raj Vardhan
12	6-May	2:20 PM - 4:00 PM	2	Structural analysis, heat transfer analysis, and fluid flow analysis	Mr.Raj Vardhan
13	7-May	11:00 AM - 4:50 PM	6	Introduction to the specific finite element analysis	Mr.Raj Vardhan
14	8-May	11:00 AM - 4:50 PM	6	Project	Mr.Raj Vardhan
Total Number of Hours covered			36(30hrs)		

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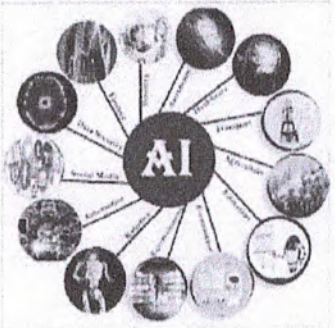
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS1902 – Basic Understanding of Artificial Intelligence

02 February 2019 – 07 May 2019- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course



By

Mr. Praveen Gupta
Assistant Professor, Computer Science & Engineering
Research Interest: Application of Artificial Intelligence Techniques on Software systems and Medical image analysis

Registration Dates
20th January 2019 – 1st Febuary 2019
For Registration: Please contact
Mr. Yogesh Sharma, Office Staff, Department of CSE

Prerequisites: Assumes familiarity with linear algebra, probability theory, and programming in Python.

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS1902 – Basic Understanding of Artificial Intelligence

02 February 2019 – 07 May 2019- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Course Objectives

The main objective of this value added course are as follows:

1. Understand the concepts of AI and searching techniques.
2. To develop the logical skills of knowledge and its representational structure.
3. Understand the concepts of natural languages processing.

Course Syllabus

Units	Details	Course Out comes
1	Introduction to Artificial Intelligence : The Foundations of Artificial Intelligence, The History of Artificial Intelligence, The history of Artificial Intelligence and the state of the Art. Solving problems by searching: problem-solving Agents, Formulation problems.	CO1
2	Intelligent Agents: Introduction , How Agents should Act, Structure of Intelligent Agents Environments. Agent that Reason logically, A knowledge based Agent.	CO2
3	Planning A simple Planning Agent from problem solving to planning. Planning in situation calculations. Basics representations for planning.	CO3
4	Leaning in Artificial neural networks. How the Brain works, Neural Network, perceptions, Multi-layered feed forward networks applications back propagation algorithm applications of neural network.	CO4
5	knowledge representations: semantic Net, semantic Web ,conceptual Dependencies, conceptual Graphics,script,frames, Natural language processing.	CO5

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Value Added Course

VCS1902 – Basic Understanding of Artificial Intelligence

02 February 2019 – 07 May 2019- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Course Outcomes

CO1	Understand the concepts of AI and related searching algorithm
CO2	Develop the knowledge skills and its representational structure in AI.
CO3	Study how design the programming skill in PROLOG and concepts of pattern recognition approaches
CO4	Design and apply various reinforcement algorithm to solve real time complex problems.
CO5	Study the concepts of supervised or unsupervised machine learning and game technique.

CO-PO & CO-PSO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	3											2		
CO2	1	3											2		
CO3	2	2		3						2	2	2	2		
CO4		3	2	3						2	2	2		3	
CO5		2	2	3	2									3	
Average	2	3	2	3						2	2	2	2	3	

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS1902 – Basic Understanding of Artificial Intelligence

02 February 2019 – 07 May 2019- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Program Schedule

Session	Date	Time	No of Lectures	Session Topic	Resource Person
1	02-02-2019	3:10 PM - 4:50 PM	2	Introduction to Artificial Intelligence	Mr. Praveen Gupta
2	09-02-2019	3:10 PM - 4:50 PM	2	Intelligent Agents	Mr. Praveen Gupta
3	16-02-2019	3:10 PM - 4:50 PM	2	A knowledge based Agent	Mr. Praveen Gupta
4	23-02-2019	3:10 PM - 4:50 PM	2	Optimistic Problem	Mr. Praveen Gupta
5	02-03-2019	3:10 PM - 4:50 PM	2	Basic representation for planning	Mr. Praveen Gupta
6	16-03-2019	3:10 PM - 4:50 PM	2	Perceptron's & multilayer perceptron	Mr. Praveen Gupta
7	30-03-2019	3:10 PM – 4:50 PM	2	Statistic learning model	Mr. Praveen Gupta
8	06-04-2019	3:10 PM – 4:50 PM	2	Conceptual Dependencies	Mr. Praveen Gupta
9	12-04-2019	1:30 PM – 3:10 PM	2	Back propagation algorithm	Mr. Praveen Gupta
10	15-04-2019	3:10 PM - 4:50 PM	2	Natural language processing	Mr. Praveen Gupta
11	16-04-2019	3:10 PM – 4:50 PM	2	Semantic Net	Mr. Praveen Gupta
12	18-04-2019	3:10 PM – 4:50 PM	2	Multi-layered feed forward networks	Mr. Praveen Gupta
13	22-04-2019	3:00 PM - 4:40 PM	2	Applications of neural network	Mr. Praveen Gupta
14	23-04-2019	3:10 PM – 4:50 PM	2	semantic Net	Mr. Praveen Gupta
15	02-05-2019	3:10 PM – 4:50 PM	2	AI applications, Software Agents	Mr. Praveen Gupta

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Value Added Course

VCS1902 – Basic Understanding of Artificial Intelligence

02 February 2019 – 07 May 2019- Every Saturday: 3:10 PM – 04:50 PM

Students From Any Branch Can Join the Course

Program Schedule

16	03-05-2019	3:10 PM – 4:50 PM	2	Problem Solving Methods	Mr. Praveen Gupta
17	04-05-2019	3:10 PM – 4:50 PM	2	Game Playing, Optimal Decisions in Games	Mr. Praveen Gupta
18	06-05-2019	3:10 PM – 4:50 PM	2	Alpha-Beta Pruning, Stochastic Games	Mr. Praveen Gupta
19	07-05-2019	3:10 PM – 4:50 PM	2	Knowledge Representation	Mr. Praveen Gupta
Total Number of Lectures covered			**38 Lectures (31.5 Hrs)**		

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1802 –Mushroom Cultivation Technology

02nd February, 2019 – 8th May, 2019 - Every Saturday: 10:00 AM – 12:00 PM

By

Dr. Arun Prasad Chopra
Associate Professor, Department of Biotechnology Engineering
Research Interest: Identification of novel genes for crop improvement, Mushroom cultivation technology, Improvement of natural farming technology

Registration Dates
28th Jan 2019 – 30th Jan 2019

For Registration: Please contact
Mr. Raj Kumar, office Assistant
Department of Biotechnology

Prerequisites: Assumes familiarity with basic knowledge of biology.

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A.P. Chopra

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1802 –Mushroom Cultivation Technology

02nd February, 2019 – 8th May, 2019 - Every Saturday: 10:00 AM – 12:00 PM

Course Objectives

The main objective of this value added course are as follows:

1. Enable the students to identify edible and poisonous mushrooms
2. Provide hands on training for the preparation of bed for mushroom cultivation and spawn production
3. Give the students exposure to the experiences of experts and functioning mushroom farms

Course Syllabus

Units	Details	Course Out comes
1	Introduction to mushrooms: Mushrooms -Taxonomical rank -History and Scope of mushroom cultivation Edible and Poisonous Mushrooms-Vegetative character.	CO1
2	Common edible mushrooms: Button mushroom (*Agaricus bisporus*), Milky mushroom (*Calocybe indica*), Oyster mushroom (*Pleurotus florida* (Oyster White), *Pleurotus sajor*caju, *Pleurotus djmore*) and paddy straw mushroom (*Volvariella volvcea*).	CO2
3	Principles of mushroom cultivation: Structure and construction of mushroom house. Sterilization of substrates. Spawn production -culture media preparation- production of pure culture, mother spawn, and multiplication of spawn. Composting technology, mushroom bed preparation. Spawning, spawn running, harvesting. Cultivation of oyster and paddy straw mushroom. Problems in cultivation - diseases, pests and nematodes, weed moulds and their management strategies.	CO3
4	Health benefits of mushrooms: Nutritional and medicinal values of mushrooms. Therapeutic aspects-antitumor effect	CO4
5	Preservation of mushrooms - freezing, dry freezing, drying, canning, quality assurance and entrepreneurship. Value added products of mushrooms.	CO5

Prerequisites: Assumes familiarity with basic knowledge of biology

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1802 –Mushroom Cultivation Technology

02nd February, 2019 – 8th May, 2019 - Every Saturday: 10:00 AM – 12:00 PM

Course Outcomes

CO1 *Identify edible mushrooms*

CO2 *Acquire knowledge of storage and revival of pure cultures of edible fungi, Preparation of mother spawns, Knowledge of edible mushrooms grown in different parts of India, Climatic conditions associated with different mushrooms .*

CO3 *Cultivation technology of commonly grown edible mushrooms, Cultivation of different variety of mushroom spawns*

CO4 *Manage the diseases and pests of mushrooms*

CO5 *Mushroom technology as entrepreneurship*

CO-PO Mappings

COS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3											2	
CO2	2	3											2	
CO3	2			3						2	2	2	2	
CO4			2	3						2	2	2		3
CO5			2	3										3
Average	2	3	2	3						2	2	2	2	3

Evaluation Criteria: Evaluation of Practical assignments, Group project, Viva/Quiz

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DEPARTMENT OF BIOTECHNOLOGY

Value Added Course

VBT1802 –Mushroom Cultivation Technology

Program Schedule

02nd February, 2019 – 8th May, 2019 - Every Saturday: 10:00 AM – 12:00 PM

Session	Date	Time	No of Hours	Session Topic	Resource Person
1	02-02-2019	10:00 AM – 12:00 PM	2	Introduction to Mushroom cultivation, objectives	Dr. Arun P. Chopra
2	09-02-2019	10:00 AM – 12:00 PM	2	Edible, non edible and medicinal mushrooms	Dr. Arun P. Chopra
3	16-02-2019	10:00 AM – 12:00 PM	2	Growing conditions of types of mushrooms in different seasons	Dr. Arun P. Chopra
4	23-02-2019	10:00 AM – 12:00 PM	2	Structure and construction of mushroom cultivation room	Dr. Arun P. Chopra
5	02-03-2019	10:00 AM – 12:00 PM	2	Media preparation	Dr. Arun P. Chopra
6	16-03-2019	10:00 AM – 12:00 PM	2	Spawn production	Dr. Arun P. Chopra
7	30-03-2019	10:00 AM – 12:00 PM	2	Problems associated with mushroom cultivation	Dr. Arun P. Chopra
8	06-04-2019	10:00 AM – 12:00 PM	2	Diseases associated with mushroom cultivation	Dr. Arun P. Chopra
9	02-05-2019	10:00 AM – 12:00 PM	2	Post harvest technologies	Dr. Arun P. Chopra
10	03-05-2019	10:00 AM – 12:00 PM	2	Quality assurance and entrepreneurship	Dr. Arun P. Chopra
11	04-05-2019	10:00 AM – 12:00 PM	2	Project	Dr. Arun P. Chopra
12	06-05-2019	10:00 AM – 5:00 PM	6	Project	Dr. Arun P. Chopra
13	07-05-2019	10:00 AM – 5:00 PM	6	Project	Dr. Arun P. Chopra
14	08-05-2019	10:00 AM – 12:00 PM	2	Project Evaluation	Dr. Arun P. Chopra
Total Number of Hours covered			**36**		

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A.P. Chopra

NPTEL Online Certification

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This certificate is awarded to

AMANJIT YADAV

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **50 %**

Online Assignments	12.00/25	Proctored Exam	38.25/75

Total number of candidates certified in this course: **12219**

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Center for Continuing Education, IITK

Aug-Oct 2018
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

SWAYAM

Roll No: NPTEL18HS30S21010192

To validate and check scores: http://nptel.ac.in/noc

Director
Hindustan College of
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Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

HARSH GARG

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **67** %

Online Assignments	23.83/25	Proctored Exam	43.5/75

Total number of candidates certified in this course: **12219**

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Center for Continuing Education, IITK

Aug-Oct 2018
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

Director
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Roll No: NPTEL18HS30S110[illegible]

To validate and check scores: http://nptel.ac.in/noc

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

GURMAN SINGH BHATIA

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **63** %

Online Assignments	19.50/25	Proctored Exam	43.5/75

Total number of candidates certified in this course: **12219**

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Center for Continuing Education, IITK

Aug-Oct 2018
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

Director
Hindustan College of
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Roll No: NPTEL18HS[illegible]1010115

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Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

DHRUV CHAUDHARY

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **64 %**

Online Assignments	23.67/25	Proctored Exam	40.5/75

Total number of candidates certified in this course: **12219**

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Center for Continuing Education, IITK

Aug-Oct 2018
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

Director
Hindustan College of
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To verify the certificate, check scores at http://nptel.ac.in/noc

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NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

HEMANT PARIHAR

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **80 %**

Online Assignments	22.83/25	Proctored Exam	57/75

Total number of candidates certified in this course: **12219**

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Center for Continuing Education, IITK

Aug-Oct 2018
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

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Roll No: NPTEL18HS30S11010058

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NPTEL Online Certification

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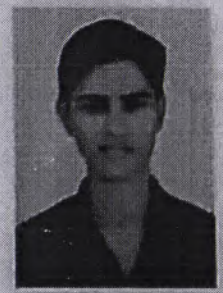

This certificate is awarded to

MOHAMMAD SERAJ

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **75** %

Online Assignments	23.50/25	Proctored Exam	51.25/75

Total number of candidates certified in this course: **10466**

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Centre for Continuing Education, IITK

Feb-Apr 2019
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
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Roll No: NPTEL19HS22S31010175

To validate and check scores: http://nptel.ac.in/noc

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

AASTHA GARG

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **81** %

Online Assignments	23.00/25	Proctored Exam	57.75/75

Total number of candidates certified in this course: **10466**

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Centre for Continuing Education, IITK

Feb-Apr 2019
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

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Roll No: NPTEL19HS22S31010238

To validate and check scores: http://nptel.ac.in/noc

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Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

HARSH YADAV

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of 69 %

Online Assignments	20.33/25	Proctored Exam	48.75/75

Total number of candidates certified in this course: 10466

T V Prabhakar

Prof. T. V. Prabhakar
Chairman
Centre for Continuing Education, IITK

Feb-Apr 2019
(8 week course)

Satyaki Roy

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Director
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Roll No: NPTEL19CS11S11010013

To
PRATIBHA SHARMA
GHASS KI MANDI LAXMI NAGAR HATHRAS
HATHRAS
UTTAR PRADESH
204101
PH. NO :9149132963

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully completed the course
<40	No Certificate

No. of credits recommended by NPTEL:2

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

PRATIBHA SHARMA

for successfully completing the course

Design and Analysis of Algorithms

with a consolidated score of **48** %

Online Assignments	4.5/25	Proctored Exam	43.125/75

Total number of candidates certified in this course: **1027**

Prof. A. Ramesh
Chairman
Centre for Continuing Education, IITM

Jan-Mar 2019
(8 week course)

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