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1.3.2 ***Number of certificate / value-added courses / Diploma Programme/ online courses of MOOCS / SWAYAM / e_Pathshala/ NPTEL etc. where the students of the institution have enrolled and successfully completed***

Brochures (Year 2022-23)

DAV UNIVERSITY

JALANDHAR

BROCHURE

VALUE ADDED COURSE

IOT IN AGRICULTURE

Course Duration **40** Hours

SESSION

2022-23

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

The Internet of Things (IoT) in agriculture is revolutionizing the way farming is conducted, providing unprecedented control over agricultural practices through data-driven decision-making. This course aims to explore the integration of IoT in various agricultural domains, enabling students to understand how IoT devices and technologies can be applied to optimize agricultural productivity, enhance crop management, monitor environmental conditions, and reduce resource wastage. The course also covers the design, development, and deployment of IoT solutions specific to agricultural applications, ensuring that students gain practical knowledge and skills to implement IoT in real-world farming scenarios.

Course Outcomes

1. Understand IoT Fundamentals in Agriculture: Demonstrate a comprehensive understanding of IoT concepts, architecture, and its applications in the agricultural sector.
2. Apply IoT for Precision Agriculture: Utilize IoT devices and sensors to monitor crop health, soil conditions, weather patterns, and other critical parameters, leading to more precise and effective farming practices.
3. Design IoT-Based Solutions: Develop and implement IoT-based solutions for specific agricultural challenges, such as smart irrigation, automated pest control, and livestock monitoring.
1. Analyze and Interpret IoT Data: Collect, analyze, and interpret data from IoT sensors to make informed decisions that enhance crop yield, reduce costs, and improve overall farm management.

Course Outline

Unit 1: Introduction to IoT in Agriculture

- Introduction to IoT: Overview of IoT, its components, architecture, and working principles.
- IoT in Agriculture: Role and significance of IoT in modern agriculture.
- Current Trends and Future Prospects: Exploring the latest trends and future directions of IoT in agriculture.

Unit 2: IoT Architecture and Communication Protocols

- IoT Architecture: Understanding the layers of IoT architecture – sensing, network, data processing, and application.
- Communication Protocols: Overview of communication protocols used in IoT, including Zigbee, LoRa, NB-IoT, and MQTT.
- IoT Platforms and Tools: Introduction to IoT platforms and development tools for agriculture (e.g., Arduino, Raspberry Pi, cloud platforms).

Unit 3: IoT Devices and Sensors in Agriculture

- Sensors in Agriculture: Types of sensors used in agriculture (e.g., soil moisture sensors, temperature sensors, weather stations, etc.).
- Data Acquisition and Transmission: Techniques for data acquisition and transmission in IoT systems.
- Sensor Integration: Integration of sensors with IoT devices and platforms.

Unit 4: IoT Data Analytics and Decision-Making

- Data Analytics in Agriculture: Introduction to data analytics techniques and tools for agriculture.
- Data Collection and Storage: Methods for collecting and storing IoT data.
- Data Analysis: Techniques for analyzing IoT data to derive actionable insights.
- Decision-Making: Using data-driven insights for decision-making in agricultural practices.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Research based Assignment related to course

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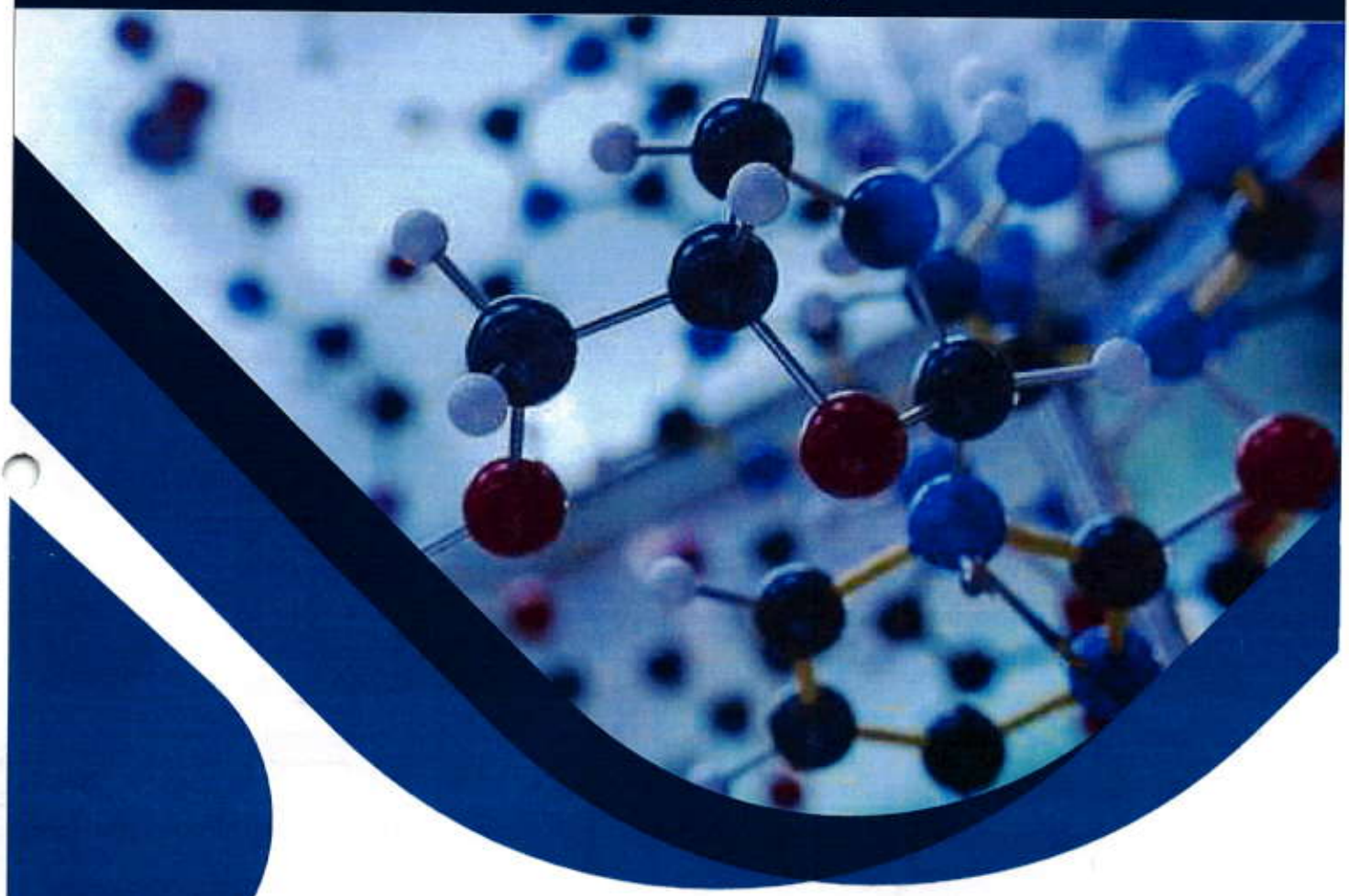

BROCHURE

VALUE ADDED COURSE

BIOPHYSICS AND STRUCTURAL BIOLOGY

Course Duration 35 Hours

SESSION
2022-23
July, 2022 - November, 2022

HELPLINES :
70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190
www.davuniversity.org

About the Course

Biophysics and Structural Biology are interdisciplinary fields that combine principles of physics, chemistry, and biology to understand the structures and functions of biological macromolecules. This course focuses on the physical and structural aspects of biological molecules, such as proteins, nucleic acids, and membranes, and how these structures determine their function within a living organism.

Course Outcomes

1. **Understand the Principles of Biophysics: Demonstrate an understanding of the fundamental principles of biophysics, including the forces and interactions that govern the structure and behavior of biological molecules.**
2. **Analyze Macromolecular Structures: Use structural biology techniques to determine the three-dimensional structures of proteins, nucleic acids, and other biomolecules, and analyze how these structures relate to their function.**
3. **Apply Biophysical Methods: Employ biophysical methods such as spectroscopy, microscopy, and computational modeling to study the properties and dynamics of biological molecules.**
4. **Explore Protein Folding and Dynamics: Understand the mechanisms of protein folding, stability, and dynamics, and how misfolding can lead to diseases.**

Course Outline

Unit 1: Introduction to Biophysics and Structural Biology

- Overview of Biophysics: Definition, scope, and significance of biophysics in understanding biological systems.
- Introduction to Structural Biology: Role of structural biology in elucidating the structures of biomolecules.
- Historical Perspectives: Milestones in the development of biophysics and structural biology.

Unit 2: Macromolecular Structures and Interactions

- Protein Structure: Primary, secondary, tertiary, and quaternary structures of proteins.
- Nucleic Acids Structure: Structure of DNA and RNA, including double helix, secondary structures, and tertiary arrangements.
- Membrane Structure: Structure and function of biological membranes.
- Forces and Interactions: Non-covalent interactions, hydrophobic effects, hydrogen bonding, van der Waals forces, and electrostatic interactions in biological molecules.

Unit 3: Techniques in Structural Biology

- X-ray Crystallography: Principles of X-ray crystallography, crystal growth, data collection, and structure determination.
- NMR Spectroscopy: Basics of NMR spectroscopy, chemical shifts, NOE, and structure determination of small to medium-sized proteins.
- Cryo-Electron Microscopy (Cryo-EM): Principles of cryo-EM, sample preparation, data acquisition, and structure determination of large complexes.
- Complementary Techniques: Use of complementary techniques like small-angle X-ray scattering (SAXS) and mass spectrometry in structural biology.

Unit 4: Protein Folding, Stability, and Dynamics

- Protein Folding Pathways: Mechanisms of protein folding, folding funnels, and energy landscapes.
- Chaperones and Folding Helpers: Role of molecular chaperones in protein folding.
- Protein Misfolding and Diseases: Misfolding, aggregation, and their association with diseases like Alzheimer's and Parkinson's.
- Protein Dynamics: Methods to study protein dynamics, including fluorescence spectroscopy and molecular dynamics simulations.

Assessment methodology

- **Oral/poster presentation**
- **Research based Assignment related to course**

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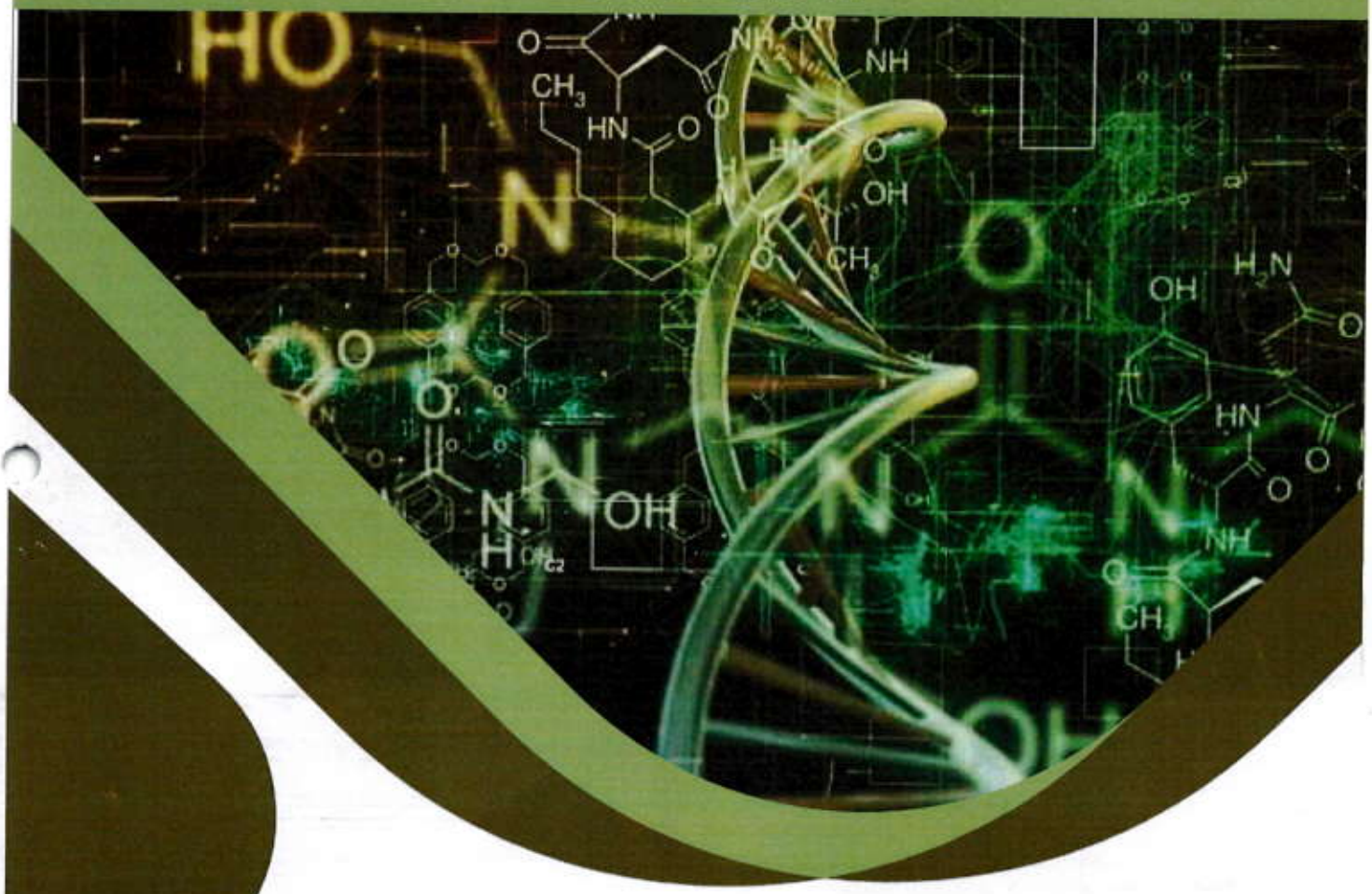

BROCHURE

VALUE ADDED COURSE

CHEMICAL BIOLOGY

Course Duration **33** Hours

SESSION

2022-23

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

Chemical Biology is an interdisciplinary field that merges the principles of chemistry and biology to study and manipulate biological systems at the molecular level. This course focuses on understanding how chemical tools and techniques can be used to explore biological processes, investigate the structure and function of biomolecules, and develop new therapeutic strategies. Students will learn about the chemical basis of biological phenomena, including enzyme catalysis, signal transduction, and gene expression, as well as the design and synthesis of small molecules that can modulate biological activity. The course also covers the application of chemical biology in drug discovery, biotechnology, and the development of novel diagnostic and therapeutic agents.

Course Outcomes

1. Demonstrate a comprehensive understanding of the chemical principles underlying biological processes, including the structure and function of biomolecules.
2. Apply principles of organic chemistry and biochemistry to design, synthesize, and analyze small molecules that can interact with biological targets.
3. Understand the mechanisms of enzyme catalysis, and design inhibitors that can modulate enzyme activity.
4. Utilize chemical tools and techniques, such as bioorthogonal chemistry, fluorescent probes, and click chemistry, to investigate and manipulate biological systems.

Course Outline

Unit 1: Introduction to Chemical Biology

- Overview of Chemical Biology: Definition, scope, and importance of chemical biology in understanding and manipulating biological systems.
- Chemical Biology vs. Biochemistry: Differences and similarities between chemical biology and traditional biochemistry.
- Historical Perspectives: Key milestones in the development of chemical biology.

Unit 2: Chemical Basis of Biological Systems

- Structure and Function of Biomolecules: Chemical structure and functional roles of proteins, nucleic acids, lipids, and carbohydrates.
- Chemical Bonds and Interactions: Covalent and non-covalent interactions in biomolecules, including hydrogen bonding, hydrophobic effects, and van der Waals forces.
- Chemical Kinetics and Thermodynamics: Basic principles of chemical kinetics and thermodynamics as applied to biological systems.

Unit 3: Small Molecule Design and Synthesis

- Principles of Drug Design: Fundamentals of small molecule design, including structure-activity relationships (SAR) and lead optimization.
- Synthesis of Bioactive Molecules: Techniques for the synthesis of small molecules with biological activity, including combinatorial chemistry and solid-phase synthesis.
- Natural Products in Chemical Biology: Role of natural products in chemical biology and their use as leads for drug development.

Unit 4: Enzyme Mechanisms and Inhibition

- Enzyme Catalysis: Mechanisms of enzyme catalysis, including transition state theory and enzyme-substrate interactions.
- Enzyme Inhibitors: Design and synthesis of enzyme inhibitors, including competitive, non-competitive, and irreversible inhibitors.
- Kinetic Analysis: Methods for analyzing enzyme kinetics and inhibitor efficacy.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Research based Assignment related to course

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JALANDHAR

BROCHURE

VALUE ADDED COURSE

TECHNICAL WRITING AND COMMUNICATION

Course Duration 38 Hours

SESSION

2022-23

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

Technical Writing and Communication is a crucial skill set for professionals across various fields, enabling them to convey complex information clearly and effectively to diverse audiences. This course focuses on developing students' abilities to write, design, and present technical information, including reports, manuals, proposals, and digital content. Emphasis is placed on understanding the audience, structuring information, and using appropriate language and visuals to enhance comprehension. The course also covers best practices in technical communication, including ethical considerations, collaboration, and the use of digital tools for document creation and management.

Course Outcomes

1. Understand the Principles of Technical Writing: Demonstrate an understanding of the key principles and techniques of technical writing, including clarity, conciseness, and precision.
2. Analyze Audience and Purpose: Identify the audience and purpose for a technical document and tailor the content, style, and format accordingly.
3. Create Various Technical Documents: Develop and produce a range of technical documents, such as user manuals, technical reports, research papers, proposals, and instructions, with a clear and logical structure.
4. Utilize Visuals and Graphics: Effectively integrate visuals, such as diagrams, charts, and tables, into technical documents to enhance understanding and communication.

Course Outline

Unit 1: Introduction to Technical Writing

- Overview of Technical Writing: Definition, importance, and scope of technical writing in various fields.
- Types of Technical Documents: Introduction to different types of technical documents, such as reports, manuals, and proposals.
- Characteristics of Effective Technical Writing: Clarity, conciseness, accuracy, and objectivity.

Unit 2: Audience and Purpose in Technical Writing

- Understanding Your Audience: Identifying the target audience and their needs.
- Purpose of Technical Communication: Defining the purpose of a document, whether to inform, instruct, persuade, or document.
- Adapting Style and Tone: Tailoring language, style, and tone to suit the audience and purpose.

Unit 3: Writing Technical Documents

- Structure and Organization: Principles of organizing technical documents, including introductions, body sections, conclusions, and appendices.
- Writing User Manuals and Guides: Techniques for writing clear and concise user manuals and instructional guides.
- Technical Reports and Research Papers: Structure and content of technical reports, including abstracts, methodologies, results, and discussions.
- Writing Proposals and Specifications: Crafting effective proposals and specifications, including problem statements, objectives, and technical requirements.

Unit 4: Technical Writing Tools and Technologies

- Document Creation Tools: Overview of tools and software for writing and formatting technical documents, such as Microsoft Word, LaTeX, and Markdown.
- Collaboration and Document Management: Using collaborative platforms like Google Docs, Microsoft Teams, and version control systems for managing technical writing projects.

Assessment methodology

- Short answer based subjective test to assess understanding of concepts
- Research based Assignment related to course

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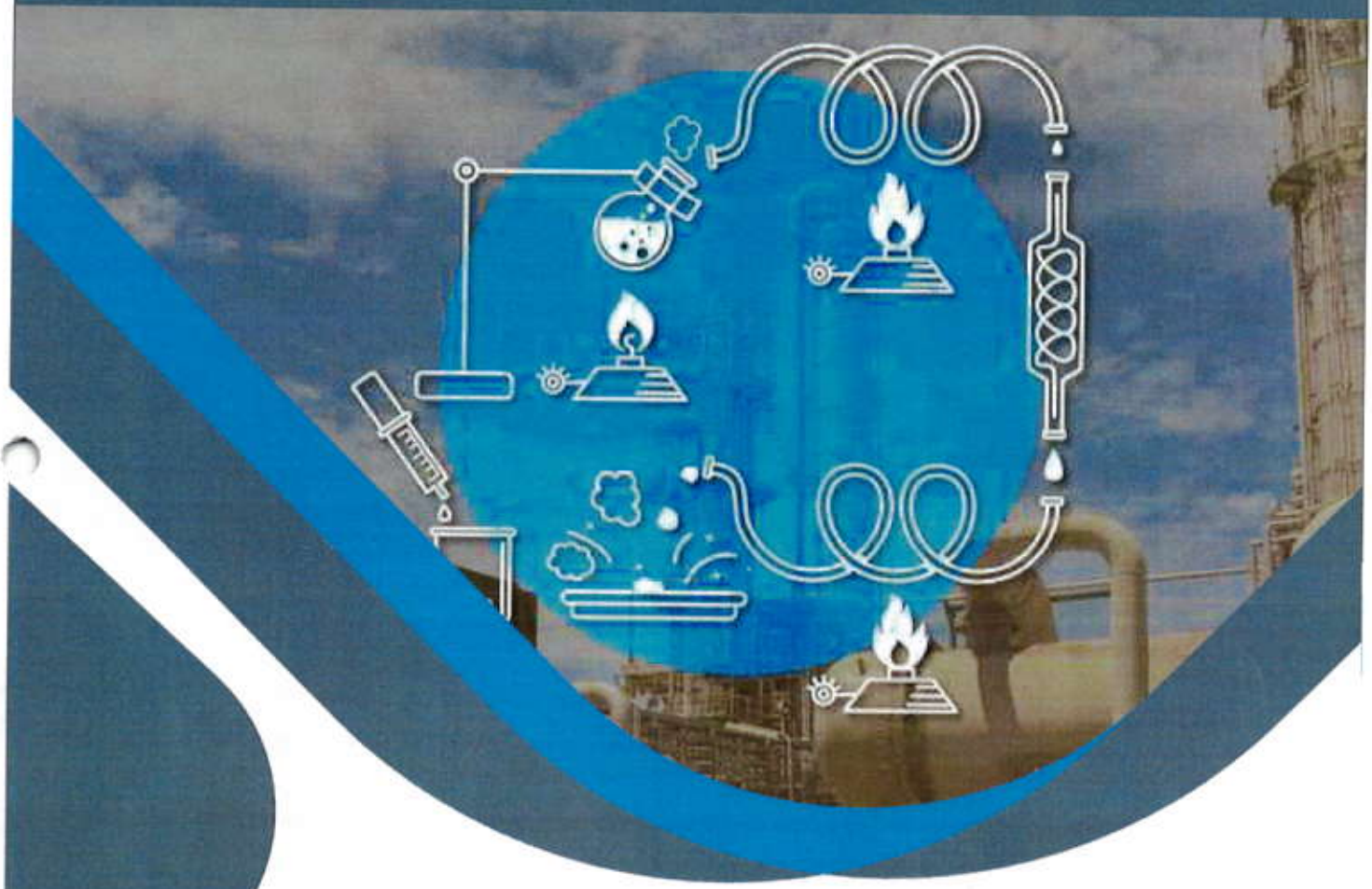


BROCHURE

VALUE ADDED COURSE

ASPEN PLUS

Course Duration 30 Hours

SESSION

2022-23

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

ASPEN Plus is a powerful process simulation software widely used in chemical engineering for designing, optimizing, and analyzing chemical processes. This value-added course is designed to provide students with practical knowledge and hands-on experience in using ASPEN Plus for simulating various chemical processes. The course covers the fundamental principles of process simulation, including steady-state and dynamic simulations, and provides insights into the design and optimization of chemical processes. Students will learn how to build process models, select appropriate thermodynamic methods, perform sensitivity analysis, and optimize process parameters. This course is particularly valuable for students pursuing careers in chemical engineering, process engineering, and related fields.

Course Outcomes

1. Demonstrate a solid understanding of the fundamental concepts of process simulation and the role of ASPEN Plus in chemical process design and optimization.
2. Effectively navigate the ASPEN Plus software interface, including understanding the different modules and tools available for process simulation.
3. Build and simulate steady-state and dynamic models for various chemical processes using ASPEN Plus.

Course Outline

Unit 1: Introduction to Process Simulation and ASPEN Plus

- Overview of Process Simulation: Importance of process simulation in chemical engineering.
- Introduction to ASPEN Plus: Features and capabilities of ASPEN Plus software.
- Installation and Setup: Guidance on installing ASPEN Plus and setting up the working environment.
- User Interface Overview: Navigation through the ASPEN Plus interface, including flowsheet creation, model setup, and output analysis.

Unit 2: Basic Process Modeling in ASPEN Plus

- Creating a Process Flowsheet: Building a basic process flowsheet using unit operations such as reactors, distillation columns, and heat exchangers.
- Material and Energy Balances: Performing material and energy balances in ASPEN Plus.
- Introduction to Thermodynamics in ASPEN Plus: Selection and application of thermodynamic property models in process simulations.
- Running Simulations: Executing steady-state simulations and understanding simulation results.

Unit 3: Thermodynamics and Property Methods

- Thermodynamic Models: Detailed study of thermodynamic models available in ASPEN Plus, including equations of state, activity coefficient models, and ideal gas law.
- Property Estimation Methods: Overview of property estimation methods for calculating physical and thermodynamic properties.
- Thermodynamic Data Entry: Inputting and managing thermodynamic data in ASPEN Plus.
- Application of Thermodynamic Models: Case studies demonstrating the selection and application of appropriate thermodynamic models for different processes.

Assessment methodology

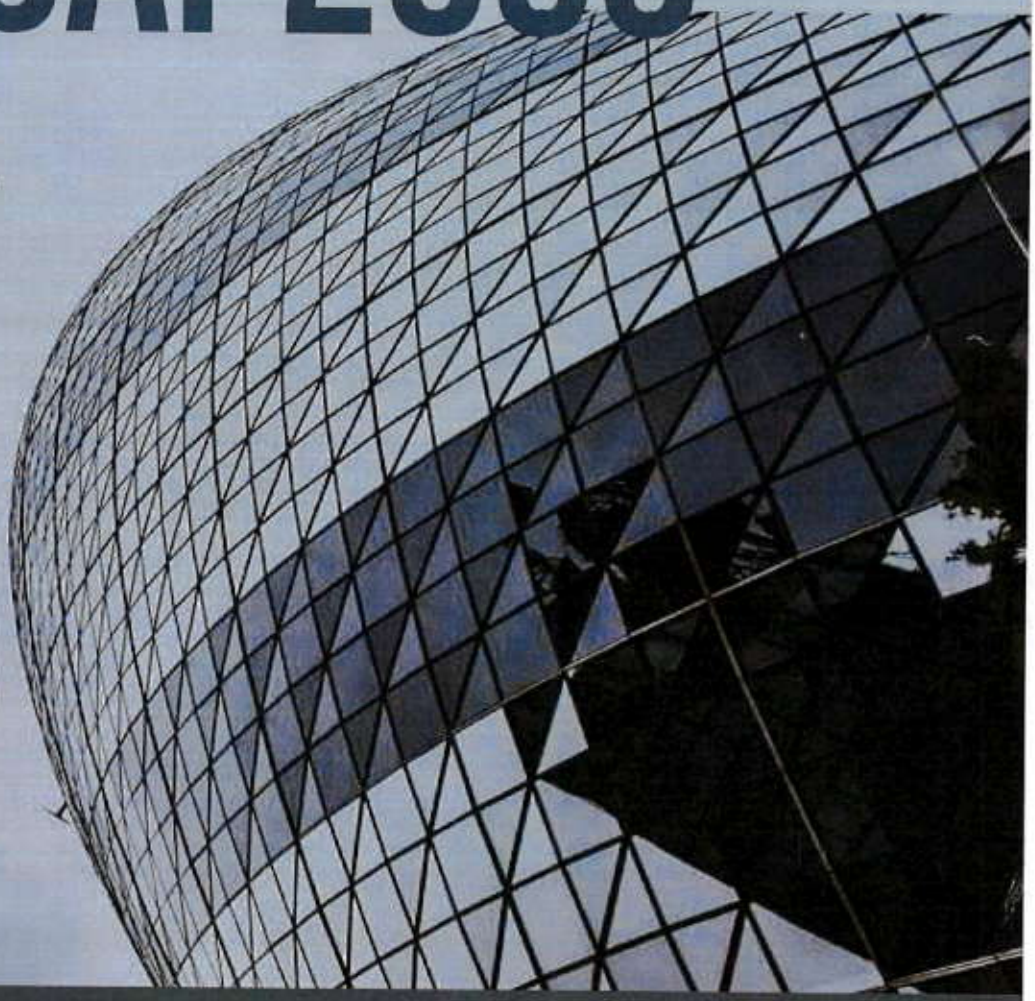
- Quiz – MCQs to assess understanding of concepts
- Case based assignments

DAV UNIVERSITY
JALANDHAR

BROCHURE

VALUE ADDED COURSE

SAP2000



Course Duration
40
Hours

July, 2022 - November, 2022

70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

SAP2000 is a versatile and widely used structural analysis and design software that caters to engineers involved in the design and analysis of buildings, bridges, and other structures. This value-added course aims to equip students with the knowledge and practical skills needed to effectively use SAP2000 for structural modeling, analysis, and design. The course covers essential topics such as creating structural models, defining loads, performing static and dynamic analysis, and interpreting results. Students will learn how to apply SAP2000 in real-world engineering projects, enabling them to enhance their careers in civil and structural engineering.

Course Outcomes

1. **Demonstrate a clear understanding of the principles of structural analysis and the role of SAP2000 in the engineering design process.**
2. **Efficiently navigate the SAP2000 user interface and utilize its tools and features for creating and analyzing structural models.**
3. **Develop accurate structural models using SAP2000, including defining materials, sections, and geometries for various types of structures.**
4. **Define and apply different types of loads and boundary conditions to structural models in SAP2000.**

Course Outline

Unit1: Introduction to Structural Analysis and SAP2000

- Overview of Structural Analysis: Introduction to the principles of structural analysis, including the importance of modeling and analysis in engineering design.
- Introduction to SAP2000: Features, capabilities, and applications of SAP2000 in civil and structural engineering.
- User Interface and Navigation: Overview of the SAP2000 user interface, including toolbars, menus, and model views.
- Installation and Setup: Guidance on installing SAP2000 and setting up the working environment.

Unit 2: Creating Structural Models in SAP2000

- Modeling Fundamentals: Basics of creating structural models, including defining grids, geometry, and structural elements.
- Material and Section Properties: Defining material properties (e.g., concrete, steel) and section properties for beams, columns, and slabs.
- Modeling 2D and 3D Structures: Techniques for modeling both two-dimensional and three-dimensional structures in SAP2000.

Unit 3: Defining Loads and Boundary Conditions

- Load Types and Definitions: Overview of different types of loads, including dead loads, live loads, wind loads, and seismic loads.
- Load Combinations: Creating and applying load combinations as per design codes.
- Assigning Loads: Techniques for assigning loads to structural elements in SAP2000.
- Boundary Conditions: Setting up boundary conditions and supports for accurate structural analysis.

Unit 4: Design of Structural Elements

- Design Codes and Standards: Overview of relevant design codes and standards (e.g., ACI, AISC) used in SAP2000.
- Design of Beams and Columns: Using SAP2000 to design beams and columns according to specified design codes.
- Slab and Foundation Design: Design of slabs and foundations using SAP2000, including reinforcement detailing.

Assessment methodology

- **Oral/poster presentation**
- **Research based Assignment related to course**

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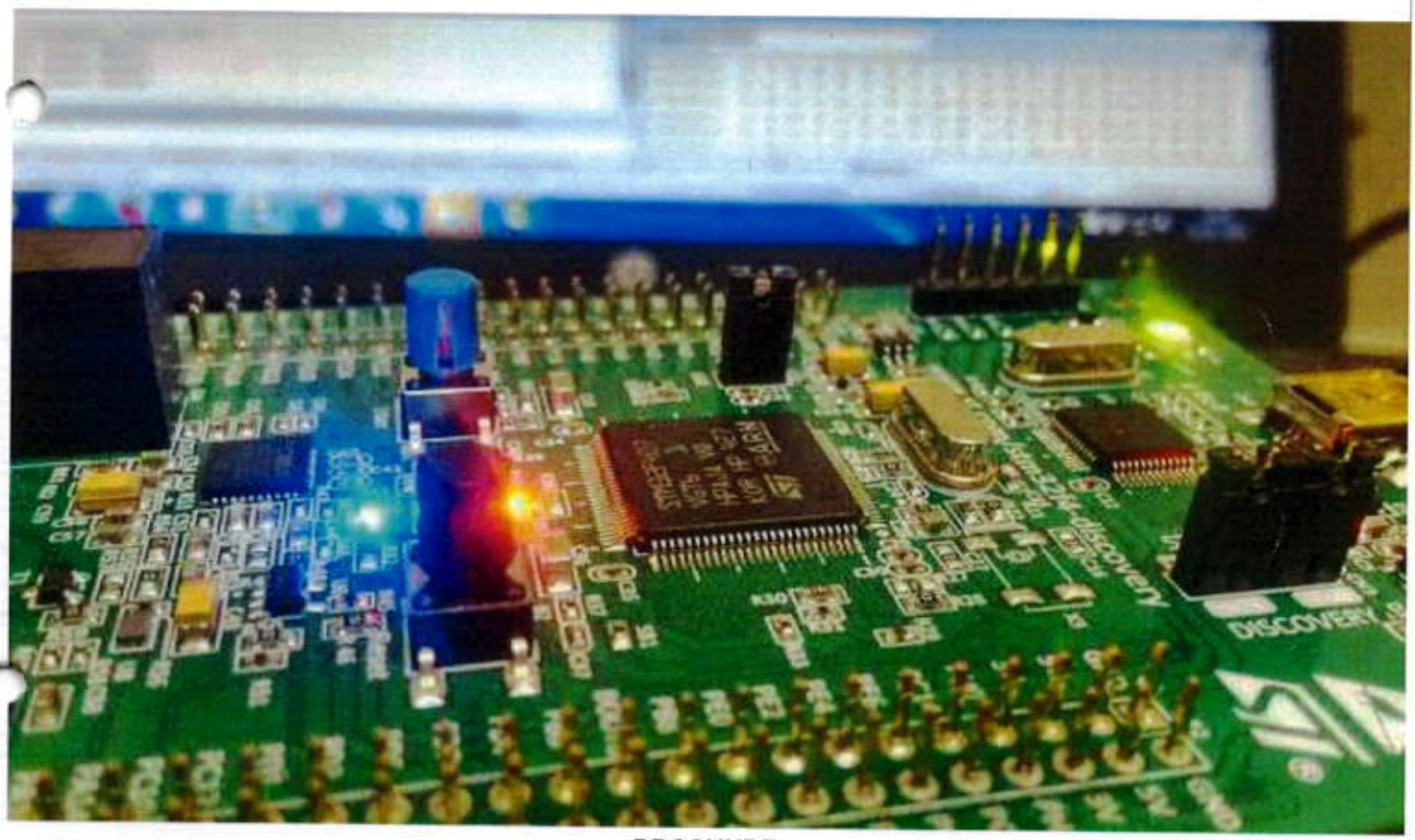


BROCHURE

VALUE ADDED COURSE

ARM CORTEX PROGRAMMING

Course Duration
30 Hours

July, 2022 - November, 2022

70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190

About the Course

ARM Cortex processors are at the heart of many modern embedded systems, powering a wide range of devices from smartphones to industrial control systems. This value-added course is designed to provide students with a comprehensive understanding of ARM Cortex microcontrollers and the skills necessary to program them for various applications. The course covers the architecture and features of ARM Cortex-M microcontrollers, programming techniques in C/C++, and practical implementation of embedded systems. Students will gain hands-on experience in developing software for ARM Cortex-M series processors, focusing on real-time applications, peripheral interfacing, and optimizing performance.

Course Outcomes

1. Demonstrate a thorough understanding of the architecture, features, and capabilities of ARM Cortex-M microcontrollers.
2. Write and debug embedded applications for ARM Cortex-M microcontrollers using C/C++ programming languages.
3. Efficiently use ARM development tools, including Integrated Development Environments (IDEs) like Keil MDK, ARM Compiler, and debugging tools.
4. Implement and manage peripheral interfaces such as GPIO, UART, SPI, I2C, ADC, and timers in embedded applications.

Course Outline

Unit 1: Introduction to ARM Cortex-M Microcontrollers

- Overview of ARM Cortex Family: Introduction to ARM Cortex processors, focusing on the Cortex-M series for embedded applications.
- Architecture of ARM Cortex-M: Detailed study of ARM Cortex-M architecture, including the core, memory model, and instruction set.
- Features and Capabilities: Understanding the key features of ARM Cortex-M microcontrollers, such as low power modes, interrupt handling, and system timers.
- Development Ecosystem: Introduction to the ARM development ecosystem, including IDEs, compilers, and debugging tools.

Unit 2: ARM Cortex-M Programming Fundamentals

- Setting Up the Development Environment: Installing and configuring development tools such as Keil MDK, ARM Compiler, and STM32CubeIDE.
- Basic C/C++ Programming for ARM Cortex-M: Writing and compiling basic C/C++ programs for ARM Cortex-M microcontrollers.
- Memory Management: Understanding memory regions, stack, heap, and peripheral registers in ARM Cortex-M programming.
- Interrupts and Exceptions: Introduction to the NVIC (Nested Vectored Interrupt Controller) and handling interrupts and exceptions in ARM Cortex-M.

Unit 3: Peripherals and Interfacing

- General Purpose Input/Output (GPIO): Configuring and using GPIO for input and output operations.
- Timers and PWM: Implementing timers, counters, and Pulse Width Modulation (PWM) for timing and control applications.
- Serial Communication Interfaces: Programming UART, SPI, and I2C for serial communication with other devices and sensors.
- Analog to Digital Conversion (ADC): Configuring and using ADC for analog signal processing.
- Digital to Analog Conversion (DAC): Implementing DAC for generating analog outputs from digital data.

Assessment methodology

- Short answer based subjective test to assess understanding of concepts
- Research based Assignment related to course

DAV UNIVERSITY

JALANDHAR

VALUE ADDED COURSE

STOCHASTIC PROCESSES

SESSION 2022-23

Course Duration
36 Hours

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190
www.davuniversity.org

About the Course

Stochastic processes are mathematical models that describe systems or phenomena that evolve over time in a probabilistic manner. This value-added course provides students with a comprehensive understanding of stochastic processes and their applications across various fields, including finance, engineering, biology, and computer science.

Course Outcomes

1. Demonstrate a strong understanding of probability theory, random variables, and distribution functions as the foundation of stochastic processes.
2. Identify and analyze various types of stochastic processes, including discrete-time and continuous-time processes.
3. Develop mathematical models for random phenomena using stochastic processes, such as Markov chains, Poisson processes, and Brownian motion.
4. Apply stochastic methods to model and solve real-world problems in diverse areas such as finance, engineering, and biology.

Course Outline

Unit 1: Introduction to Probability Theory

- Basics of Probability Theory: Overview of probability spaces, events, and probability measures.
- Random Variables and Distributions: Introduction to random variables, probability distributions, and expected values.
- Joint Distributions and Independence: Study of joint distributions, independence of random variables, and conditional probability.
- Law of Large Numbers and Central Limit Theorem: Understanding the Law of Large Numbers and the Central Limit Theorem as foundational concepts in stochastic processes.

Unit 2: Introduction to Stochastic Processes

- Definition and Classification of Stochastic Processes: Overview of stochastic processes and their classification into discrete-time and continuous-time processes.
- Examples of Stochastic Processes: Introduction to common examples of stochastic processes, such as random walks, branching processes, and renewal processes.
- Properties of Stochastic Processes: Study of properties such as stationarity, ergodicity, and martingales.

Unit 3: Markov Chains and Poisson processes

- Introduction to Markov Chains: Definition and basic properties of Markov chains, including the Markov property and transition matrices.
- Classification of States: Study of recurrent, transient, absorbing, and periodic states in Markov chains.
- Long-Term Behavior of Markov Chains: Analysis of stationary distributions and long-term behavior of Markov chains.
- Definition and Properties of Poisson Processes: Introduction to Poisson processes and their key properties.

Unit 4: Brownian Motion and Diffusion Processes

- Introduction to Brownian Motion: Definition and properties of Brownian motion as a fundamental continuous-time stochastic process.
- Wiener Process: Study of the Wiener process as a model for Brownian motion.
- Applications of Brownian Motion: Applications in finance (e.g., option pricing), physics (e.g., particle diffusion), and biology (e.g., population genetics).
- Stochastic Differential Equations (SDEs): Introduction to stochastic differential equations and their relation to Brownian motion.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Case based assignments

DAV UNIVERSITY

JALANDHAR

BROCHURE

VALUE ADDED COURSE

AI FOR ELECTRICAL ENGINEERS

Course Duration **36** Hours

SESSION

2022-23

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

Artificial Intelligence (AI) is revolutionizing the field of electrical engineering, offering innovative solutions for challenges in areas such as power systems, signal processing, automation, and control systems. This value-added course is designed to provide electrical engineering students with a strong foundation in AI techniques and their applications in electrical engineering. The course covers essential AI concepts, machine learning algorithms, neural networks, and their applications in solving complex electrical engineering problems. Through this course, students will gain hands-on experience in applying AI to optimize electrical systems, improve energy efficiency, enhance automation, and enable smart technologies.

Course Outcomes

1. **Demonstrate a comprehensive understanding of AI concepts, including machine learning, neural networks, and deep learning, and their relevance to electrical engineering.**
2. **Implement AI-based techniques for optimizing power generation, distribution, and consumption, including load forecasting, fault detection, and smart grid management.**
3. **Utilize AI algorithms to analyze, filter, and interpret complex signals in various electrical engineering applications, such as communication systems and image processing.**

Course Outline

Unit 1: Introduction to Artificial Intelligence and Machine Learning

- Overview of AI and Its Relevance to Electrical Engineering: Introduction to AI, its historical development and its impact on electrical engineering.
- Fundamentals of Machine Learning: Understanding supervised, unsupervised, and reinforcement learning, and their applications in electrical engineering.
- Introduction to Neural Networks: Basics of neural networks, including perceptrons, activation functions, and backpropagation.
- Tools and Libraries: Introduction to AI tools and libraries commonly used in electrical engineering, such as MATLAB, Python, TensorFlow, and Keras.

Unit 2: AI in Power Systems

- Load Forecasting Using AI: Implementing machine learning models for accurate load forecasting in power systems.
- Fault Detection and Diagnosis: Application of AI techniques for fault detection and diagnosis in electrical networks and equipment.
- Optimization of Power Flow: Using AI to optimize power flow in electrical grids, including demand response and renewable energy integration.
- Smart Grid Management: Role of AI in managing and optimizing smart grids, including energy storage, distribution, and consumption.

Unit 3: AI in Signal Processing

- Signal Classification and Pattern Recognition: Utilizing AI for signal classification, feature extraction, and pattern recognition in communication systems.
- AI-Based Noise Reduction and Filtering: Implementing AI algorithms for noise reduction and signal enhancement in audio, image, and video processing.
- Speech and Image Processing with AI: Application of AI in speech recognition, image processing, and computer vision for electrical engineering applications.
- AI in Communication Systems: Role of AI in optimizing communication systems, including modulation, coding, and channel estimation.

Assessment methodology

- **Quiz – MCQs to assess understanding of concepts**
- **Research based Assignment related to course**

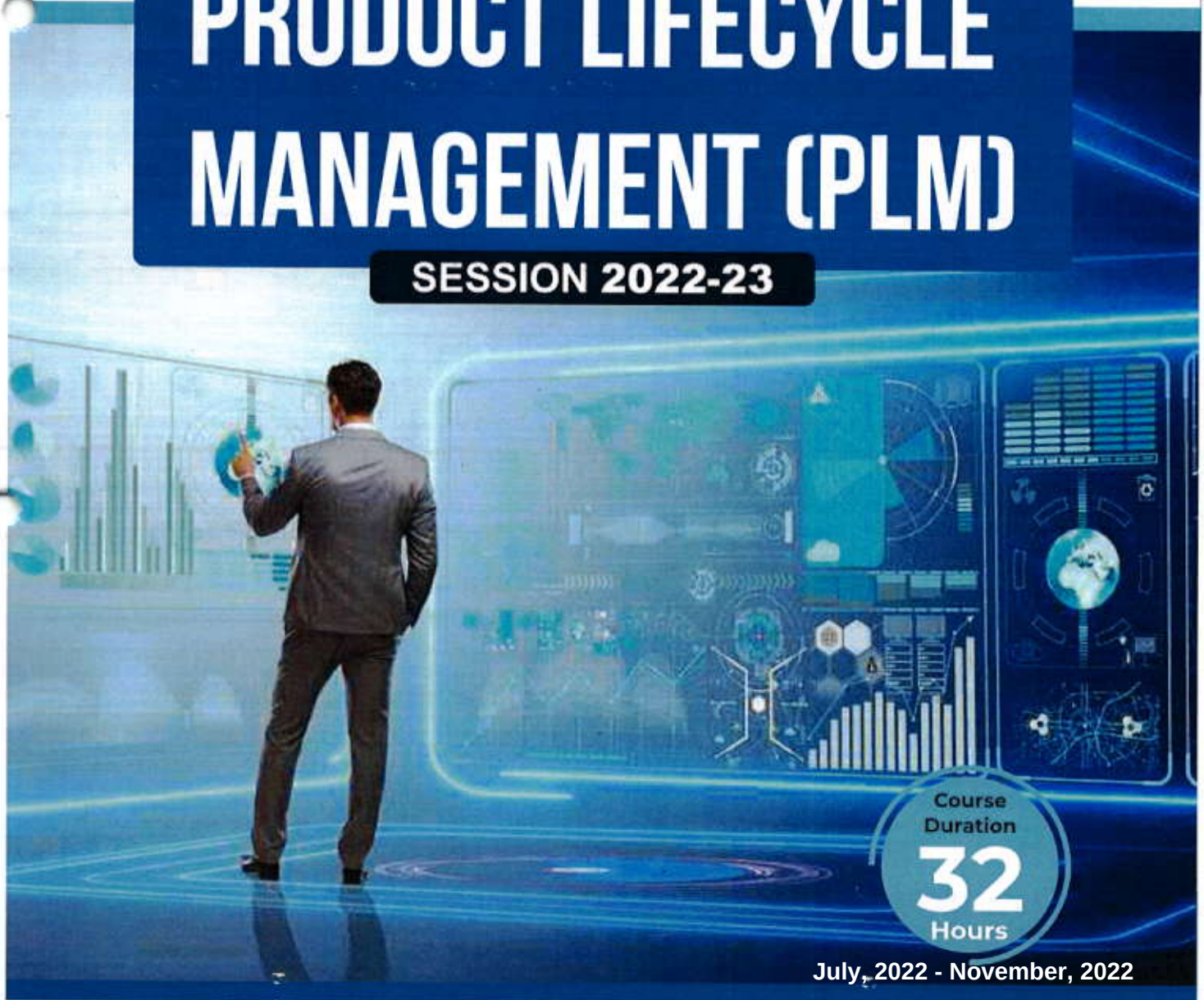
DAV UNIVERSITY

BROCHURE

VALUE ADDED COURSE

PRODUCT LIFECYCLE MANAGEMENT (PLM)

SESSION 2022-23



July, 2022 - November, 2022

70870-17551 | 70870-17552 | 70870-17553 | TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

Product Lifecycle Management (PLM) is a strategic approach to managing a product's entire lifecycle, from inception through design and manufacturing to service and disposal. This value-added course is designed to provide students with a comprehensive understanding of PLM concepts, tools, and best practices. The course covers the key stages of the product lifecycle, including product design, development, production, and end-of-life management, along with the integration of PLM software solutions. Students will learn how to effectively manage the data, processes, and people involved in product development, ensuring efficiency, quality, and sustainability throughout the product's lifecycle.

Course Outcomes

1. **Demonstrate a thorough understanding of the principles, importance, and benefits of PLM in modern product development and manufacturing.**
2. **Effectively manage the various stages of the product lifecycle, including concept development, design, production, and end-of-life, using PLM tools and methodologies.**
3. **Gain hands-on experience in implementing and using PLM software to manage product data, collaborate across teams, and streamline product development processes.**
4. **Apply PLM strategies to optimize product development processes, reduce time-to-market, and improve product quality.**

Course Outline

Unit 1: Introduction to Product Lifecycle Management (PLM)

- Overview of PLM: Definition, scope, and importance of PLM in the context of modern product development.
- Key Concepts and Terminology: Introduction to key PLM concepts, including product data management (PDM), product information management (PIM), and BOM (Bill of Materials).
- Historical Development of PLM: Evolution of PLM and its role in various industries.

Unit 2: Product Lifecycle Phases

- Conceptualization and Ideation: Techniques for generating and managing product ideas and concepts.
- Product Design and Development: Role of PLM in managing product design processes, including CAD (Computer-Aided Design) integration and design validation.
- Manufacturing and Production: Application of PLM in planning, managing, and optimizing manufacturing processes.

Unit 3: PLM Tools and Software Solutions

- Overview of PLM Software: Introduction to popular PLM software solutions, such as Siemens Teamcenter, PTC Windchill, Dassault Systèmes ENOVIA, and Autodesk Vault.
- Key Features of PLM Systems: Exploration of key features, including document management, change management, version control, and workflow automation.
- PLM Implementation Strategies: Best practices for implementing PLM systems in an organization, including system customization and integration.

Unit 4: PLM and Product Data Management (PDM)

- Understanding PDM: Role of PDM in managing product data, including CAD models, specifications, and documentation.
- Version Control and Data Security: Techniques for managing versions of product data and ensuring data security and integrity.
- Collaborative Product Development: Facilitating collaboration among cross-functional teams using PDM tools.

Assessment methodology

- **Oral/poster presentation**
- **Research based Assignment related to course**

DAV UNIVERSITY

JALANDHAR

VALUE ADDED COURSE

MATLAB FOR PHYSICISTS

July, 2022 - November, 2022

Course Duration

35

Hours

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

MATLAB is a powerful computing environment widely used for numerical analysis, data visualization, and algorithm development. This value-added course is designed to introduce physicists to MATLAB's capabilities and applications, focusing on its use for solving complex problems in physics. The course covers essential MATLAB functions and techniques, including data manipulation, numerical computation, and graphical visualization. Students will gain hands-on experience with MATLAB through practical exercises and projects that apply the software to real-world physics problems, enhancing their computational skills and analytical capabilities.

Course Outcomes

1. Understand MATLAB Fundamentals: Demonstrate proficiency in the basic functions and features of MATLAB, including its programming environment, syntax, and data types.
2. Perform Numerical Computations: Utilize MATLAB for performing numerical computations and solving mathematical problems relevant to physics, such as differential equations and matrix operations.
3. Visualize Data and Results: Create and customize various types of plots and graphics in MATLAB to visualize and interpret data effectively.
4. Develop and Implement Algorithms: Design and implement algorithms for solving physics-related problems, including optimization and simulation tasks.

Course Outline

Unit 1: Introduction to MATLAB

- MATLAB Environment: Overview of the MATLAB interface, including the Command Window, Workspace and Editor.
- Basic MATLAB Syntax: Introduction to MATLAB syntax, variables, data types, and operators.
- MATLAB Scripts and Functions: Writing and executing MATLAB scripts and functions to automate tasks and solve problems.

Unit 2: Numerical Computation in MATLAB

- Mathematical Operations: Performing basic mathematical operations, including algebraic, trigonometric, and statistical functions.
- Matrices and Arrays: Working with matrices and arrays, including matrix operations, indexing, and manipulation.
- Solving Linear Systems: Techniques for solving linear systems of equations using MATLAB.

Unit 3: Data Visualization

- Creating Plots and Graphs: Generating 2D and 3D plots, including line plots, scatter plots, bar charts, and surface plots.
- Customizing Plots: Customizing plot appearance with titles, labels, legends, and annotations.
- Visualizing Data Trends: Using MATLAB to visualize data trends and relationships through plotting and data fitting techniques.

Unit 4: Data Analysis and Processing

- Data Import and Export: Importing and exporting data from various file formats, such as CSV, Excel, and text files.
- Data Cleaning and Preparation: Techniques for cleaning and preparing data for analysis, including handling missing values and outliers.
- Statistical Analysis: Performing statistical analysis on data, including descriptive statistics, hypothesis testing, and regression analysis.

Assessment methodology

- Short answer based subjective test to assess understanding of concepts
- Research based Assignment related to course

DAV UNIVERSITY

JALANDHAR

BROCHURE

VALUE ADDED COURSE

ECOTOXICOLOGY

Course Duration **38** Hours

SESSION

2022-23

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

Ecotoxicology is the study of the effects of toxic substances on ecosystems and the environment. This value-added course is designed to provide students with a comprehensive understanding of ecotoxicology, including the principles of toxicology, the impact of pollutants on various environmental compartments, and methods for assessing and mitigating ecological risks. The course covers the interactions between chemicals and living organisms, the effects of pollutants on ecosystems, and strategies for protecting environmental health. Students will gain practical experience in conducting ecotoxicological assessments and interpreting data related to environmental contaminants.

Course Outcomes

1. Demonstrate a solid understanding of the fundamental principles of ecotoxicology, including toxicity mechanisms, exposure pathways, and dose-response relationships.
2. Evaluate the risks posed by pollutants and contaminants to ecosystems, including the assessment of chemical exposure, bioaccumulation, and effects on various organisms.
3. Design and conduct laboratory and field experiments to assess the toxicity of substances to aquatic and terrestrial organisms.
4. Analyze and interpret data from ecotoxicological studies, including statistical analysis, dose-response curves, and risk assessment.

Course Outline

Unit 1: Introduction to Ecotoxicology

- Overview of Ecotoxicology: Definition, scope, and importance of ecotoxicology in environmental science and protection.
- Principles of Toxicology: Basic concepts of toxicology, including dose-response relationships, toxicity mechanisms, and exposure pathways.
- Ecosystem Components: Understanding the structure and function of ecosystems, including biotic and abiotic components.

Unit 2: Toxicity Mechanisms and Pathways

- Mechanisms of Toxicity: How chemicals affect biological systems at the molecular, cellular, and organismal levels.
- Exposure Pathways: Routes of exposure for pollutants, including inhalation, ingestion, and dermal contact.
- Bioaccumulation and Biomagnification: Processes of bioaccumulation and biomagnification in food webs and their impact on ecosystems.

Unit 3: Ecotoxicological Assessment

- Laboratory Toxicity Testing: Methods for conducting laboratory toxicity tests, including acute and chronic toxicity assays for aquatic and terrestrial organisms.
- Field Studies: Design and implementation of field studies to assess the impact of pollutants on natural ecosystems.
- Bioindicator Species: Use of bioindicator species to monitor and assess environmental health.

Unit 4: Data Analysis and Risk Assessment

- Data Analysis Techniques: Statistical methods for analyzing ecotoxicological data, including dose-response curves and toxicity thresholds.
- Risk Assessment: Procedures for conducting ecological risk assessments, including hazard identification, exposure assessment, and risk characterization.
- Modeling and Simulation: Use of models and simulations to predict the fate and effects of pollutants in ecosystems.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Case based assignments

DAV UNIVERSITY

BROCHURE

VALUE ADDED COURSE

PUBLISHING AND BOOK DESIGN

SESSION
2022-23

Course Duration
30
Hours

July, 2022 - November, 2022

70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190
www.davuniversity.org

About the Course

The course on Publishing and Book Design is designed to provide students with a comprehensive understanding of the publishing industry and the principles of book design. It covers the entire lifecycle of a book, from manuscript development to final production and distribution. Students will gain hands-on experience with the tools and techniques used in book design and learn about the various stages of the publishing process, including editing, layout, typesetting, and printing. The course also explores digital publishing and self-publishing trends, equipping students with the skills needed to create professionally designed and market-ready books.

Course Outcomes

1. Demonstrate a thorough understanding of the publishing process, including manuscript preparation, editing, design, production, and distribution.
2. Utilize principles of book design to create aesthetically pleasing and functional book layouts, including cover design, typography, and formatting.
3. Gain proficiency in using design software such as Adobe InDesign, Adobe Illustrator, and Adobe Photoshop for book design tasks.
4. Learn how to prepare and format manuscripts for publication, including editing, proofreading, and ensuring compliance with publishing standards.

Course Outline

Unit 1: Introduction to Publishing

- Overview of the Publishing Industry: History, structure, and key players in the publishing industry.
- Types of Publishing: Traditional publishing, self-publishing, digital publishing, and hybrid models.
- Publishing Roles and Responsibilities: Roles of authors, editors, designers, publishers, and distributors.

Unit 2: Manuscript Preparation

- Manuscript Development: Writing, revising, and preparing manuscripts for submission.
- Editing and Proofreading: Techniques for editing and proofreading to ensure clarity, accuracy, and coherence.
- Formatting Guidelines: Understanding formatting requirements and standards for different types of publications.

Unit 3: Principles of Book Design

- Book Design Fundamentals: Introduction to book design principles, including layout, typography, and color theory.
- Cover Design: Designing effective book covers that attract readers and reflect the content.
- Interior Layout: Designing the interior layout of books, including chapter headings, text formatting, and illustrations.
- Typography: Choosing and applying appropriate fonts and styles for readability and aesthetic appeal.

Unit 4: Design Software and Tools

- Adobe InDesign: Using Adobe InDesign for book layout and design, including master pages, text frames, and styles.
- Adobe Illustrator and Photoshop: Creating and editing images, illustrations, and graphics for book covers and interiors.
- Other Design Tools: Exploring additional tools and software for book design and production.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Research based Assignment related to course

SESSION 2022-23

DAV UNIVERSITY

www.davuniversity.org

VALUE ADDED COURSE

BRAND MANAGEMENT

July, 2022 - November, 2022

70870-17551 | 70870-17552 | 70870-17553 | TOLL FREE 1800-1800-190

About the Course

Brand Management is a strategic discipline that focuses on building, maintaining, and enhancing the value of a brand. This value-added course is designed to provide students with a thorough understanding of brand management principles and practices. It covers the key aspects of developing and implementing brand strategies, including brand positioning, brand equity, and brand communication. The course also explores market research, consumer behavior, and the impact of digital media on brand management. Students will gain practical experience in creating and managing brand strategies, measuring brand performance, and addressing brand challenges.

Course Outcomes

1. Understand Brand Management Concepts: Demonstrate a comprehensive understanding of core brand management concepts, including brand identity, brand equity, and brand positioning.
2. Develop Brand Strategies: Create effective brand strategies that align with organizational goals and target market needs, including positioning, differentiation, and competitive analysis.
3. Manage Brand Equity: Analyze and manage brand equity to enhance brand value and ensure consistent brand performance over time.
4. Implement Brand Communication: Develop and execute brand communication plans that effectively convey brand messages and engage target audiences across various channels.

Course Outline

Unit 1: Introduction to Brand Management

- Overview of Brand Management: Definition, scope, and importance of brand management in today's business environment.
- Branding Fundamentals: Key concepts such as brand identity, brand equity, and brand positioning.
- The Role of Brands: Understanding the role of brands in consumer decision-making and competitive advantage.

Unit 2: Developing Brand Strategies

- Brand Positioning: Techniques for positioning a brand effectively in the market, including differentiation and competitive analysis.
- Brand Architecture: Understanding brand architecture, including corporate branding, product branding, and brand hierarchies.
- Branding Models and Frameworks: Exploration of popular branding models and frameworks, such as the Brand Resonance Model and the Brand Equity Model.

Unit 3: Managing Brand Equity

- Building Brand Equity: Strategies for building and enhancing brand equity through brand awareness, loyalty, and perceived quality.
- Measuring Brand Equity: Tools and techniques for measuring brand equity, including brand valuation methods and consumer perception studies.
- Maintaining Brand Equity: Techniques for maintaining and strengthening brand equity over time.

Unit 4: Brand Communication

- Developing Brand Messages: Crafting compelling brand messages that align with brand values and resonate with target audiences.
- Integrated Marketing Communication: Utilizing various communication channels, including advertising, public relations, and promotions, to communicate brand messages.
- Digital Brand Communication: Leveraging digital media and social media platforms for brand communication and engagement.

Assessment methodology

- Oral/poster presentation
- Research based Assignment related to course

DAV UNIVERSITY

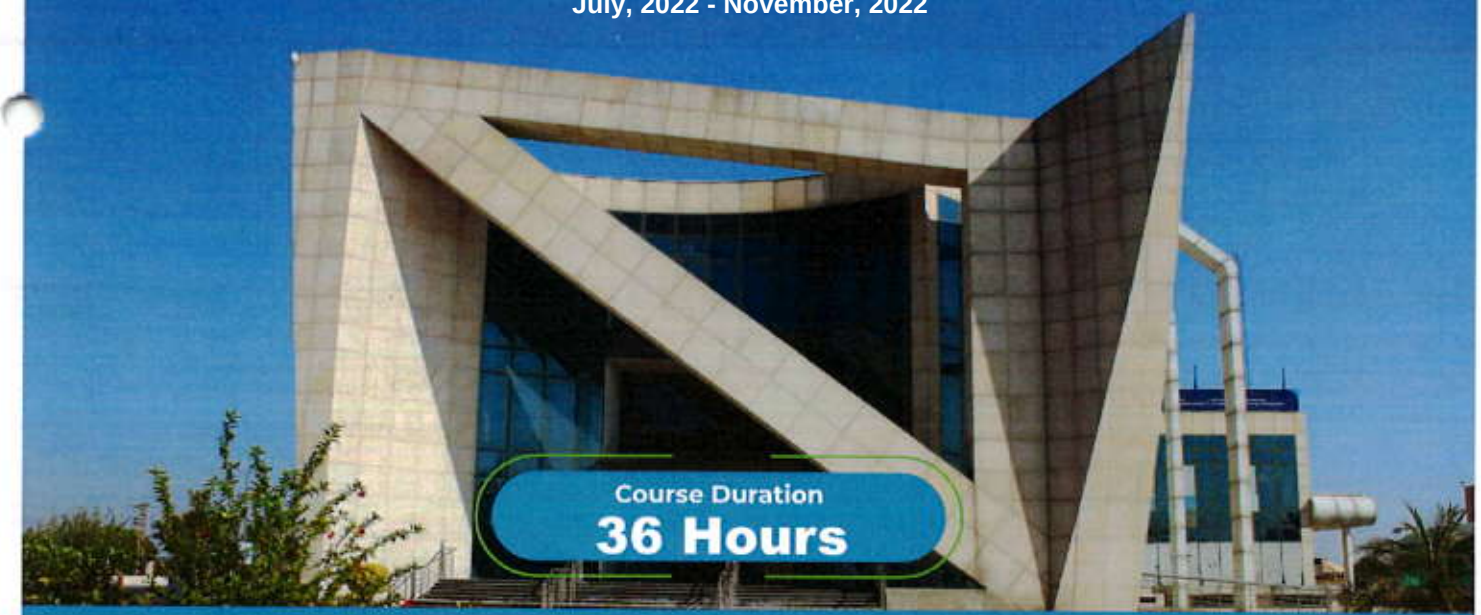
BROCHURE

VALUE ADDED COURSE

WORKPLACE DIVERSITY AND INCLUSION

SESSION 2022-23

July, 2022 - November, 2022



HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

The course on Workplace Diversity and Inclusion is designed to provide students with an in-depth understanding of the principles and practices related to creating and maintaining diverse and inclusive work environments. It covers the importance of diversity and inclusion in the workplace, strategies for implementing inclusive practices, and methods for addressing and overcoming barriers to inclusion. The course also explores legal and ethical considerations, as well as the benefits of diversity and inclusion for organizational success. Students will gain practical skills in fostering an inclusive culture and addressing diversity-related challenges in professional settings.

Course Outcomes

1. Demonstrate a comprehensive understanding of key concepts related to diversity and inclusion, including definitions, dimensions, and benefits.
2. Create and implement policies and practices that promote diversity and inclusion within organizations.
3. Identify and address various forms of bias and discrimination in the workplace, including unconscious bias, microaggressions, and systemic barriers.
4. Apply strategies to foster a culture of inclusion that values and respects diverse perspectives and experiences.

Course Outline

Unit 1: Introduction to Diversity and Inclusion

- Defining Diversity and Inclusion: Key concepts, definitions, and dimensions of diversity and inclusion.
- Historical and Social Context: The evolution of diversity and inclusion in the workplace and its impact on organizational culture.
- The Business Case for Diversity: Understanding the benefits of diversity and inclusion for organizational success and employee engagement.

Unit 2: Understanding Bias and Discrimination

- Types of Bias: Exploring different types of bias, including unconscious bias, explicit bias, and systemic bias.
- Forms of Discrimination: Identifying various forms of discrimination, including racial, gender, age, and disability discrimination.
- Microaggressions: Understanding microaggressions and their impact on individuals and workplace culture.

Unit 3: Creating Inclusive Policies and Practices

- Developing Inclusive Policies: Creating and implementing policies that promote diversity and inclusion in recruitment, hiring, and retention.
- Inclusive Practices: Best practices for fostering an inclusive work environment, including employee resource groups, mentorship programs, and inclusive communication.
- Accessibility and Accommodations: Ensuring workplace accessibility and providing reasonable accommodations for employees with disabilities.

Unit 4: Fostering an Inclusive Culture

- Building an Inclusive Culture: Strategies for creating a workplace culture that values and respects diverse perspectives.
- Cultural Competency: Developing cultural competency skills to effectively interact with and understand people from diverse backgrounds.
- Inclusive Leadership: The role of leadership in promoting and sustaining an inclusive culture.

Assessment methodology

- Short answer based subjective test to assess understanding of concepts
- Research based Assignment related to course

www.davuniversity.org

DAV UNIVERSITY

JALANDHAR

VALUE ADDED COURSE

Data Analysis for Journalists

SESSION 2022-23

70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190

About the Course

The course on Data Analysis for Journalists is designed to equip journalists with the skills and knowledge needed to effectively analyze and interpret data to enhance their reporting. It covers fundamental concepts of data analysis, including data collection, statistical methods, data visualization, and the ethical considerations associated with data journalism.

Course Outcomes

1. Understand Data Analysis Concepts: Demonstrate a comprehensive understanding of fundamental data analysis concepts, including data types, statistical methods, and data interpretation.
2. Collect and Manage Data: Utilize various methods for collecting and managing data, including surveys, public records, and data scraping techniques.
3. Apply Statistical Methods: Apply basic statistical methods to analyze data, including measures of central tendency, variability, correlation, and hypothesis testing.
4. Visualize Data Effectively: Create clear and effective data visualizations using tools and techniques to present data in a compelling manner.

Course Outline

Unit 1: Introduction to Data Analysis

- Overview of Data Analysis: Importance and role of data analysis in journalism.
- Types of Data: Understanding qualitative vs. quantitative data and primary vs. secondary data.
- Data Collection Methods: Techniques for collecting data, including surveys, interviews, and public records.

Unit 2: Data Management and Preparation

- Data Cleaning: Techniques for cleaning and organizing data to ensure accuracy and consistency.
- Data Storage and Management: Best practices for storing and managing data securely.
- Data Sources: Identifying and evaluating reliable data sources, including open data repositories and government databases.

Unit 3: Statistical Methods for Journalists

- Descriptive Statistics: Measures of central tendency (mean, median, mode) and variability (range, variance, standard deviation).
- Inferential Statistics: Basics of hypothesis testing, correlation, and regression analysis.

Unit 4: Data Visualization Techniques

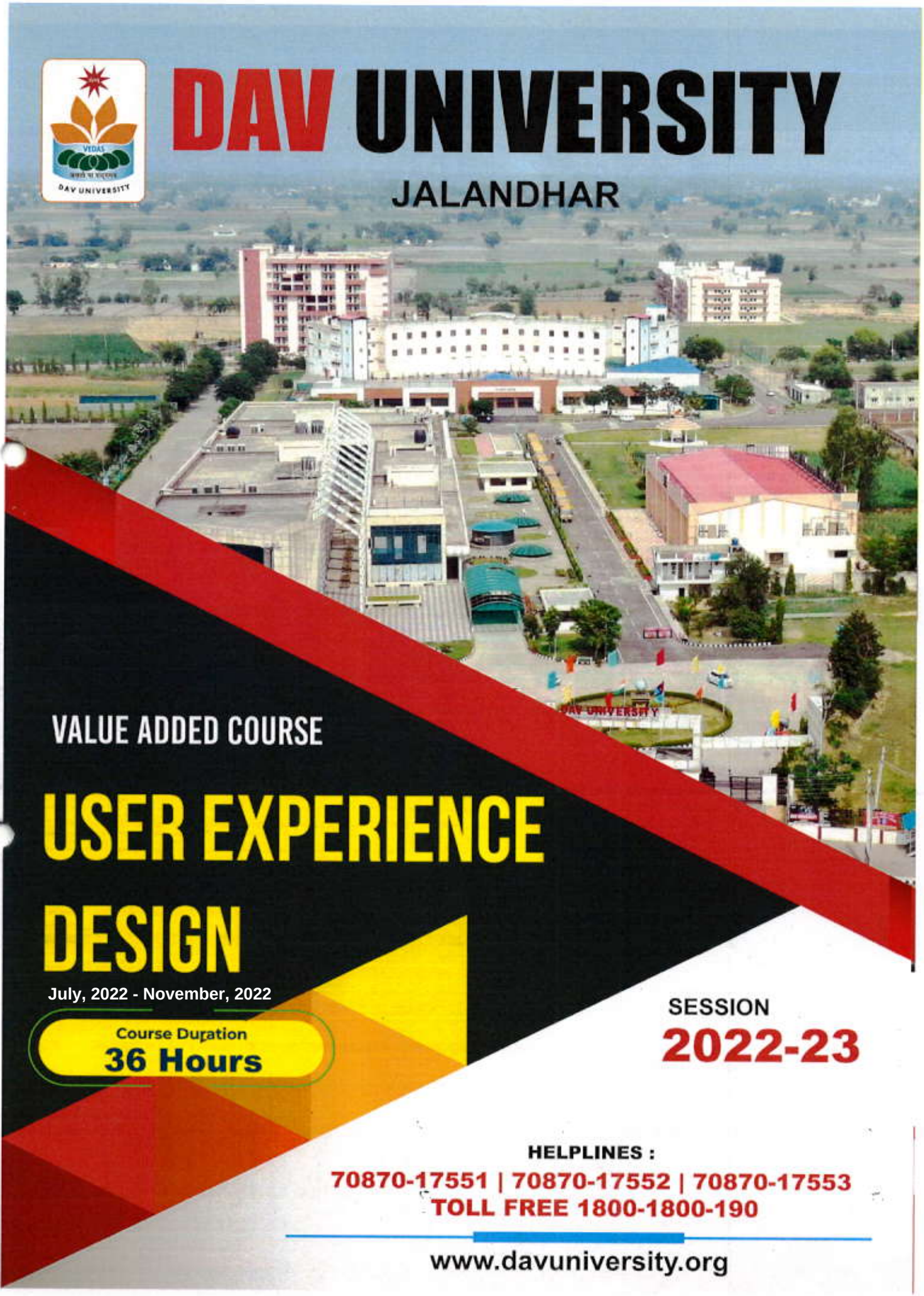
- Principles of Data Visualization: Key principles for creating effective and accurate visualizations.
- Visualization Tools: Introduction to tools and software for data visualization, such as Tableau, Google Data Studio, and Excel.

Course Duration
40 Hours

July, 2022 - November, 2022

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Case based assignments


DAV UNIVERSITY
JALANDHAR
VALUE ADDED COURSE
USER EXPERIENCE DESIGN
July, 2022 - November, 2022
Course Duration
36 Hours
SESSION
2022-23
HELPLINES :
70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190
www.davuniversity.org

About the Course

The course on User Experience (UX) Design is designed to provide students with a comprehensive understanding of the principles and practices involved in creating effective and engaging user experiences. It covers the entire UX design process, including user research, interaction design, prototyping, usability testing, and the integration of feedback into design improvements. The course also explores the role of UX design in product development, focusing on how to create user-centered designs that meet both user needs and business goals. Students will gain hands-on experience with UX design tools and methodologies, preparing them for roles in UX design, product design, and related fields.

Course Outcomes

1. Understand UX Design Principles: Demonstrate a comprehensive understanding of UX design principles, including user-centered design, usability, and interaction design.
2. Conduct User Research: Apply methods for conducting user research, including surveys, interviews, and observations, to gather insights into user needs and behaviors.
3. Create User Personas and User Journeys: Develop user personas and user journey maps to inform design decisions and enhance the user experience.
4. Design Wireframes and Prototypes: Create wireframes and interactive prototypes to visualize and test design concepts and solutions.

Course Outline

Unit 1: Introduction to UX Design

- Overview of UX Design: Definition, importance, and scope of user experience design.
- UX Design Process: Introduction to the UX design process, including research, design, testing, and implementation.
- User-Centered Design: Principles of user-centered design and its role in creating effective user experiences.

Unit 2: User Research

- Conducting User Research: Techniques for conducting user research, including qualitative and quantitative methods.
- Data Collection Methods: Methods for collecting data, including surveys, interviews, and usability studies.

Unit 3: User Personas and User Journeys

- Developing User Personas: Creating detailed user personas based on research findings to represent target users.
- Mapping User Journeys: Developing user journey maps to visualize the user experience and identify pain points and opportunities.

Unit 4: Interaction Design

- Principles of Interaction Design: Key principles of interaction design, including affordances, feedback, and usability.
- Designing User Interfaces: Techniques for designing effective user interfaces, including layout, navigation, and visual hierarchy.
- Design Patterns: Common design patterns and best practices for user interface design.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Research based Assignment related to course

DAV UNIVERSITY

JALANDHAR

VALUE ADDED COURSE

RISK MANAGEMENT

SESSION **2022-23**

70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

The course on Risk Management is designed to provide students with a comprehensive understanding of risk management principles and practices as they apply to computer science and technology projects. The course covers the identification, assessment, and mitigation of risks associated with software development, IT infrastructure, cybersecurity, and data management.

Course Outcomes

- Demonstrate a thorough understanding of risk management concepts, including risk identification, assessment, and mitigation.
- Identify potential risks in computer science applications, including software development, IT infrastructure, and cyber security risks.
- Apply techniques for assessing and analyzing risks, including qualitative and quantitative risk assessment methods.
- Create and implement effective risk mitigation strategies to address identified risks and minimize their impact.

Course Outline

Unit 1: Introduction to Risk Management

- Overview of Risk Management: Definition, importance, and scope of risk management in computer science and technology.
- Risk Management Process: Introduction to the risk management process, including risk identification, assessment, mitigation, and monitoring.
- Risk Management Frameworks: Overview of risk management frameworks and standards, such as ISO 31000 and NIST.

Unit 2: Identifying Risks in Computer Science Projects

- Types of Risks: Identifying various types of risks, including technical, operational, and project management risks.
- Software Development Risks: Understanding risks associated with software development, including design flaws, coding errors, and integration issues.

Unit 3: Risk Assessment and Analysis

- Qualitative Risk Assessment: Techniques for qualitative risk assessment, including risk categorization, risk impact, and likelihood evaluation.
- Quantitative Risk Assessment: Techniques for quantitative risk assessment, including statistical analysis, risk modeling, and Monte Carlo simulations.
- Risk Analysis Tools: Introduction to tools and techniques for risk analysis, including risk matrices and decision trees.

Unit 4: Developing Risk Mitigation Strategies

- Risk Mitigation Techniques: Strategies for mitigating risks, including risk avoidance, risk reduction, risk sharing, and risk acceptance.
- Contingency Planning: Developing contingency plans and response strategies for identified risks.

Assessment methodology

- Oral/poster presentation
- Research based Assignment related to course

Course Duration
32 Hours

July, 2022 - November, 2022

DAV UNIVERSITY

JALANDHAR

BROCHURE

VALUE ADDED COURSE

CONFLICT RESOLUTION

Course Duration 40 Hours

SESSION

2022-23

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

The course on Conflict Resolution is designed to provide students with the skills and knowledge needed to effectively manage and resolve conflicts in various settings, including personal, professional, and organizational environments. The course covers key theories and models of conflict resolution, practical techniques for addressing and resolving conflicts, and strategies for preventing future conflicts.

Course Outcomes

1. **Understand Conflict Resolution Theories: Demonstrate a thorough understanding of key theories and models of conflict resolution, including the causes and dynamics of conflict.**
2. **Identify Conflict Types and Sources: Recognize different types of conflicts and their sources, including interpersonal, group, and organizational conflicts.**
3. **Apply Conflict Resolution Techniques: Use various conflict resolution techniques, including negotiation, mediation, and arbitration, to address and resolve conflicts effectively.**

Course Outline

Unit 1: Introduction to Conflict Resolution

- Overview of Conflict: Definition, types, and dynamics of conflict.
- Theories of Conflict Resolution: Key theories and models, including the Thomas-Kilmann Conflict Mode Instrument and Fisher-Ury's Principled Negotiation.
- Conflict Resolution Process: Stages of conflict resolution, including conflict identification, analysis, intervention, and resolution.

Unit 2: Identifying Conflict Types and Sources

- Types of Conflicts: Interpersonal, intrapersonal, group, and organizational conflicts.
- Sources of Conflict: Understanding common sources of conflict, including communication breakdowns, resource limitations, and differing values and goals.
- Conflict Analysis: Techniques for analyzing and understanding the underlying causes of conflict.

Unit 3: Conflict Resolution Techniques

- Negotiation: Principles and techniques of effective negotiation, including interest-based negotiation and win-win solutions.
- Mediation: Role and process of mediation, including the mediator's role, mediation techniques, and stages of mediation.
- Arbitration: Understanding arbitration, including when it is appropriate and the arbitration process.

Unit 4: Implementing Conflict Resolution Strategies

- Conflict Resolution Strategies: Developing and implementing strategies for resolving conflicts in various settings.
- Conflict Management Plans: Creating conflict management plans to address and prevent conflicts.
- Case Studies: Analyzing case studies to understand effective conflict resolution strategies and outcomes.

Assessment methodology

- **Short answer based subjective test to assess understanding of concepts**
- **Research based Assignment related to course**

DAV UNIVERSITY

VALUE ADDED COURSE

SPORTS

FACILITY MANAGEMENT

2022-23

Course Duration
36 Hours

July, 2022 - November, 2022

HELPLINES :

70870-17551 | 70870-17552 | 70870-17553

TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

The course on Sports Facility Management is designed to provide students with a comprehensive understanding of the principles and practices involved in managing sports facilities. It covers various aspects of facility management, including operations, maintenance, event planning, financial management, and customer service.

Course Outcomes

1. Demonstrate a thorough understanding of the principles and practices of sports facility management, including operations, maintenance, and customer service.
2. Oversee day-to-day operations of sports facilities, including staffing, scheduling, and facility maintenance.
3. Develop and implement plans for organizing and managing sports events, including logistical coordination, budgeting, and marketing.
4. Utilize financial management techniques for budgeting, forecasting, and financial reporting in sports facilities.

Course Outline

Unit 1: Introduction to Sports Facility Management

- Overview of Sports Facility Management: Definition, importance, and scope of sports facility management.
- Types of Sports Facilities: Understanding different types of sports facilities, including stadiums, arenas, fitness centers, and community sports complexes.

Unit 2: Facility Operations

- Daily Operations: Managing day-to-day operations, including staffing, scheduling, and facility maintenance.
- Facility Maintenance: Techniques for maintaining sports facilities, including preventive maintenance and repair.

Unit 3: Event Planning and Management

- Event Planning: Developing plans for organizing sports events, including event logistics, scheduling, and coordination.
- Event Execution: Managing the execution of sports events, including setup, staffing, and coordination with vendors and stakeholders.

Unit 4: Financial Management

- Budgeting and Forecasting: Techniques for creating and managing budgets, including forecasting revenue and expenses.
- Financial Reporting: Understanding financial statements and reports, including income statements, balance sheets, and cash flow statements.
- Revenue Generation: Strategies for generating revenue, including ticket sales, sponsorships, and facility rentals.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Case based assignments

DAV UNIVERSITY

JALANDHAR

VALUE ADDED COURSE

PEER MEDIATION

SESSION 2022-23

70870-17551 | 70870-17552 | 70870-17553
TOLL FREE 1800-1800-190

www.davuniversity.org

About the Course

The course on Peer Mediation is designed to provide students with the skills and knowledge necessary to mediate conflicts among peers in various settings, including educational environments, community groups, and workplaces. The course covers key concepts, techniques, and practices involved in peer mediation, emphasizing the role of mediators in facilitating constructive dialogues and resolving disputes.

Course Outcomes

1. Understand Mediation Fundamentals: Demonstrate a thorough understanding of the principles and processes of peer mediation, including the roles and responsibilities of mediators.
2. Identify and Analyze Conflicts: Recognize and analyze different types of conflicts and their underlying causes in various peer settings.
3. Apply Mediation Techniques: Utilize mediation techniques effectively, including active listening, empathy, and negotiation, to resolve conflicts constructively.
4. Facilitate Mediation Sessions: Conduct and facilitate peer mediation sessions, including setting up the session, guiding discussions, and helping parties reach agreements.

Course Outline

Unit 1: Introduction to Peer Mediation

- Overview of Peer Mediation: Definition, importance, and scope of peer mediation.
- Principles of Mediation: Key principles, including neutrality, confidentiality, and voluntary participation.
- Mediation Process: Stages of mediation, including preparation, facilitation, and resolution.

Unit 2: Identifying and Analyzing Conflicts

- Types of Conflicts: Understanding different types of conflicts, including interpersonal, group, and organizational conflicts.
- Sources of Conflict: Identifying common sources of conflict, such as communication breakdowns, resource allocation, and differing goals.

Unit 3: Mediation Techniques

- Active Listening: Techniques for active listening, including reflecting, paraphrasing, and summarizing.
- Empathy: Developing empathy to understand and address the emotions and viewpoints of conflicting parties.
- Negotiation Skills: Techniques for effective negotiation, including finding common ground and developing mutually acceptable solutions.

Unit 4: Facilitating Mediation Sessions

- Preparing for Mediation: Setting objectives, establishing ground rules, and creating a safe environment for mediation.
- Guiding the Mediation Process: Techniques for managing discussions, maintaining focus, and handling emotions during mediation.
- Reaching Agreements: Strategies for helping parties reach agreements and documenting the outcomes of mediation sessions.

Assessment methodology

- Quiz – MCQs to assess understanding of concepts
- Research based Assignment related to course

Course Duration
32 Hours

July, 2022 - November, 2022