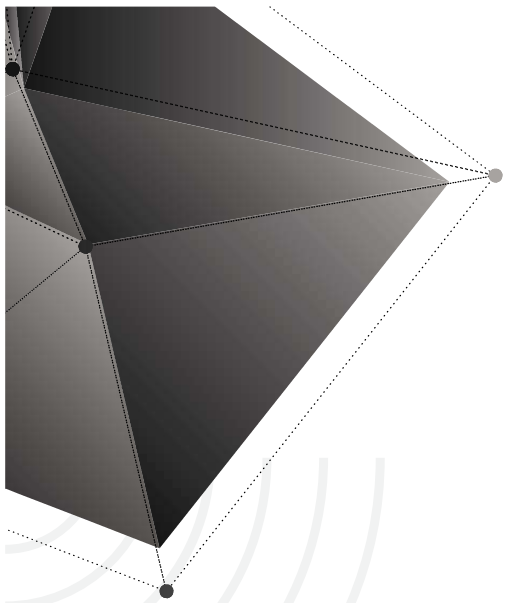
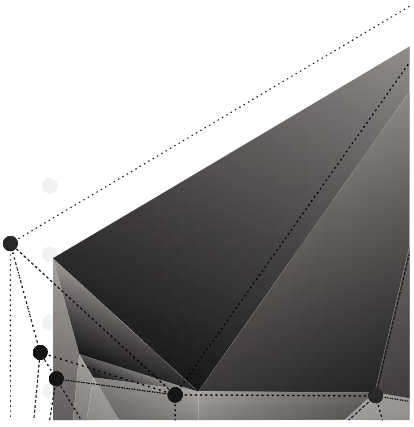


FOURTH SEMESTER

'GAMING
&
ANIMATION'



FUNDAMENTALS OF GAME PRODUCTION

Course Code:	504001
Course Title	Fundamentals of Game Production
No. of Credits	4 (TH:4,T:0,P:0)

COURSE OUTCOMES:- After completion of the course the student will be able to-

1. Understand the fundamental concepts and processes involved in game production, including game design, development, and project management.
2. Apply game design principles and methodologies to create engaging and immersive gameplay experiences.
3. Develop proficiency in using game development tools and software to create game prototypes and assets.
4. Collaborate effectively in multidisciplinary game development teams, demonstrating strong communication and teamwork skills.
5. Apply project management techniques to plan, execute, and deliver game projects on time and within budget.
6. Critically analyse and evaluate game projects, incorporating feedback and iterating to improve gameplay mechanics and overall quality.

COURSE CONTENTS

1. **Introduction to Game Production:**

- Overview of the game development process and industry.
- Understanding roles and responsibilities in game development teams.

2. **Game Design Principles:**

- Game design elements, mechanics, and player experience.
- Creating compelling narratives and game worlds.

3. **Game Development Tools and Software:**

- Introduction to game engines, such as Unity or Unreal Engine.
- Understanding asset creation tools, including 2D and 3D software.

4. **Prototyping and Iterative Design:**

- Rapid prototyping techniques for game mechanics and level design.
- Play testing, user feedback, and iteration cycles.

5. **Collaborative Game Development:**

- Team dynamics and effective communication in game development teams.
- Collaboration tools and version control systems.

6. **Quality Assurance and Testing:**

- Testing methodologies, bug tracking, and quality assurance in game production.
- User experience testing and usability evaluation.

Study Books:

1. "The Art of Game Design: A Book of Lenses" by Jesse Schell
2. "Game Design Workshop: A Play centric Approach to Creating Innovative Games" by Tracy Fullerton
3. "Level Up! The Guide to Great Video Game Design" by Scott Rogers
4. "The Game Production Handbook" by Heather Maxwell Chandler and Rafael Chandler
5. "Agile Game Development with Scrum" by Clinton Keith
6. "Game Design: A Practical Approach" by Paul Schuytema and Gregory Snook

*****

FILM APPRECIATION

Course Code:	504002
Course Title	Film Appreciation
No. of Credits	4 (TH:4,T:0,P:0)

COURSE OUTCOMES:- After completion of the course the student will be able to-

1. Develop a deep understanding of the art of filmmaking and its cultural significance.
2. Analyse and interpret films using relevant film theories, concepts, and terminology.
3. Recognize and appreciate various film genres, styles, and techniques.
4. Critically evaluate films based on their technical aspects, storytelling, and thematic elements.
5. Demonstrate effective communication skills in discussing and writing about films.
6. Gain a broader cultural perspective through exposure to diverse film traditions and movements.

COURSE CONTENTS

1. **Introduction to Film Appreciation:**

- History and evolution of cinema.
- Importance of film as an art form and cultural medium.

2. **Film Elements and Techniques:**

- Cinematography concepts, mise-en-scène, editing, sound, and production design.
- Exploring the use of camera angles, lighting, composition, and sound effects.

3. **Film Genres:**

- Studying and analysing different film genres, such as drama, comedy, thriller, and documentary.
- Identifying genre conventions.

4. **Film Analysis and Interpretation:**

- Film theories and critical approaches to analysis.
- Narrative structures, character development, symbolism, and subtext.

5. **Directors and Their Styles:**

- Studying the works of influential film directors and their unique styles and contributions.
- Analysing directorial choices, visual storytelling, and thematic motifs.

6. **Social and Cultural Context of Films:**

- Examining how films reflect and shape societal and cultural issues.
- Analysing representations of gender, race, class, and identity in films.

Study Books

1. "Understanding Movies" by Louis Giannetti
2. "Film Art: An Introduction" by David Bordwell and Kristin Thompson
3. "The Oxford History of World Cinema" edited by Geoffrey Nowell-Smith
4. "The Story of Film" by Mark Cousins
5. "Film Theory and Criticism: Introductory Readings" edited by Leo Braudy and Marshall Cohen
6. "Screenplay: The Foundations of Screenwriting" by Syd Field

*****

HUMAN-COMPUTER INTERACTION

Course Code:	504003
Course Title	Human-Computer Interaction
No. of Credits	4 (TH:4,T:0,P:0)

COURSE OUTCOMES:- After completion of the course the student will be able to-

1. Understand the fundamental concepts and principles of human-computer interaction (HCI) and its importance in designing user-friendly systems.
2. Apply user-centered design approaches to create interactive and intuitive user interfaces.
3. Evaluate and analyze user needs and requirements through user research and usability testing.
4. Design and develop user interfaces that provide effective and efficient interaction experiences.
5. Demonstrate proficiency in utilizing HCI tools and techniques for interface design and evaluation.
6. Collaborate effectively in multidisciplinary teams, demonstrating strong communication and teamwork skills in HCI projects.

COURSE CONTENTS

1. **Introduction to Human-Computer Interaction:**
- Overview of HCI principles, models, and theories.
- Importance of user-centered design and usability in system development.

2. **User Research and Analysis:**
- Methods for gathering user requirements and conducting user interviews and surveys.
- Techniques for analyzing user needs, behaviors and preferences.

3. **Interface Design and Evaluation:**
- Layout, navigation and visual aesthetics.
- Prototyping techniques for interactive interface design and evaluation.

4. **Interaction Design:**
- Understanding user interactions, input mechanisms, and feedback systems.
- Designing interactive elements: Menus, forms, and multimedia components.

5. **Usability Evaluation and Testing:**
- Usability tests to assess user satisfaction and task performance.
- Techniques for identifying and addressing usability issues in user interfaces.

6. **Emerging Trends in HCI:**
- Emerging technologies and interfaces: Mobile, virtual reality, and augmented reality.

Study Books

1. "The Design of Everyday Things" by Don Norman
2. "Interaction Design: Beyond Human-Computer Interaction" by Jennifer Preece, Yvonne Rogers, and Helen Sharp
3. "About Face: The Essentials of Interaction Design" by Alan Cooper, Robert Reimann, and David Cronin
4. "Don't Make Me Think: A Common Sense Approach to Web Usability" by Steve Krug
5. "Universal Principles of Design" by William Lidwell, Kritina Holden, and Jill Butler
6. "Designing Interactive Systems: A Comprehensive Guide to HCI and Interaction Design" by David Benyon

*****

PRODUCT AND PACKAGING DESIGN

Course Code:	504004
Course Title	Product and Packaging Design
No. of Credits	4 (TH:4,T:0,P:0)

COURSE OUTCOMES:- After completion of the course the student will be able to-

1. Understand the fundamental principles and theories of product and packaging design.
2. Apply design thinking methodologies to develop innovative and user-centered product and packaging solutions.
3. Create aesthetically pleasing and functional product designs considering factors like ergonomics, materials, and manufacturing processes.
4. Develop proficiency in using design software and tools for creating 3D product models and packaging prototypes.
5. Apply sustainability principles and considerations in product and packaging design.
6. Demonstrate effective communication skills in presenting and explaining design concepts and solutions.

COURSE CONTENTS

1. **Introduction to Product and Packaging Design:**

- Historical overview and significance of product and packaging design.
- Understanding the role of design in enhancing product functionality and user experience.

2. **Design Thinking and Ideation:**

- Design thinking process and methodologies for generating innovative design ideas.
- Brainstorming techniques, mind mapping and concept development.

3. **Form, Function and Aesthetics in Design:**

- Principles of form, function, and aesthetics.
- Human factors, ergonomics, and user-centered design considerations.

4. **Digital Tools and Visualization:**

- Introduction to design software & tools for creating 3D models.
- Visualization techniques.

5. **Sustainable Design:**

- Principles of sustainable design and eco-friendly packaging solutions.
- Design strategies for minimizing environmental impact and promoting recycling.

6. **Packaging Design and Branding:**

Importance of packaging, graphics and labeling.

7. **Prototyping and Testing:**

Techniques for creating physical prototypes of product designs, packaging and usability testing.

Study Books:

1. "Product Design and Development" by Karl T. Ulrich and Steven D. Eppinger
2. "Packaging Design: Successful Product Branding From Concept to Shelf" by Marianne R. Klimchuk and Sandra A. Krasovec
3. "The Packaging Designer's Book of Patterns" by Lászlo Roth and George L. Wybenga
4. "Sustainable Packaging Design: A Guide to Understanding the Environmental Impact of Packaging" by Scott Boylston
5. "Materials for Design" by Chris Lefteri
6. "Universal Principles of Design" by William Lidwell, Kritina Holden, and Jill Butler

*****

UI AND UX FOR GAME DEVELOPMENT

Course Code:	504005
Course Title	UI and UX for Game Development
No. of Credits	6 (TH:6,T:0,P:0)

COURSE OUTCOMES:- After completion of the course the student will be able to-

1. Understand the fundamentals of user interface (UI) and user experience (UX) design in the context of game development.
2. Apply principles of UI and UX design to create intuitive and engaging user interfaces for games.
3. Develop wireframes, prototypes, and mockups to visualize and iterate on game UI designs.
4. Implement effective user interaction and feedback mechanisms in game interfaces.
5. Conduct user testing and evaluation to improve the usability and user experience of game interfaces.
6. Collaborate effectively with game developers, artists, and stakeholders to create cohesive UI and UX designs.

COURSE CONTENTS

1. **Introduction to UI and UX in Game Development:**
   - Overview of UI and UX design principles and applications, role of UI and UX in enhancing player engagement and satisfaction.

2. **User-Cantered Design and Player Psychology:**
   - Player motivations, behaviors, and cognitive processes.
   - User-centered design methodologies.

3. **Visual Design for Game Interfaces:**
   - Principles of visual design, color theory, typography, and iconography, visually appealing and cohesive game interface designs.

4. **Information Architecture and Navigation:**
   - Designing effective menu systems, game maps, and navigation flows.

5. **Interaction Design for Games:**
   - Intuitive and responsive game controls, buttons, and input mechanisms, motion graphics, animations, and visual effects.

6. **Usability Testing and Evaluation:**
   - User testing sessions, analyzing user feedback.

Study Books

1. "The Gamer's Brain: How Neuroscience and UX Can Impact Video Game Design" by Celia Hodent
2. "UI is Communication: How to Design Intuitive, User-Centered Interfaces by Focusing on Effective Communication" by Everett N. McKay
3. "The Elements of User Experience: User-Centered Design for the Web and Beyond" by Jesse James Garrett
4. "Game Design Workshop: A Playcentric Approach to Creating Innovative Games" by Tracy Fullerton
5. "The Design of Everyday Things" by Don Norman
6. "The UX Book: Process and Guidelines for Ensuring a Quality User Experience" by Rex Hartson and Pardha S. Pyla

*****

VFX LAB (BASIC)

Course Code:	504006
Course Title	VFX Lab (Basic)
No. of Credits	2 (TH:0,T:0,P:4)

PRACTICAL OUTCOMES: After completion of the course the student will be able to-

1. Understand the principles and techniques of visual effects (VFX) in the context of film and video production.
2. Demonstrate proficiency in using industry-standard VFX software, such as After Effects, Fusion, Nuke, etc.
3. Apply various VFX techniques, such as compositing, motion tracking, keying, and 3D integration, to enhance visual storytelling.
4. Develop a critical eye for analyzing and evaluating VFX shots, identifying areas for improvement and enhancement.
5. Collaborate effectively in a team environment, demonstrating strong communication and problem-solving skills in VFX projects.
6. Create high-quality VFX shots and sequences that meet professional standards and industry expectations.

List of Practicals:

1. **Compositing Technique:**
    - Create a composite shot by combining multiple visual elements.

2. **Motion Tracking and Match moving:**
    - Track the movement of a camera or an object in a video footage and apply 2D or 3D elements onto the tracked motion and Use tracking data to integrate CG elements or perform screen replacements.

3. **Rotoscoping and Keying:**
    - Isolate foreground elements from the background using rotoscoping techniques.
    - Perform keying operations to remove or replace the background of a shot.

4. **Particle Effects and Simulation:**
    - Create and manipulate particle systems to generate realistic effects.
    - Simulate dynamic behavior.

5. **3D Integration and Camera Projection:**
    - Integrate 3D computer-generated elements into live-action footage, matching lighting and perspective.
    - Perform camera projections to recreate virtual sets or add extensions to existing environments.

Study Books:

1. "The Art and Science of Digital Compositing: Techniques for Visual Effects, Animation, and Motion Graphics" by Ron Brinkmann
2. "The Invisible Art: The Legends of Movie Matte Painting" by Mark Cotta Vaz and Craig Barron
3. "The VES Handbook of Visual Effects: Industry Standard VFX Practices and Procedures" by Susan Zwerman and Jeffrey A. Okun
4. "Nuke 101: Professional Compositing and Visual Effects" by Ron Ganbar
5. "Adobe After Effects CC Classroom in a Book" by Lisa Fridsma and Brie Gyncild
6. "Digital Compositing for Film and Video" by Steve Wright

*****

3D ENVIRONMENT DESIGN FOR GAMING AND ANIMATION LAB

Course Code:	504007
Course Title	3D Environment Design for Gaming and Animation Lab
No. of Credits	2 (TH:0,T:0,P:4)

PRACTICAL OUTCOMES:- After completion of the course the student will be able to-

1. Understand the principles of 3D environment design and its application in gaming and animation.
2. Gain proficiency in using industry-standard 3D software, such as Blender, Maya, and 3ds Max, for creating realistic and immersive environments.
3. Create detailed 3D models of various environmental elements, including landscapes, buildings, props, and assets.
4. Apply texturing and material creation techniques to add depth and realism to 3D environments.
5. Utilize lighting and rendering techniques to enhance the visual appeal and atmosphere of 3D environments.
6. Collaborate effectively in a team environment, demonstrating strong communication and problem-solving skills in 3D environment design projects.

List of Practicals:

1. **Landscape Design:**

   Create natural landscapes, terrains, and organic forms using sculpting and terrain generation tools with texturing, material assignment and foliage placement to enhance the realism of the environment.

2. **Architectural Design:**

   Model and texture architectural elements, accurate proportions, architectural detailing, and realistic material representation.

3. **Prop and Asset Creation:**

   Design and model various props and assets, detail, scale, and realistic representation of materials and textures.

4. **Scene Composition:**

   Combine various 3D models & assets, composition principles, camera placement, and scene optimization for efficient rendering.

5. **Lighting and Rendering:**

   Different lighting techniques, experiment with rendering settings.

Study Books:

1. "The Complete Guide to Blender Graphics: Computer Modeling & Animation" by John M. Blain
2. "Learning Maya 2019: A Beginner's Guide to Autodesk Maya" by Prof. Sham Tickoo Purdue Univ.
3. "3ds Max 2020: A Comprehensive Guide" by Prof. Sham Tickoo Purdue Univ.
4. "Blender Master Class: A Hands-On Guide to Modeling, Sculpting, Materials, and Rendering" by Ben Simonds
5. "Maya for Games: Modeling and Texturing Techniques with Maya and Mudbox" by Michael Ingrassia
6. "Autodesk 3ds Max 2020: A Detailed Guide to Modeling, Texturing, Lighting, and Rendering" by Prof. Sham Tickoo Purdue Univ.

*****

BASIC 3D MODELING LAB

Course Code:	504008
Course Title	Basic 3D Modeling Lab
No. of Credits	2 (TH:0,T:0,P:4)

PRACTICAL OUTCOMES:- After completion of the course the student will be able to-

1. Understand the fundamentals of 3D modeling and its application in various industries such as gaming, animation, and visual effects.
2. Gain proficiency in using industry-standard 3D modeling software, including Blender, Maya, and 3ds Max.
3. Create 3D models of objects, characters, and environments with accurate proportions, topology, and detailing.
4. Apply appropriate texturing techniques to add realistic materials and surface properties to 3D models.
5. Demonstrate efficient polygonal modeling workflows and techniques for optimized and clean geometry.
6. Collaborate effectively in a team environment, demonstrating strong communication and problem-solving skills in 3D modeling projects.

List of Practicals:

1. **Object Modeling:**
   - Create 3D models of various objects.
   - Practice different modeling techniques.

2. **Character Modeling:**
   - Develop 3D models of characters, paying attention to anatomy, facial features, and clothing details.
   - Learn techniques for creating realistic or stylized characters.

3. **Environment Modeling:**
   - Design and construct 3D environments.
   - Apply texturing, material assignment, and lighting techniques.

4. **Organic Modeling:**
   - Create organic forms and creatures using sculpting tools and techniques.
   - Explore digital sculpting workflows.

5. **Hard Surface Modeling:**
   - Creating 3D models of hard-surface objects.
   - Practice techniques like edge modeling, beveling, and boolean operations.

Study Books:

1. "Blender Foundations: The Essential Guide to Learning Blender 2.7x" by Roland Hess
2. "Learning Autodesk Maya 2022: A Beginners Guide to Maya 3D Modeling, Animation, and Rendering" by Todd Palamar
3. "Autodesk 3ds Max 2022: A Detailed Guide to Modeling, Texturing, Lighting, and Rendering" by Prof. Sham Tickoo Purdue Univ.
4. "Blender 3D Basics: Second Edition" by Gordon Fisher
5. "Maya Character Creation: Modeling and Animation Controls" by Chris Maraffi
6. "Hard Surface Modeling with Blender: A Guide to High-Quality 3D Asset Creation" by Aidy Burrows and Gleb Alexandrov

*****

'Elective 1-1'
ARTIFICIAL INTELLIGENCE

Course Code:	434004
Course Title	Artificial Intelligence
No. of Credits	4 (TH:4,T:0,P:0)

COURSE OUTCOMES: After completion of this course, student will be able to:

1. Understand the definition, goals, and history of Artificial Intelligence (AI).
2. Explore the applications of AI in various domains.
3. Gain knowledge of different types of agents, such as simple reflex agents, model-based reflex agents, and goal-based agents.
4. Understand the nature of environments and their properties.
5. Develop proficiency in search algorithms, including brute-force strategies like breadth-first search and depth-first search, as well as heuristic search algorithms and local search techniques.
6. Acquire knowledge of fuzzy logic systems, including membership functions, fuzzification/defuzzification processes, and their applications.
7. Gain an understanding of neural networks, including their basic structure, the concept of perceptron, and the back-propagation algorithm.

COURSE CONTENTS

Unit - 1: Introduction to Artificial Intelligence

- Artificial Intelligence (AI) definition
- Goals of AI
- History of AI
- Applications of AI

Unit - 2 : Agents and Environments

- Agent Terminology, Types of Agents – Simple Reflex Agents, Model Based Reflex Agents, Goal Based Agents
- Nature of Environments, Properties of Environments

Unit - 3 : Search Algorithms

- Brute Force Search Strategies – Breadth First Search, Depth First Search.
- Heuristic Search Strategies, Local Search Algorithms.

Unit - 4 : Fuzzy Logic Systems

Introduction to Fuzzy Logic and Fuzzy systems,

- Membership functions,
- Fuzzification/Defuzzification

Unit - 5 : Neural Networks

Basic structure of Neural Networks

- Perceptron
- Back-propagation

Reference Books

1. "Artificial Intelligence: A Hands-On Approach" by Amit Konar
2. "Artificial Intelligence for Engineering Applications" by T. Veerakumar
3. "Practical Artificial Intelligence Programming with Java" by Mark Watson

Suggested Learning Resources:

1. Artificial Intelligence By Example: Develop machine intelligence from scratch using real artificial intelligence use cases Denis Rothman Packt Publishing ISBN – 978-1788990547

*****

'Elective 1-2'
FUNDAMENTAL OF ART & DESIGN

Course Code:	504009
Course Title	Fundamental of Art & Design
No. of Credits	4 (TH:4,T:0,P:0)

COURSE OUTCOMES : After completion of this course, student will be able to:

1. Gain a foundational understanding of art and design principles relevant to the gaming and animation industries.
2. Develop the ability to apply design elements and principles effectively in visual storytelling.
3. Acquire proficiency in using industry-standard software tools for creating digital artwork.
4. Demonstrate creative problem-solving skills through various art and design projects.
5. Understand the collaborative nature of art and design processes within the gaming and animation production pipeline.

COURSE CONTENTS

1. **Introduction to Art & Design in Gaming & Animation:**

- Role of art and design in gaming and animation, importance of aesthetics and visual communication.

2. **Elements and Principles of Design:**

- Exploration of design elements, Application of design principles.

3. **Storyboarding and Visual Storytelling:**

- Techniques for creating storyboards to convey narrative and pacing.
- Understanding shot composition, camera angles and staging for visual storytelling.

4. **Character Design and Animation:**

- Basics of character design, anatomy and proportion.
- Introduction to character animation principles and techniques.

5. **Environment and Prop Design:**

- Creating immersive environments and props for gaming and animation.
- Incorporating perspective and atmospheric effects for depth and realism.

6. **Digital Art Tools and Software:**

- Introduction to industry-standard software for digital art creation.
- Practice with digital painting techniques and tools.

7. **Color Theory and Lighting:**

- Psychology of color and its impact on visual storytelling.
- Exploring lighting techniques to enhance mood and atmosphere.

8. **Concept Art and Pre-visualization:**

- Creating concept art for characters, environments & props.
- Importance of concept art in the pre-production phase.

Suggested Books:

1. "The Animator's Survival Kit" by Richard Williams
2. "Understanding Comics: The Invisible Art" by Scott McCloud
3. "The Elements of Typographic Style" by Robert Bringhurst
4. "Color and Light: A Guide for the Realist Painter" by James Gurney
5. "The Visual Story: Creating the Visual Structure of Film, TV, and Digital Media" by Bruce Block

*****

'Audit Course'
ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE

Course Code	AS401
Course Title	Essence of Indian Traditional Knowledge
No. of Credits	0 (TH:2,T:0,P:0)

COURSE OUTCOMES: After completion of this course, student will be able to:

1. Develop a comprehensive understanding of the essence of Indian knowledge and tradition.
2. Explore the rich philosophical systems of ancient India and their relevance today.
3. Gain familiarity with the Vedic literature and scriptures, and appreciate their wisdom.
4. Analyze Indian epics and mythology to understand their cultural and spiritual significance.
5. Learn and apply principles of yoga, meditation, and mindfulness for personal well-being.
6. Discover the principles and practices of Ayurveda and natural healing for holistic health.

COURSE CONTENTS

1. Introduction to Indian Knowledge and Tradition
2. Ancient Indian Philosophical Systems
3. Vedic Literature and Scriptures
4. Indian Epics and Mythology
5. Yoga, Meditation, and Mindfulness Practices
6. Ayurveda and Natural Healing Systems
7. Indian Classical Arts and Music
8. Indian Architecture and Sculpture
9. Indian Festivals and Rituals
10. Ethical and Moral Values in Indian Culture

References /Suggested Learning Resources:

1. "Indian Philosophy: A Very Short Introduction" by Sue Hamilton
2. "The Vedas: An Introduction to Hinduism's Sacred Texts" by Roshen Dalal
3. "The Ramayana: A Shortened Modern Prose Version of the Indian Epic" by R.K. Narayan
4. "The Upanishads" translated by Eknath Easwaran
5. "Autobiography of a Yogi" by Paramahansa Yogananda
6. "Ayurveda: The Science of Self-Healing" by Dr. Vasant Lad.

*****

MINOR PROJECT WORK

Course Code:	AS402
Course Title	Minor Project Work
No. of Credits	2 (TH:0,T:0,P:4)

OBJECTIVE:

The Minor Project work is an integral part of the Engineering Diploma program, designed to provide students with an opportunity to apply theoretical knowledge gained throughout their studies to real-world engineering challenges. This module aims to foster creativity, problem-solving abilities, and practical skills essential for successful engineering professionals.

PRACTICAL OUTCOMES: After undergoing the minor project work, the student will be able to:

1. Understand the practical applications of engineering concepts in real-world scenarios.
2. Develop hands-on experience in designing, implementing, and testing engineering projects.
3. Enhance problem-solving and critical thinking skills through project execution.
4. Improve documentation and presentation skills for effective project communication.

GENERAL GUIDELINES:

1. Introduction to Minor Projects

- Overview of the module's purpose and objectives
- Importance of practical application in engineering
- Understanding the project life cycle and its stages

2. **Project Ideation and Proposal Development**
- Identifying engineering problems and project ideas
- Formulating clear project objectives and scope
- Developing a comprehensive project proposal

3. **Project Planning and Management**
- Creating a project plan with defined milestones and timelines
- Resource allocation and budgeting for the project
- Risk assessment and mitigation strategies

4. **Engineering Design and Analysis**
- Principles of engineering design and problem-solving
- Conducting feasibility studies and simulations (if applicable)
- Engineering analysis techniques and tools

5. **Prototyping and Implementation**
- Hands-on development of project prototypes
- Conducting experiments and data collection
- Troubleshooting and problem-solving during implementation

6. **Project Documentation and Reporting**
- Techniques for effective project documentation
- Writing comprehensive project reports and design documentation
- Organizing and presenting project data

7. **Project Presentation and Communication**

- Principles of effective communication in engineering
- Preparing engaging & informative project presentations
- Addressing questions & feedback during the presentation

8. **Project Evaluation and Assessment**

- Criteria for evaluating project success and achievement of objectives
- Conducting fair and unbiased project assessments
- Peer evaluations and constructive feedback.

ACTIVITIES AND EXECUTION GUIDELINES

1. **Project Proposal Submission:**

Students will submit their project proposals to the assigned mentors. The proposals should be well-structured, indicating the project's significance, expected outcomes, resources required, and a preliminary plan of action.

2. **Project Execution:**

During this period, students will work on their projects under the guidance of their mentors. They are encouraged to employ innovative techniques and apply engineering principles to achieve project objectives successfully.

3. **Project Documentation:**

Students will submit their final project reports and related documentation. The documentation should encompass all project phases, methodologies, experimental data, analysis, and outcomes.

4. Project Presentation:

Each student will deliver a comprehensive presentation to a panel of evaluators, showcasing their project's key aspects, results, and conclusions.

ASSESSMENT CRITERION

1. Project Proposal and Objective (10%)

Students are required to submit a comprehensive project proposal outlining the problem statement, objectives, scope, and methodology of the project. This component will account for 10% of the total marks.

2. Project Implementation (60%)

The core of the assessment will be based on the successful implementation of the project. Students will be evaluated on their ability to execute the project plan, adhere to timelines, and demonstrate practical engineering skills. This segment will carry 60% of the total marks.

3. Documentation (15%)

Proper documentation is vital to effective project management and communication. Students will be evaluated on the clarity, completeness, and organization of their project reports, design diagrams, code (if applicable), and any other relevant material. This component will contribute 15% of the total marks.

4. Project Presentation (15%)

Communication and presentation skills are crucial for engineers to articulate their ideas effectively. Students will be assessed based on their ability to present their project's

objectives, methodology, results, and conclusions in a clear and concise manner. This segment will be worth 15% of the total marks.

The Minor Project module is a pivotal component of the Engineering Diploma program that provides students with hands-on experience, encourages critical thinking, and prepares them for real-world engineering challenges. By adhering to the module guidelines and distribution of marks, students can excel in their projects and demonstrate their engineering prowess effectively.

*****