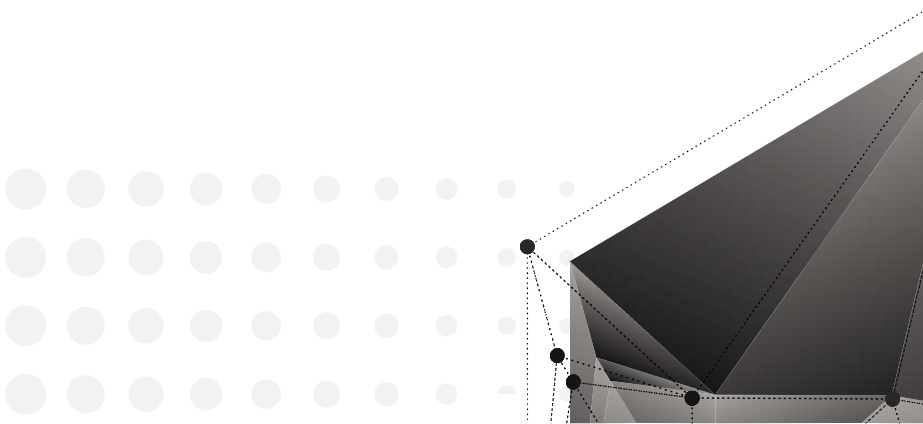


**SIXTH SEMESTER**

**'MECHATRONICS'**





## **ROBOTICS**

<b>Course Code:</b>	456001
<b>Course Title</b>	Robotics
<b>No. of Credits</b>	10 (TH:8,T:0,P:4)

**COURSE OUTCOMES :-** At the end of the course, the student will be able to:

1. Explain the robot anatomy, classification, characteristics of robot, advantages and disadvantages.
2. Explain the various robotic actuators on hydraulic, pneumatic and electrical drives.
3. Explain about various types of sensors and concepts on robot vision system.
4. Explain the concepts of robot programming languages and various methods of robot Programming.
5. Explain the various applications of robots.

## **COURSE CONTENTS**

### **Unit - 1: Fundamentals of Robotics**

- Introduction; Definition; Robot anatomy (parts) and its working;
- Robot Components: Manipulator, End effectors; Construction of links, Types of joints;
- Classification of robots;
- Structural Characteristics of robots; Mechanical rigidity; Effects of structure on control work envelope and work Volume;
- Advantages and disadvantages of robots.

### **Unit- 2 : Robotic Drive System and Controller**

- Conversion between linear and rotary motion;
- Basic working of Feedback devices; Potentiometers; Optical encoders; DC tachometers; Robot controller;
- Robot path control: Point to point, Continuous path control and Sensor based path control;

### **Unit - 3 : Machine Vision**

- Principles and Applications of the following types of sensors related to robots: Position sensors, Range sensors, Proximity sensing;
- Introduction to Machine Vision: Robot vision system
- Image processing and analysis; Cameras (Acquisition of images); Vidico camera (Working principle & construction);
- Applications of Robot vision system: Inspection, Identification, Navigation & serving.

#### **Unit - 4 : Robot Kinematics and Robot Programming**

- Forward Kinematics; Inverse Kinematics & Differences;
- Forward Kinematics and Reverse Kinematics of Manipulators with Two Degrees of Freedom (In 2 Dimensional); Deviations and Problems.
- Teach Pendant Programming; Lead through programming; Robot programming Languages; VAL Programming; Motion Commands;
- Sensor Commands; End effector commands; and Simple programs

#### **Unit- 5: Industrial Application of Robots**

- Application of robots in machining; welding; assembly and material handling.

**PRACTICALS OUTCOMES :-** At the end of the course, the student will be able to:

1. Install the Software.
2. Use various drive systems for robot, sensors and their applications in robots and programming of robots.
3. Use of various types of sensors and concepts on robot vision system.
4. Program robot using various methods of robot Programming.
5. Design the various applications of robots.

**List of Practicals:**

1. Study of Robo-Analyzer (a 3D model-based software) user manual. (<http://www.roboanalyzer.com>)
2. Study of different types of robots based on configuration and application.
3. Study of robotic actuators.
4. Study of different sensing element used in robots.
5. Study of robotic manipulator.
6. Study of robotic locomotion technique used in robots.
7. Study of different Human-robot interactions.
8. Study of robot specifications.
9. Study of different type of links and joints used in robots.
10. Study the basic terminology and notation used in robot geometry and kinematics. (Robots with planar geometry)

### **Reference Books :**

1. Introduction to Robotics: Analysis, Systems, Applications – Saeed B. Niku, Pearson Education Inc. New Delhi 2006.
2. Industrial Robotics: Technology, Programming & Applications – M.P. Groover, Tata McGraw Hill Co, 2001.
3. Robotics Control, Sensing, Vision and Intelligence – Fu.K.S. Gonzalz.R.C and Lee C.S.G, McGraw Hill Book Co, 1987.
4. Robotics for Engineers – Yoram Koren, McGraw Hill Book Co, 1992.
5. A Text book on Industrial Robotics – Ganesh S. Hedge, Laxmi Publications Pvt. Ltd., New Delhi, 2008.
6. Robotics Technology and Flexible Automation – S.R. Deb & Sankha Deb, Tata McGraw-Hill, 2010.
7. Elements of Robotics Process Automation, Mukherjee, Khanna Publishing House, Delhi, 2018

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**‘Open Elective 1-1’  
CONTROL SYSTEM AND PLC**

<b>Course Code:</b>	456002
<b>Course Title</b>	Control System and PLC
<b>No. of Credits</b>	6 (TH:6,T:0,P:0)

**COURSE OUTCOMES :-** At the end of the course, the student will be able to:

1. Identify different types of automation systems.
2. Interface I/O devices with the PLC modules.
3. Develop PLC ladder programs for various real life applications.



## **COURSE CONTENTS**

### **Unit : 1 - Basics of Control System**

1. Basics of control system diagram and practical examples;
2. Classification of control systems;
3. Open loop and closed loop systems;
4. Linear and non-linear systems;
5. Transfer function.
6. Standard test inputs: Step, Ramp, Parabolic, Impulse;

### **Unit : 2 - Process Controllers**

1. Process control system: block diagram, functions of each block;
2. Control actions: discontinuous mode, continuous mode;
3. Composite controllers: PI, PD, PID controllers- output equation, response.

### **Unit : 3 - Fundamentals of PLC**

1. Building blocks of PLC.
2. PLC types.
3. I/O module selection criteria.

### **Unit : 4 - PLC Programming and Applications**

1. PLC I/O addressing
2. PLC programming language: Functional Block Diagram (FBD), Instruction List. Ladder Programming.
3. PLC programming Instructions and ladder: Relay type instructions, Timer instructions: On delay, off delay,

retentive, Counter instructions: Up, Down, Logical instructions, Comparison Instructions, Data handling Instructions, Arithmetic instructions.

#### 4. Study of PLC Based Industrial Applications

#### **References / Suggested Learning Resources:**

1. Modern control engineering Ogata K. PHI 5th edition New Delhi
2. Programmable Logic Controllers Petruzella F.D. TMH 3rd edition New Delhi

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**‘Open Elective 1-2’  
WEB DESIGN AND MULTIMEDIA**

<b>Course Code:</b>	456003
<b>Course Title</b>	Web Design & Multimedia
<b>No. of Credits</b>	6 (TH:6,T:0,P:0)

**COURSE OUTCOME :-** After completion of this course the student will be able to:

1. Create user friendly website.
2. Create relevant video and audio stimuli insertion on website.
3. Create secure and cost effective website.

## **COURSE CONTENTS**

### **Unit - 1: Web Design Principles**

- 1.1 Basic principles involved in developing a web site
- 1.2 Planning process
- 1.3 Five Golden rules of web designing
- 1.4 Designing navigation bar
- 1.5 Page design
- 1.6 Home Page Layout
- 1.7 Design Concept.

### **Unit - 2 : Basics in Web Design**

- 2.1 Brief History of Internet
- 2.2 What is World Wide Web
- 2.3 Why create a web site
- 2.4 Web Standards
- 2.5 Audience requirement.

### **Unit - 3 : Introduction to HTML**

- 3.1 What is HTML
- 3.2 HTML Documents
- 3.3 Basic structure of an HTML document
- 3.4 Creating an HTML document
- 3.5 Mark up Tags
- 3.6 Heading-Paragraphs
- 3.7 Line Breaks
- 3.8 HTML Tags.

## **Unit - 4 : Elements of HTML**

- 4.1 Introduction to elements of HTML
- 4.2 Working with Text
- 4.3 Working with Lists, Tables and Frames
- 4.4 Working with Hyperlinks, Images and Multimedia
- 4.5 Working with Forms and controls.

## **Unit - 5 : Introduction to Cascading Style Sheets**

- 5.1 Concept of CSS
- 5.2 Creating Style Sheet
- 5.3 CSS Properties
- 5.4 CSS Styling (Background, Text Format, Controlling Fonts)
- 5.5 Working with block elements and objects
- 5.6 Working with Lists and Tables
- 5.7 CSS Id and Class
- 5.8 Creating page Layout and Site Designs.

## **Unit - 6 : Introduction to Web Publishing or Hosting**

- 6.1 Creating the Web Site
- 6.2 Saving the site
- 6.3 Working on the web site

**Reference Books:**

1. HTML and CSS by LARSEN, Publication :“WROX”
2. HTML 5.0 in simple steps , Publication Dream tech Press
3. Web Technologies by Roy , Publication ”Oxford”
4. Wen Engineering by Pressman, Lowe, Publication “Mcgraw Hill”

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**‘Open Elective 2-1’  
MATERIAL HANDLING SYSTEMS**

<b>Course Code:</b>	456004
<b>Course Title</b>	Material Handling Systems
<b>No. of Credits</b>	6 (TH:6,T:0,P:0)

**COURSE OUTCOMES :** At the end of the course, the student will be able to:

1. Understand constructional & operational features of various materials handling systems.
2. Identify, compare & select proper material handling equipment for specified applications.
3. Know the controls & safety measures incorporated on material handling equipment.
4. Appreciate the role of material handling devices in mechanization & automation of industrial process.
5. Understand & appreciate safety instrumentation for equipment

## **COURSE CONTENTS**

### **Unit - I : Overview of Material Handling:**

Principles of Material Handling, Principal groups of Material Handling equipment – General Characteristics and application of Material Handling Equipment, modern trends in material handling.

### **Unit - II : Lifting Equipment:**

Hoist Components of Hoist – Load Handling attachments hooks, grabs and clamps – Grabbing attachments for bulk material – Wire ropes and chains.

### **Unit- III : Lifting tackle pulleys for gain of force & speed:**

Tension in drop parts –Drums, Shears and sprockets – Arresting gear and brakes – Block brakes, Band brakes, thrust brakes – Safety and hand cranks. Principle operation of EOT, Gantry and jib cranes Hoisting Mechanisms, Travelling mechanisms, lifting mechanisms – Slewing Mechanisms – Elevators and lifts.

### **Unit - IV : Conveying Machines:**

Belt conveyors, conveyor belts, Passenger conveyor, Bucket flight conveyors, Cradle conveyor, conveyor elevators. Overhead conveyors, Load carrying car conveyors, Screw conveyors, Oscillating conveyor, Roller conveyor, Hydraulic and pneumatic conveyor, Chutes Bins.

### **Unit - V : Current trends in Material Handling:**

Computer Aided Systems for Material Handling.



**Text & Reference Books:**

1. Material handling (Principles & Practice) – Allegri T. H., CBS Publisher, New Delhi.
2. Plant Layout & Materials Handling – Apple J. M., JohnWiley Publishers.
3. Material Handling Equipment – N. Rundenko, Peace Publisher, Moscow.
4. Material Handling Equipment – M. P. Alexandrov, MIR Publisher, Moscow.
5. Material Handling Equipment – Y. I. Oberman, MIR Publisher, Moscow.

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**‘Open Elective 2-2’  
PROJECT MANAGEMENT**

<b>Course Code:</b>	456005
<b>Course Title</b>	Project Management
<b>No. of Credits</b>	6 (TH:6,T:0,P:0)

**COURSE OUTCOME :-** At the end of the course, the student will be able to:

1. Understand the importance of projects and its phases.
2. Analyze projects from marketing, operational and financial perspectives.
3. Evaluate projects based on discount and non-discount methods.
4. Develop network diagrams for planning and execution of a given project.
5. Apply crashing procedures for time and cost optimization.

## **COURSE CONTENTS**

### **Unit - I : Concept of a project:**

Classification of projects, importance of project management, The project life cycle.

### **Unit - II : Capital budgeting process:**

Planning, Analysis, Selection, Financing, Implementation, Review; Generation and screening of project ideas; market and demand analysis.

### **Unit - III : Financial Estimates and Projections:**

Cost of projects, means of financing, estimates of sales and production cost, working capital requirement, balance sheet.

### **Unit - IV : Project administration:**

Progress payments, expenditure planning, project scheduling and network planning, use of Critical Path Method (CPM), schedule of payments and physical progress, time-cost trade off. Concepts and uses of PERT cost as a function of time, Project Evaluation and Review Techniques/cost mechanisms. Determination of least cost duration. Post project evaluation. Introduction to various Project management software.

**Text & Reference Books :**

1. Project planning, analysis, selection, implementation and review – Prasannachandra – Tata McGraw Hill
2. Project Management – the Managerial Process – Clifford F. Gray & Erik W. Larson – McGraw Hill
3. Project management - David I Cleland - Mcgraw Hill International Edition, 1999
4. Project Management – Gopala krishnan – Mcmillan India Ltd.
5. Project Management-Harry-Maylor-Pearson Publication

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**‘Program Elective 1-1’  
INDUSTRIAL ENGINEERING & MANAGEMENT**

<b>Course Code:</b>	456006
<b>Course Title</b>	Industrial Engineering & Management
<b>No. of Credits</b>	6 (TH:6,T:0,P:0)

**COURSE OUTCOME :** At the end of the course, the student will be able to:

1. Explain the different types of layouts and plant maintenance with safety
2. List and explain the need of method study and work measurements
3. Explain the production planning and quality control, and its functions
4. Understand the basic principles, approaches and functions of management and identify concepts to specific situations
5. List and explain the different financial sources and methods of inventory management

## **COURSE CONTENTS**

### **Unit - 1 : Plant Engineering**

- Selection of site of industry;
- Plant layout, Principles of a good layout, Types of layout, Techniques to improve Layout;
- Process; Product;

### **Unit 2 - Work Study**

- Productivity;
- Standard of living;
- Method of improving Productivity;
- Importance of good working conditions;
- Method Study: Definition, Objectives, Basic procedure;
- Work Measurement: Definition, Basic procedure;
- Numerical Problems;
- Basic concept of production study;

### **Unit - 3 : Production Planning and Control**

- Introduction, Major functions;
- Pre planning;
- Methods of forecasting;
- Routing and Scheduling;
- Dispatching and Controlling;
- Concept of Critical Path Method (CPM);
- Types of Production;
- Economic Batch Quantity (EBQ);
- Principles of Product and Process Planning;
- Make or Buy decision;
- Numerical problems;
- Quality Control: Types of inspection;
- Basic Concept of ISO standards

#### **Unit - 4 : Principles of Management**

- Definition of Management;
- Administration; Organization;
- Taylor's and Fayol's Principles of Management;
- Functions of Manager;
- Types of Organization
- Leadership: Styles of Leadership, Qualities of a good leader;
- Motivation
- Management Information Systems;
- Personnel Management
- Responsibility of Human Resource Management;
- Selection Procedure;
- Training of Workers;
- Apprentice Training;
- On the Job training (OJT);

**Text & Reference Books:**

1. Industrial Engineering & Management, S.C. Sharma, Khanna Book Publishing Co. (P) Ltd., Delhi.
2. Industrial Engineering and Management, O.P. Khanna, Revised Edition, Dhanpat Rai Publications (P) Ltd., New Delhi – 110002.
3. Management, A global perspective, Heinz Wehrich, Harold Koontz, 10th Edition, McGraw Hill International Edition 1994.
4. Essentials of Management, 4th Edition, Joseph L.Massie, Prentice-Hall of India, New Delhi 2004.
5. Principles and Practices of Management, Premvir Kapoor, Khanna Publishing House, N. Delhi

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**‘Program Elective 1-2’  
PRODUCT DESIGN**

<b>Course Code:</b>	456007
<b>Course Title</b>	Product Design
<b>No. of Credits</b>	6 (TH:6,T:0,P:0)

**COURSE OUTCOME:** At the end of the course, the student will be able to:

1. Understand the basic concepts of product design and development process.
2. Illustrate the methods to define the customer needs.
3. Describe an engineering design and development process.
4. Understand the intuitive and advanced methods used to develop and evaluate a concept.
5. Apply modelling and embodiment principles in product design and development process.

## **COURSE CONTENTS**

### **Unit - 1 : Definition of A Product**

- Types of products;
- Levels of product;
- Product-market mix;
- New product development (NPD) process;
- Idea generation methods: Creativity, Brain storming.

### **Unit - 2 : Product Life Cycle**

- The challenges of Product development;
- Product analysis;
- Product characteristics;
- Economic considerations;
- Production and Marketing aspects;
- Characteristics of successful Product development;
- Phases of a generic product development process;
- Customer need identification;
- Product development practices and industry-product strategies.

### **Unit - 3 : Product Design**

- Design by evolution;
- Design by innovation;
- Design by imitation;
- Factors affecting product design;
- Standards of performance and environmental factors;
- Decision making and iteration;
- Role of aesthetics in design.

#### **Unit - 4 : Introduction to Optimization in Design**

- Economic factors in design;
- Design for safety and reliability;
- Role of computers in design;
- Modelling and Simulation consideration in design;
- Concurrent design;
- Six sigma and design for six sigma;
- Introduction to optimization in design;
- Economic factors and financial feasibility in design;
- Design for manufacturing;
- Rapid Prototyping (RP);
- Product Development versus Design.

#### **Reference Books :**

1. Product Design and Development, Karl T. Ulrich and Steven D. Eppinger, Tata McGraw–Hill edition.
2. Engineering Design– George E. Dieter.
3. An Introduction to Engineering Design methods Vijay Gupta.
4. Merie Crawford: New Product management, McGraw-Hill Irwin.
5. Chitale A K and Gupta R C, “ Product Design and Manufacturing”, Prentice Hall of India, 2005.
6. Kevin Otto and Kristin Wood, Product Design, Techniques in Reverse Engineering and New Product Development, Pears on education

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**‘AUDIT COURSE’  
INDIAN CONSTITUTION**

<b>Course Code:</b>	AS601
<b>Course Title</b>	Indian Constitution (Audit Course)
<b>No. of Credits</b>	0 (TH:2,T:0,P:0)

**COURSE OUTCOMES:** After completion of the course the students are able to:

1. Understand the historical background and significance of the Indian Constitution, including the process of its making and the principles enshrined in it.
2. Analyze and interpret key elements of the Constitution.
3. Describe the structure and functioning of the Union Government.
4. Explain the roles and powers of the State Government.
5. Examine the structure and responsibilities of local administration, such as District Administration, Municipal Corporations, and Zila Panchayats.
6. Understand the role and functioning of the Election Commission.

## **COURSE CONTENTS**

### **1. The Constitution :**

- 1.1 Introduction
- 1.2 The History of the Making of the Indian Constitution
- 1.3 Preamble & the Basic Structure.
- 1.4 Fundamental Rights & Duties.
- 1.5 Directive Principles of State Policy (DPSP).

### **2. Union Government :**

- 2.1 Structure of the Indian Union
- 2.2 President– Role and Power
- 2.3 Prime Minister and Council of Ministers
- 2.4 Lok Sabha and Rajya Sabha

### **3. State Government :**

- 3.1 Governor– Role and Power
- 3.2 Chief Minister and Council of Ministers

### **4. Local Administration :**

- 4.1 District Administration
- 4.2 Municipal Corporation
- 4.3 Zila Panchayat

### **5. Election Commission :**

- 5.1 Composition, Role and Functioning of:
  - 5.1.1 Chief Election Commission
  - 5.1.2 State Election Commission

**Suggested Learning Resources :**

1. Ethics and Politics of the Indian Constitution, Rajeev Bhargava, Oxford University Press, New Delhi,
2. The Constitution of India, B.L. Fadia, Sahitya Bhawan; New edition (2017)
3. Introduction to the Constitution of India, D.D. Basu, Lexis Nexis; Twenty-Third 2018 edition

**Suggested Software / Learning Websites :**

1. <https://www.constitution.org/cons/india/const.html>
2. <http://www.legislative.gov.in/constitution-of-india>
3. <https://www.sci.gov.in/constitution>
4. <https://www.toppr.com/guides/civics/the-indian-constitution/the-constitution-of-india/>

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**ENTREPRENEURSHIP AND START-UPS**  
**(Common in all branches of Engineering)**

<b>Course Code:</b>	AS602
<b>Course Title</b>	Entrepreneurship and Start-ups
<b>No. of Credits</b>	4 (TH:4,T:0,P:0)

**COURSE OUTCOMES:** At the end of the course, the student will be able to:

1. Develop an understanding of the concept of entrepreneurship and its relevance in the engineering field, including the importance of creativity, innovation, and problem-solving.
2. Generate and evaluate entrepreneurial ideas, identifying market opportunities and target customers, and assessing the feasibility of a start-up venture.
3. Create a comprehensive business plan and formulate effective strategies for a start-up venture, encompassing marketing, operations, finance, and growth.
4. Comprehend the legal and regulatory considerations involved in establishing and operating a business, ensuring compliance and mitigating legal risks.
5. Design and implement marketing and sales strategies to effectively position and promote the start-up, considering market segmentation, branding, and customer acquisition.
6. Apply financial management principles to plan and manage the financial aspects of a start-up, including budgeting, financial forecasting, and resource allocation.

## **COURSE CONTENTS**

### **1. Introduction to Entrepreneurship**

- Concept of entrepreneurship
- Importance of entrepreneurship in the engineering field
- Traits and characteristics of successful entrepreneurs

### **2. Ideation and Opportunity Identification**

- Generating entrepreneurial ideas
- Evaluating market opportunities
- Conducting market research and feasibility analysis
- Identifying target customers and their needs

### **3. Business Planning and Strategy**

- Business objectives and goals
- Need of Business plan
- Formulating business strategies
- Assessing risk and managing uncertainty

### **4. Legal and Regulatory Considerations**

- Legal forms of business entities
- Compliance with regulations and licenses
- Contracts and agreements in entrepreneurship

### **5. Marketing and Sales Strategies**

- Need of marketing plan
- Methods for marketing
- Pricing strategies
- Sales and distribution



## **6. Financial Management for Start-ups**

- Financial planning and budgeting
- Funding sources and raising capital

## **7. Operations and Supply Chain Management**

- Designing efficient operations processes
- Supply chain management for start-ups
- Quality management and control
- Logistics and inventory management

## **8. Human Resource Management**

- Leadership and organizational culture
- Performance management and motivation

## **9. Entrepreneurial Mindset and Growth**

- Nurturing creativity and innovation
- Overcoming challenges and failures

### **Reference Books:**

1. "The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses" by Eric Ries
2. "The Startup Owner's Manual: The Step-By-Step Guide for Building a Great Company" by Steve Blank and Bob Dorf
3. "Disciplined Entrepreneurship: 24 Steps to a Successful Startup" by Bill Aulet
4. "Zero to One: Notes on Startups, or How to Build the Future" by Peter Thiel and Blake Masters
5. "The Art of Startup Fundraising: Pitching Investors, Negotiating the Deal, and Everything Else Entrepreneurs Need to Know" by Alejandro Cremades
6. "Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers" by Alexander Osterwalder and Yves Pigneur
7. "Venture Deals: Be Smarter Than Your Lawyer and Venture Capitalist" by Brad Feld and Jason Mendelson
8. "The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail" by Clayton M. Christensen
9. "Founders at Work: Stories of Startups' Early Days" by Jessica Livingston.
10. "Start with Why: How Great Leaders Inspire Everyone to Take Action" by Simon Sinek.

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## **MAJOR PROJECT-II**

<b>Course Code:</b>	AS603
<b>Course Title</b>	Major Project - II
<b>No. of Credits</b>	3 (TH:0,T:0,P:6)

**Introduction :** Major Project-II represents the pinnacle of the diploma program, where students demonstrate their acquired knowledge and skills through the execution of a practical project. This capstone experience focuses on project implementation, problem-solving, data analysis, and effective communication. It challenges students to tackle real-world issues and apply their learning to find innovative solutions. Major Project-II nurtures responsibility, autonomy, and professionalism, preparing students for a successful transition into their future careers.

### **1. Project Execution (20%):**

- Successful implementation of the project plan, adhering to the approved methodology.
- Demonstrating practical skills, technical knowledge, and attention to detail during project execution.

### **2. Regular Monitoring (10%):**

- Providing periodic progress updates to project advisors and faculty mentors, showcasing responsibility and timely communication.
- Ability to adapt and make necessary adjustments to the project timeline as needed.

**3. Data Analysis (15%):**

- Applying appropriate techniques and tools to analyze collected data.
- Deriving meaningful insights and drawing well-supported conclusions.

**4. Problem-Solving (15%):**

- Identifying and addressing challenges and hurdles encountered during project execution.
- Demonstrating innovative thinking and resourcefulness in problem-solving.

**5. Report Writing (15%):**

- Preparing a comprehensive project report with a well-structured and organized presentation of the project journey.
- Clearly explaining the methodology, findings, and conclusions in a coherent manner.

**6. Presentation (15%):**

- Delivering a compelling and engaging project presentation to a panel of faculty members & experts.
- Demonstrating effective communication skills and confidence during the project defense.

**7. Final Evaluation (10%):**

- Punctuality and adherence to project deadlines.
- Demonstrating initiative and taking ownership of the project.
- Overall professionalism and commitment exhibited throughout the project.

**Conclusion:** Major Project-II serves as a significant milestone in the academic journey of diploma students. By incorporating marks distribution, the evaluation becomes more transparent, allowing students to understand the weighting of each aspect. Through project execution, problem-solving, data analysis, and effective communication, students will not only showcase their academic prowess but also their readiness to embrace real-world challenges. This capstone experience equips students with the skills and confidence needed to thrive in their chosen professions, paving the way for a successful and rewarding future.

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## SEMINAR

<b>Course Code:</b>	AS604
<b>Course Title</b>	Seminar
<b>No. of Credits</b>	1 (TH:2,T:0,P:0)

### **Guidelines for Seminar Presentation:**

#### **1. Topic Selection:**

Choose a topic that is relevant to the field of gaming and animation, and that interests both the speaker & the audience. Consider emerging trends, technological advancements, or specific areas of expertise within the industry.

#### **2. Research and Information Gathering:**

Conduct thorough research on your chosen topic to gather relevant information, statistics, case studies, and examples. Utilize reputable sources such as academic journals, industry publications, and credible websites to ensure the accuracy of information gathered.

#### **3. Presentation Structure:**

Organize your seminar presentation into clear sections, including an introduction, main content, and conclusion. Use headings, sub-headings, and bullet points to help the audience follow your presentation easily.

#### **4. Audience Engagement:**

Incorporate interactive elements into your presentation to keep the audience engaged. This may include questions, quizzes, demonstrations, or multimedia components such as videos, images, or animations related to your topic.

## **5. Visual Support:**

Create visually appealing slides to support your presentation. Use a clear and readable font, include relevant visuals, and avoid overcrowding slides with excessive texts. Visuals should be used to enhance understanding and highlight key points.

## **6. Explanation of Technical Concepts:**

If your topic involves technical concepts or terminology, explain them in simple and concise terms. Use analogies or real-life examples to help the audience grasp complex ideas.

## **7. Use of Examples and Case Studies:**

Include real-world examples or case studies to illustrate the application of concepts or technologies in the relevant. This will help the audience connect theory to practice and understand the practical implications of your topic.

## **8. Delivery and Rehearsal:**

Practice your presentation multiple times to ensure a smooth and confident delivery. Time yourself to ensure that your presentation fits within the allotted time. Rehearsing will help you become familiar with the content and enhance your overall presentation skills.

## **9. Q & A and Discussion:**

Reserve time at the end of your presentation for questions and discussion. Encourage the audience to ask questions or share their thoughts. Be prepared to answer questions and engage in meaningful dialogue with audience related to the selected topic.

### **10. Professionalism and Enthusiasm:**

Dress appropriately for the occasion and maintain a confident and professional demeanor throughout your presentation. Maintain eye contact with the audience, speak clearly and audibly, and exhibit enthusiasm for your topic.

**Evaluation Strategy:** The performance of Seminar should be evaluated on the basis of following criteria:

<b>S.N.</b>	<b>Evaluation Parameter</b>	<b>Weightage (%)</b>
1.	Relevance of Topic	10
2.	Content Selection	20
3.	Presentation & Communication Skills	15
4.	Audience Engagement	10
5.	Explanation of Technical Concepts	20
6.	Use of Examples and Case Studies	10
7.	Q&A and Discussion	15
	<b>Total</b>	<b>100</b>

**Remember, seminars are not just about sharing information but also about connecting with the audience and creating a memorable experience. Tailor your seminar presentation to cater to the interests and knowledge level of the audience, and aim to inspire and educate them about the concerned technology or topic.**

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