

GOVT. POLYTECHNIC BALANGIR

Department of Mechanical Engineering

LESSON PLAN: 2024-25

Name of the Faculty: *Ashirbad Babu*

Subject: ENTREPRENEURSHIP AND MANAGEMENT & SMART TECHNOLOGY (Th. 1)

Program: Diploma in Mechanical Engineering

Semester: 5th

Total Contact Hours: 60

Total Marks: 100

Assessment: Progressive –20, End Term – 80

Credits: 4

COURSE OBJECTIVES:

After undergoing this course, the students will be able to :

1. Know about Entrepreneurship, Types of Industries and Startups
2. Know about various schemes of assistance by entrepreneurial support agencies
3. Conduct market survey
4. Prepare project report
5. know the management Principles and functional areas of management
6. Inculcate leadership qualities to motivate self and others.
7. Maintain and be a part of healthy work culture in an organisation.
8. Use modern concepts like TQM
9. Know the General Safety Rules
10. Know about IOT and its Application in SMART Environment.

Unit 1: Entrepreneurship (Total Classes: 10)				
Class No.	Topic	Subtopic (Elaborated)	Simple Teaching Aids/Activities	Course Objective
1	Concept of Entrepreneurship	Meaning of entrepreneurship, evolution of the term, and its importance in job creation and innovation.	Chalkboard definition writing, students repeat definitions, discussion on local entrepreneurs.	CO1
2	Need of Entrepreneurship	Role in national development, solving unemployment, encouraging innovation, and promoting regional balance.	Short video clip (if projector is available) or storytelling about entrepreneurs; group discussion on local employment issues.	CO1
3	Characteristics & Qualities	Key personal traits like self-confidence, innovation, goal-setting, persistence, and risk-taking with simple examples.	Students list qualities of a good entrepreneur in notebooks; classroom sharing.	CO6
4	Types of Entrepreneurs	Different types like innovative, imitative, Fabian, and drone entrepreneurs, explained with relatable everyday examples.	Draw simple table comparing types on board; students copy and fill in blanks.	CO1
5	Functions of Entrepreneurs	Functions such as idea generation, organizing resources, taking risks, managing enterprise, and innovation.	Teacher explains each function with example (e.g., starting a tea shop); students write 5 functions in their notebooks.	CO1
6	Barriers in Entrepreneurship	Common challenges: financial issues, family pressure, lack of	Ask students to share what difficulties they would face if	CO2, CO3

		confidence, government procedures.	they started a business; list their answers on board.	
7	Entrepreneurs vs. Managers	Comparison based on roles: Entrepreneur as a creator/innovator vs. Manager as an executor/organizer.	Teacher draws two columns on board to compare roles; students help fill based on examples given.	CO1, CO6
8	Forms of Business Ownership	Description of ownership types: Sole Proprietorship, Partnership, Cooperative Society, Company – with basic pros and cons.	Use simple chart or diagram on board showing business types; group activity: students categorize examples like bakery/shop etc.	CO4, CO5
9	Types of Industries & Startups	Classification of industries: Micro, Small, Medium. Difference between traditional industry and tech-based startups.	Use classroom examples (tailoring shop, tuition center) to categorize; students write types of industries they know.	CO1, CO3
10	Entrepreneurial Support Agencies	Introduction to DIC, NSIC, OSIC, SIDBI, NABARD, KVIC, TBI, STEP – their basic functions in supporting business ideas.	Teacher writes agency names and explains; students make a list in notebooks; quiz-style Q&A to recall full forms.	CO2

Unit 2: Market Survey and Opportunity Identification (Business Planning) (Total Classes: 8)				
Class No.	Topic	Subtopic	Teaching Aids/Activities	Course Objective
11	Business Planning	Introduction to business planning; Importance and purpose of business plans; Key components like mission, vision, goals, and financial overview.	Display of sample business plan formats, chalkboard explanation, real-life examples	CO3
12	SSI, Ancillary, Tiny & Service Units	Definitions and features of Small Scale Industries (SSI), Ancillary units, Tiny units, and Service sector enterprises with local examples.	Case-based discussion on successful SSI examples from Odisha	CO3
13	Government Schemes for Project Setup	Overview of agencies like MSME Dept, DIC, NSIC, SIDBI; Their roles in supporting project implementation and funding.	Printed handouts showing logos and roles of key support agencies	CO2
14	Time Schedule Plan	Steps involved in project planning; Creating a realistic timeline for project execution using Gantt charts or activity lists.	Activity: Create a sample time chart for a business startup	CO3
15	Demand and Supply Analysis	Methods to estimate market demand and supply; Tools for understanding customer needs and existing competition.	Class activity: Conduct a mock market survey among students	CO3
16	Growth Opportunities	Identification of emerging and high-potential business sectors like green energy, agri-business, mobile services, handicrafts, etc.	PPT presentation on trending business sectors in India and Odisha	CO3
17	Identifying Business Opportunity	Brainstorming and SWOT analysis for generating business ideas; Feasibility assessment and risk analysis.	Group brainstorming activity for local business ideas	CO3
18	Final Product Selection	Criteria for selecting a business idea: demand, affordability, skill availability, profitability, and scalability.	Student worksheet: Select a final product idea and justify choice	CO3

Unit 3: Project Report Preparation (Total Classes: 4)				
Class No.	Topic	Subtopic	Teaching Aids/Activities	Course Objective
19	Preliminary Project Report	Meaning and importance of a preliminary project report; Basic contents like project idea, purpose, location, and cost overview.	Display sample of a preliminary project report on board or printed format	CO4
20	Detailed Project Report	Elements of a detailed project report: market analysis, technical aspects, financial estimates, organizational setup, and risk assessment.	Class discussion using real-world report samples; fill-in-the-blanks worksheet	CO4
21	Techno-Economic Feasibility	Explanation of technical feasibility (machinery, process, manpower) and economic feasibility (cost-benefit, break-even analysis).	Chalkboard summary; Classroom activity to assess a basic case scenario	CO4
22	Project Viability	Meaning of project viability; Parameters such as ROI, payback period, market acceptance, and resource availability.	Group task: Analyze a mock project to assess its viability	CO4

Unit 4: Management Principles (Total Classes: 5)				
Class No.	Topic	Subtopic	Teaching Aids/Activities	Course Objective
23	Definitions of Management	Explanation of management as an art and science; Definition by various authors; Importance of management in organizational success.	Chalkboard explanation; Ask students to define management in their own words	CO5
24	Principles of Management	Overview of Henry Fayol's and Taylor's principles; Unity of command, division of work, discipline, etc.	Chart showing principles; Matching activity (principle vs. example)	CO5
25	Functions of Management – Part 1	Introduction to Planning and Organizing; Planning types and process; Organizing – structure, authority, responsibility.	Diagrammatic representation; Flowchart creation by students	CO5
26	Functions of Management – Part 2	Staffing, Directing and Controlling; Importance of each function with real-world examples.	Simple classroom role-play for staffing/directing; Video clip (if possible)	CO5
27	Levels of Management	Top, middle, and lower levels of management; Roles and responsibilities at each level.	Pyramid chart drawing; Case study of a small company's management structure	CO5

Unit 5: Functional Areas of Management (Total Classes: 10)				
Class No.	Topic	Subtopic	Teaching Aids/Activities	Course Objective
28	Production Management	Functions and Activities of Production Management; Introduction to productivity and how it impacts efficiency and output.	Chalkboard discussion; Real-life example: Compare manual vs. automated production	CO5

29	Quality Control	Basic concept of quality; Quality control techniques used in industries; Importance of maintaining standards.	Simple quality check demo (e.g., size comparison); Discussion on local product quality issues	CO5
30	Production Planning & Control	Introduction to planning and controlling production flow; Importance of scheduling and resource allocation.	Classroom activity: Create a basic weekly production schedule for a product	CO5
31	Inventory Management	Why inventory is maintained; Concepts of stock levels and types of inventories.	Use classroom materials to simulate inventory tracking; Chart on inventory types	CO5
32	Inventory Techniques	Techniques: EOQ, ABC analysis (only concept level); Real-life importance in cost control.	Show example of ABC chart using common items (chalk, duster, lab tools)	CO5
33	Financial Management – I	Functions of financial management; Managing working capital; Introduction to costing concepts.	Use simple example of a tea stall budget to explain working capital and costing	CO5
34	Financial Management – II	Break-even analysis and its importance; Introduction to accounting terms like Bookkeeping, Journal entry, P&L Account, Balance Sheet (concepts only).	Break-even chart demo with graph on board; Flashcards of accounting terms	CO5
35	Marketing Management – I	Marketing and its role in business; Overview of marketing management and key techniques (only concepts).	Group activity: Identify how local businesses use marketing strategies	CO5
36	Marketing Management – II	Introduction to 4Ps: Product, Price, Place, Promotion – with simple real-life product example.	Discuss 4Ps for a popular product like Parle-G; Group makes their own product's 4P plan	CO5
37	Human Resource Management	Functions of HRM; Manpower planning; Recruitment & selection process; Introduction to training, testing, and payment methods.	Role-play on recruitment; Create flowchart for training and development process	CO5

Unit 6: Leadership and Motivation (Total Class: 6)				
Class No.	Topic	Subtopic	Teaching Aids / Activities	Course Objective
38	Leadership – Basics	Definition, need & importance of leadership, functions and qualities of a leader	PPT with leader profiles (e.g., Ratan Tata, A.P.J. Abdul Kalam); group discussion – “Who is a good leader and why?”	CO6
39	Manager vs. Leader & Styles	Difference between manager and leader; Leadership styles – Autocratic, Democratic, Participative	Role play activity for each style; chart comparison of manager vs. leader	CO6
40	Motivation – Concept	Definition, characteristics, and importance of motivation	Short video or TED Talk; motivational quotes match game	CO6
41	Factors & Theories	Factors affecting motivation (internal/external); Maslow's Hierarchy of Needs theory	Pyramid drawing activity (Maslow's model); identify student motivation case examples	CO6
42	Improving Motivation	Methods to improve motivation – recognition, incentives, communication, working conditions	Group brainstorming – “How can we motivate students/employees?”; mini case study	CO6

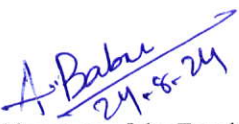
43	Communication in Business	Importance of communication in business; Types (verbal/non-verbal/formal/informal); Barriers to effective communication	Classroom game "Chinese Whisper" for barriers; draw and explain communication cycle; real-world communication breakdown	CO6
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Unit 7: Work Culture, TQM & Safety (Total Classes: 5)				
Class No.	Topic	Subtopic	Teaching Aids / Activities	Course Objective
44	Work Culture	Human relationships and performance; Importance of teamwork, attitude, and organizational behavior in building a positive work environment.	Brainstorm examples of good vs. bad workplace behavior; role play on team communication.	CO7
45	Workplace Relations	Maintaining effective relationships with peers, superiors, and subordinates; professional communication and mutual respect.	Chart: Do's and Don'ts in communication with different levels; mock scenarios in class for practice.	CO7
46	Total Quality Management	Concepts of TQM – Quality policy, quality management principles (customer focus, continuous improvement), quality systems (ISO, audits).	Draw TQM wheel on board; case study on TQM in a successful company; class Q&A.	CO8
47	Workplace Safety	Causes of workplace accidents, preventive measures, and importance of safety training and awareness in an industrial setup.	Short video/slide on industrial accidents; student discussion on how they could've been prevented.	CO9
48	PPE and Safety Rules	Importance of PPE (helmet, gloves, safety shoes, goggles); general safety rules in workshops and industries.	Display real/dummy PPE items or images; students list and present one safety rule each.	CO9

Unit 8: Legislation (Total Classes: 6)				
Class No.	Topic	Subtopic	Teaching Aids / Activities	Course Objective
49	Introduction to IPR	Definition of Intellectual Property; importance in protecting innovation; overview of IPR types.	Display simple real-world examples (e.g., logo, product designs); video or image slides on IPR.	CO2
50	Patents	What is a patent? Procedure for filing; criteria (novelty, usefulness); term of protection; examples of patents.	Roleplay: Student "invents" something and explains why it should be patented; discussion.	CO2
51	Trademarks and Copyrights	Definitions and examples; how trademarks protect brand identity; how copyrights protect creative work; symbols (™ © ®).	Class discussion on local brands/logos and their trademarks; write a short paragraph and discuss copyright.	CO2
52	Factories Act, 1948	Salient features: working hours, health and safety, welfare measures, restrictions on employment of young persons and women.	PPT with key clauses; match-the-column or quiz on rights & duties under the Act.	CO9
53	Payment of Wages Act, 1936	Salient features: timely payment, permissible deductions, authorities involved, grievance handling.	Case study or newspaper clipping discussion; group activity: "Be the employer – follow the Act".	CO9

54	Wrap-up and Application	Summary of key legislation and IPR; practical implications for entrepreneurs; how to legally safeguard a startup or product.	Create a checklist for legal compliance when starting a business; Q&A or quiz game.	CO2, CO9
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Unit 9: Smart Technology (Total Classes: 6)				
Class No.	Topic	Subtopics Covered	Teaching Aids / Activities	Course Objective
55	Introduction to IoT	Concept and definition of IoT (Internet of Things), brief history and evolution, basic architecture	Real-life analogy (smartphone as an IoT hub), introductory video, class brainstorming "Where do we see IoT around us?"	CO10
56	How IoT Works	Explanation of working – sensors, network, data processing, user interface; real-time communication and control	Animated PPT flowchart of IoT working; activity: Match the step (sensor–processing–action) to a real device like smart bulbs	CO10
57	Components of IoT	Sensors/actuators, connectivity, data processing unit, cloud storage, user interface	Show physical devices/components if available; or image-based explanation; student groups label block diagram of IoT system	CO10
58	Characteristics & Categories of IoT	Characteristics: connectivity, efficiency, automation, integration, scalability, intelligence Categories: Consumer, Industrial, Commercial, Infrastructure	Table activity: Identify and categorize devices (e.g., smartwatch, industrial robot); discussion on "What makes IoT smart?"	CO10
59	Applications of IoT – Part 1	Smart Cities, Smart Transportation, Smart Homes	PPT with real-world case studies; interactive map showing smart traffic systems; demo videos of Alexa/smart switches	CO10
60	Applications of IoT – Part 2	Smart Healthcare, Smart Industry, Smart Agriculture, Smart Energy Management	Poster-making group activity on any one application; YouTube video snippets showing IoT in farms, hospitals, factories	CO10


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