Personal Grooming		Semester	3
Course Code	**BVM301**	CIE Marks	100
Teaching Hours/Week (L:T:P:S)	1:0:0:2	SEE Marks	00
Total Hours of Pedagogy	25 (each module 05 hours)	Total Marks	100
Credits	02	Exam Hours	01 Hours
Examination type (SEE)	**Theory**		

Course Learning objectives:

CL01: Define personal grooming and its significance in various contexts (personal, professional, social).
CL02: Identify the key components of personal grooming, including hygiene, skincare, hair care, oral hygiene, and wardrobe selection.
CL03: Understand the impact of personal grooming on self-esteem, confidence, and interpersonal relationships.
CL04: Recognize the importance of body language and non-verbal communication in projecting a positive image.
CL05: Develop effective skincare and hair care routines based on individual needs and skin/hair types.
CL06: Select appropriate attire and accessories for different occasions and settings.
CL07: Practice good oral hygiene habits for maintaining oral health and fresh breath.
CL08: Demonstrate proper grooming techniques for men and women.
CL09: Improve posture, body language, and non-verbal communication skills.
CLO10: Appreciate the value of personal hygiene and grooming as a reflection of self-respect.
CLO11: Develop a positive body image and self-confidence.
CLO12: Cultivate a sense of professionalism and etiquette.
CLO13: Understand the importance of adapting grooming practices to different cultural and professional environments.

Module-1

Personal Grooming:

a. Care of Yourself: Mouth, Teeth, Eyes, Ears, Feet, Removing body hair, nails and hand care, care of clothing
b. Basic table manners

Module-2

Personal Hygiene:

a. Professional appearance and good grooming.
b. Personal hygiene and healthy habits.
c. Role of water in maintaining healthy skin.
d. Concept of Balance diet and 5 food groups.

Module-3

Personal grooming and business etiquettes, corporate etiquette, social etiquette and telephone etiquette, role play and body language, impression management. Social grace, Etiquette and body language, making a great first Impression, body language, Etiquette for dressing, the do's and don'ts in conversation, appearance, voice, perceptions, dress and grooming, courtesy, conversations and small talk at official gathering.

Module-4

Visual Poise:

a. Standing, Sitting and walking.
b. Basic stance and corrective stance.
c. Basic hand position expressive and graceful hand free action.
d. Getting in and out of cars.
e. Meeting and greeting people, Entering and leaving properly.
f. Handling different accessories- coats, shawls, gloves and handbags.

Module-5

Job Interview – Purpose, Types, Interview Skills – Before, During and After the Interview, Interview Dressing, mock interviews – Following up an Application, accepting an Interview Invitation, following up an Interview, Accepting Employment.

Course outcome (Course Skill Set)

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

CO 1: Enhanced self-esteem: Good grooming boosts confidence and self-worth.
CO 2: Improved self-image: Understanding personal style and hygiene can positively impact body image.
CO 3: Development of discipline: Consistent grooming habits foster discipline and time management.
CO 4: Effective communication: Appearance and hygiene contribute to non-verbal communication.
CO 5: Professional image: Proper grooming is essential for building credibility and trust in professional settings.
CO 6: Social etiquette: Understanding grooming norms in different social contexts enhances social skills.
CO 7: Better hygiene practices: Learning about personal hygiene helps prevent diseases and maintain overall health.
CO 8: Skin and hair care: Knowledge of skincare and hair care routines promotes healthy skin and hair.
CO 9: Oral hygiene: Understanding the importance of oral health for overall well-being.
CO 10: Hair styling and grooming: Acquiring skills in hair care and styling.
CO 11: Skincare routines: Developing effective skincare habits for different skin types.
CO 12: Wardrobe management: Understanding personal style and building a versatile wardrobe

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks(18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: 100 Marks

1. Two assignments tests;
2. First assignment after 30% completion of the syllabus for 50 marks
3. Second assignment after completion of 70% of the syllabus for 50 marks
4. The test after completion of 100% syllabus is conducted for 100 marks.
   Two questions are to be set for each module, there are 10 questions with 20 marks each. Each question may or may not have a sub-question. The students have to answer for 100 marks(05 full questions).
5. The sum of the two assignments is scaled down to 50.
6. The marks scored in the test shall be scaled down to 50.
7. The final marks of the course/subject is the sum of the Assignment marks and test marks

(Teacher may conduct the quiz or presentation or other suitable method of assignment in place of two or one assignment mentioned)

Semester-End Examination:

SEE is Not Applicable

Web links and Video Lectures (e-Resources):

Suggested Learning Resources:

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Contents-related activities (Activity-based discussions)
- For active participation of students instruct the students to prepare Flowcharts.
- Organising group-wise discussions on topics.
- Quizzes and Discussions, Seminars and assignments.

Financial Literacy		Semester	3
Course Code	**BVM302**	CIE Marks	100
Teaching Hours/Week (L:T:P:S)	1:0:0:2	SEE Marks	0
Total Hours of Pedagogy	25 (each module 05 hours)	Total Marks	100
Credits	02	Exam Hours	01 Hour
Examination type (SEE)	**Theory**		

Course Learning objectives:

CL01: Explain the meaning and appreciate the relevance of Financial Planning;
CL02: Familiarize with regard to the concept of Investment Planning and its methods;
CL03: Examine the scope and ways of Personal Tax Planning;
CL04: Analyse Insurance Planning and its relevance;
CL05: Develop an insight into retirement planning and its relevance.

Module-1

Foundations of Personal Finance

- Understanding money: earning, spending, saving, investing
- Budgeting basics: income, expenses, tracking, and goal setting
- Consumer rights and responsibilities: credit scores, debt management

Banking and Payment Systems

- Types of bank accounts (checking, savings, money market)
- Electronic banking: online banking, mobile banking, ATMs
- Debit and credit cards: usage, fees, and interest

Module-2

- Time value of money, steps in financial planning, personal finance/loans, education loan, car loan & home loan schemes. Introduction to savings, benefits of savings, management of spending & financial discipline, Net banking and UPI, digital wallets, security and precautions against Ponzi schemes and online frauds such as phishing, credit card cloning, skimming.

Module-3

Saving and Investing

- Importance of saving: short-term and long-term goals
- Investment basics: stocks, bonds, mutual funds, and retirement accounts
- Risk and return: understanding investment options

Investment Planning:

- Process and objectives of investment, Concept and measurement of return & risk for various assets class, Measurement of portfolio risk and return, Diversification & Portfolio formation. Gold Bond; Real estate; Investment in Greenfield and brownfield Projects; Investment in fixed income instruments financial derivatives & Commodity market in India. Mutual fund schemes including SIP; International investment avenues.

Module-4

Personal Tax Planning:

- Taxes

- Basic tax concepts: income tax, sales tax, property tax
- Filing taxes: forms, deductions, credits
- Tax planning strategies
- Need for Protection planning. Risk of mortality, health, disability and property. Importance of Insurance: life and non-life insurance schemes. Deductions available under the Income-tax Act for premium paid for different policies.

Module-5

Retirement Benefits Planning:

- Retirement Planning Goals, Process of retirement planning, Pension plans available in India, Reverse mortgage, New Pension Scheme. Exemption available under the Income-tax Act, 1961 for retirement benefits.

Course outcome (Course Skill Set)

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

CO 1: Basic financial concepts: Income, expenses, budgeting, saving, investing, credit, debt, insurance, taxes.
CO 2: Financial products and services: Different types of bank accounts, loans, credit cards, investments, insurance policies.
CO 3: Economic principles: Supply and demand, inflation, interest rates, economic cycles.
CO 4: Financial planning: Setting financial goals, creating budgets, managing debt, saving for emergencies and retirement.
CO 5: Consumer rights and responsibilities: Understanding consumer protection laws, avoiding scams and fraud.
CO 6: Budgeting and money management: Creating and maintaining a budget, tracking income and expenses, saving regularly.
CO 7: Debt management: Understanding different types of debt, managing credit cards responsibly, creating debt repayment plans.
CO 8: Investment basics: Understanding investment options, risk and return, diversification.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks(18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: 100 Marks

1. Two assignments tests;
2. First assignment after 30% completion of the syllabus for 50 marks
3. Second assignment after completion of 70% of the syllabus for 50 marks
4. The test after completion of 100% syllabus is conducted for 100 marks.
   Two questions are to be set for each module, there are 10 questions with 20 marks each. Each question may or may not have a sub-question. The students have to answer for 100 marks(05 full questions).
5. The sum of the two assignments is scaled down to 50.
6. The marks scored in the test shall be scaled down to 50.
7. The final marks of the course/subject is the sum of the Assignment marks and test marks

(Teacher may conduct the quiz or presentation or other suitable method of assignment in place of two or one assignment mentioned)

Semester-End Examination:

SEE is Not Applicable

Web links and Video Lectures (e-Resources):

https://nptel.ac.in/courses/110105144

Suggested Learning Resources:

Books

1. Nirmala. M and Nagarajan.G (2021), Personal Finance and Planning, Jayvee International Publications, Bangalore
2. Indian Institute of Banking & Finance. (2017). Introduction to Financial Planning. New Delhi: Taxmann Publication.
3. Pandit, A. (2014). The Only Financial Planning Book that You Will Ever Need. Mumbai: Network 18 Publications Ltd.
4. Sinha, M. (2008). Financial Planning: A Ready Reckoner. New York: McGraw Hill Education. Halan, M. (2018). Let's Talk Money: You've Worked Hard for It, Now Make It Work for You. New York: HarperCollins Publishers.
5. Tripathi, V. (2017). Fundamentals of Investment. New Delhi: Taxmann Publication.

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

Skill Development Activities:

1. Perform electronic fund transfer through net-banking and UPI.
2. Identify certain Ponzi schemes in the market during the last few selected years.
3. Prepare tax planning of a hypothetical individual

Internet of Things(IoT)		Semester	3
Course Code	**BVM303**	CIE Marks	50
Teaching Hours/Week (L: T:P:S)	1:0:0:2	SEE Marks	50
Total Hours of Pedagogy	25 (each module 5 hours)	Total Marks	100
Credits	02	Exam Hours	03 Hours
Examination type (SEE)	**Theory**		

Course Learning Objectives (CLOs)

- **CLO1:** Define and explain the fundamental concepts, architecture, and characteristics of the Internet of Things (IoT).
- **CLO2:** Understand various IoT communication technologies, protocols, and hardware components used in IoT systems.
- **CLO3:** Identify and describe the role of sensors, actuators, cloud platforms, and data analytics in IoT applications.
- **CLO4:** Apply the principles of IoT for developing smart applications in areas such as smart agriculture, healthcare, home automation, and industry.
- **CLO5:** Recognize security, privacy, and ethical issues in IoT systems and suggest suitable countermeasures.

Module-1

Introduction to IoT

- Definition and Characteristics of IoT
- Evolution of IoT
- IoT Components: Sensors, Actuators, Controllers
- IoT Architecture and Layers
- Applications of IoT in different domains (Agriculture, Healthcare, Smart Cities, Industry)

Module-2

IoT Hardware and Communication

- Embedded Systems and Microcontrollers for IoT (Arduino, Raspberry Pi)
- Communication Technologies: RFID, Bluetooth, Wi-Fi, Zigbee
- Machine-to-Machine (M2M) Communication
- IoT Network Protocols: MQTT, HTTP.

Module-3

IoT Data and Cloud Connectivity

- IoT Data Collection and Storage
- Cloud Platforms for IoT (Blink,Ubidots)
- Data Transmission and Analytics
- Edge and Fog Computing Concepts

Module-4

IoT Security and Privacy

- Security Challenges in IoT
- Authentication and Access Control
- Data Encryption and Privacy Protection
- Secure Communication in IoT

Module-5

IoT Applications and Case Studies

- Smart Home and Smart Agriculture
- Industrial IoT and Smart Transportation
- Healthcare and Environmental Monitoring
- Future Trends and Research Directions in IoT.

Course Outcomes (Course Skill Set)

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

- **CO1:** Understand the fundamentals, architecture, and characteristics of the Internet of Things (IoT) and its components.
- **CO2:** Classify and explain various IoT communication technologies, protocols, and networking methods.
- **CO3:** Grasp the concepts of data acquisition, cloud connectivity, and IoT analytics.
- **CO4:** Apply IoT principles to design and implement smart applications in domains such as smart homes, agriculture, healthcare, and industry.
- **CO5:** Recognize and address security, privacy, and ethical considerations in IoT systems.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks(18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: 50 Marks

1. Two assignments tests;
2. First assignment after 30% completion of the syllabus for 50 marks
3. Second assignment after completion of 70% of the syllabus for 50 marks(May be quiz or other method of assignments)
4. The test after completion of 90 % syllabus is conducted for 100 marks.
5. The sum of the two assignments is scaled down to 25.
6. The marks scored in the test shall be scaled down to 25.
7. The final marks of the course/subject is the sum of the Assignment marks and test marks

   (The class teacher may conduct the quiz/presentations/other suitable methods of assignment in place of two or one test)

Semester-End Examination: 50 Marks

Question paper pattern:

• The question paper will have ten full questions carrying equal marks.
• Each full question will be for 20 marks.
• There will be two full questions (with a maximum of four sub-questions) from each module.
• Each full question will have sub- question covering all the topics under a module.
• The students will have to answer five full questions, selecting one full question from each module.
Marks scored will be scaled down to 50 marks

Web links and Video Lectures (e-Resources):

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Suggested Learning Resources

Books:

- **Smart Manufacturing Technologies for Industry 4.0**: Integration, Benefits, and Operational Activities by Kandasamy Muduli, Kommula Meena

Activity-Based Learning (Suggested Activities in Class)/Practical-Based learning

- Virtual Labs: Provide virtual lab environments for experimentation when physical resources are limited.

Personality Development		Semester	3
Course Code	**BVM304**	CIE Marks	100
Teaching Hours/Week (L:T:P:S)	1:0:0:0	SEE Marks	0
Total Hours of Pedagogy	12 hours (2.5 hours per module)	Total Marks	100
Credits	01	Exam Hours	01 Hours
Examination type (SEE)	**Theory**		

Course Learning Objectives:

CLO1: Develop a deeper understanding of personality and its components
CLO2: Enhance self-awareness and self-esteem
CLO4: Improve communication and interpersonal skills
CLO5: Develop effective time management and organizational skills
CLO6: Build leadership qualities and teamwork abilities
CLO7: Cultivate positive thinking and emotional intelligence
CLO8: Enhance problem-solving and decision-making abilities

Module-1

Understanding Personality

- Definition and components of personality
- Theories of personality (Freud, Jung, Adler, etc.)
- Personality types and assessment tools (MBTI, DISC, etc.)
- The role of heredity and environment in personality development

Module-2

Self-Awareness and Self-Esteem

- Importance of self-awareness
- Developing a positive self-image
- Building self-confidence and self-esteem
- Overcoming limiting beliefs and negative self-talk

Module-3

Positive Thinking and Emotional Intelligence

- The power of positive thinking
- Developing an optimistic outlook
- Understanding emotions and emotional intelligence
- Managing stress and building resilience

	Module-4
	Time Management and Organization • Importance of time management • Time management techniques and tools • Setting goals and priorities • Organizational skills and productivity
	Module-5
	Leadership and Teamwork • Defining leadership and leadership styles • Developing leadership qualities • Building effective teams • Importance of teamwork and collaboration

Course outcome (Course Skill Set)

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

CO 1: Positive attitude: Cultivating a positive outlook on life and challenges.
CO 2: Lifelong learning: Developing a passion for continuous learning and growth.
CO 3: Increased adaptability: Enhancing the ability to adjust to change and new situations.
CO 4: Improved overall well-being: Promoting physical, mental, and emotional health.
CO 5: Enhanced self-awareness: Understanding one's strengths, weaknesses, values, and beliefs.
CO 6: Improved self-esteem and confidence: Developing a positive self-image and belief in one's abilities.
CO 7: Effective self-management: Managing emotions, time, and stress effectively.
CO 8: Personal goal setting: Identifying and working towards personal and professional objectives.
CO 9: Teamwork and collaboration: Working effectively with others to achieve common goals.
CO 10: Leadership skills: Developing the ability to inspire and guide others.
CO 11: Presentation skills: Enhancing public speaking and presentation abilities.
CO 12: Time management: Optimizing time utilization for increased productivity.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for the Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE, the minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: 100 Marks

1. Two assignments tests;
2. First assignment after 30% completion of the syllabus for 50 marks
3. Second assignment after completion of 70% of the syllabus for 50 marks
4. The test after completion of 100% syllabus is conducted for 100 marks.
   Two questions are to be set for each module, there are 10 questions with 20 marks each. Each question may or may not have a sub-question. The students have to answer for 100 marks(05 full questions).
5. The sum of the two assignments is scaled down to 50.
6. The marks scored in the test shall be scaled down to 50.
7. The final marks of the course/subject is the sum of the Assignment marks and test marks

(Teacher may conduct the quiz or presentation or other suitable method of assignment in place of two or one assignment mentioned)

Semester-End Examination:

SEE is Not Applicable

Web links and Video Lectures (e-Resources):

https://archive.nptel.ac.in/courses/109/104/109104107/

Suggested Learning Resources:

Books

1. How to Win Friends and Influence People by Dale Carnegie: A foundational book on interpersonal skills and building relationships.

2. The 7 Habits of Highly Effective People by Stephen Covey: Focuses on principles of personal and interpersonal effectiveness.

3. Leadership: Leaders Eat Last by Simon Sinek

4. Self-Esteem: Daring Greatly by Brené Brown
Activity-Based Learning (Suggested Activities in Class)/Practical-Based learning ● Contents-related activities (Activity-based discussions) ● For active participation of students instruct the students to prepare Flowcharts. ● Organising group-wise discussions on topics. ● Quizzes and Discussions, Seminars and assignments.

	Industrial Electronics Engineering		Semester	3
	Course Code	**BVM305**	CIE Marks	50
	Teaching Hours/Week (L: T:P:S)	1:0:2:2	SEE Marks	50
	Total Hours of Pedagogy	40(Each Module 08 hours)	Total Marks	100
	Credits	03	Exam Hours	03 Hours
	Examination type (SEE)	**Theory**		

Course Learning Objectives:

CLO1: Students will be able to implement safety protocols using presence sensors and interlocks, and design discrete control systems using various mechanical and electronic switches and relays.

CLO2: Students will understand the operation and applications of thyristors (SCRs, TRIACs) and integrate diverse electronic and analog sensors into power and control circuits for automation.

CLO4: Students will be able to select and apply analog process control devices (valves, heaters, sensors) and understand the principles of industrial data communication networks for intelligent machine interaction.

CLO5: Students will be able to describe the functionality and application of key industrial automation systems, including PLCs, SCADA, DCS, and HMIs.

Module-1

Safety

- Introduction to Safety
- Safety Standards
- Presence Sensors
- Interlock Devices
- Developing a Safety Strategy

Module-2

Discrete Control Input and Output Devices

- Introduction to discrete control
- Mechanical and Electrical Switch Classifications
- Mutually-Activated Electronic Circuit Switches
- Mechanically-Activated Electronic Circuit Switches
- Discrete Output Devices
- Relays

Module-3

Thyristors (SCRs, TRIACs)

- Silicon Controlled Rectifiers
- Thyristor Triggering Devices
- Triacs and its Applications
- Controlled Thyristor Switches

Discrete Automation Sensors and Devices

- Introduction to Electronic Sensors
- Non-contact Sensors
- Sensor Output Interfaces
- Analog Automation Sensors
- Integrating Sensors into Power and Control Circuits

Module-4

Analog Process Control Devices and Sensors

- Process Actuators and Output Devices
- Control Valves
- Electrical Heating Elements
- Control Sensors, Transmitters, and Transducers
- Temperature Sensors
- Pressure Sensors
- Flow Sensors
- Level Sensors
- Position Sensors

Module-5

Industrial Automation Systems:

- Programmable Logic Controllers (PLCs)
- Supervisory Control and Data Acquisition (SCADA) systems
- Distributed Control Systems (DCS)
- Human-Machine Interface (HMI) design

Course outcome (Course Skill Set)

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

CO 1: Students will be able to implement safety protocols using sensors and interlocks, and understand the operation of discrete and thyristor-based control devices.
CO 2: Students will be able to select and integrate various sensors for automation, and understand the principles of analog process control using actuators and transducers.
CO 3: Students will be able to comprehend data communication within industrial networks and differentiate between enterprise, fieldbus, and factory-floor networks.
CO 4: Students will be able to analyze and apply the principles of PLC, SCADA, DCS, and HMI design to develop and understand industrial automation systems.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks(18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: 50 Marks

1. Two assignments tests;
2. First assignment after 30% completion of the syllabus for 50 marks
3. Second assignment after completion of 70% of the syllabus for 50 marks(May be quiz or other method of assignments)
4. The test after completion of 90 % syllabus is conducted for 100 marks.
5. The sum of the two assignments is scaled down to 25.
6. The marks scored in the test shall be scaled down to 25.
7. The final marks of the course/subject is the sum of the Assignment marks and test marks **(The class teacher may conduct the quiz/presentations/other suitable methods of assignment in place of two or one test)**

Semester-End Examination: 50 Marks

Question paper pattern:

• The question paper will have ten full questions carrying equal marks.
• Each full question will be for 20 marks.
• There will be two full questions (with a maximum of four sub-questions) from each module.
• Each full question will have sub- question covering all the topics under a module.
• The students will have to answer five full questions, selecting one full question from each module.
Marks scored will be scaled down to 50 marks

Web links and Video Lectures (e-Resources):

Suggested Learning Resources:

Books

1. Electronic Devices and Circuits: By J.B. Gupta
2. Electrical Measurements and Instrumentation: By A.K. Sawhney

Activity-Based Learning (Suggested Activities in Class)/Practical-Based learning

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	Workshop Technology		Semester	3
	Course Code	**BVM306**	CIE Marks	50
	Teaching Hours/Week (L: T:P:S)	1:0:2:2	SEE Marks	50
	Total Hours of Pedagogy	40(Each Module 08 hours)	Total Marks	100
	Credits	03	Exam Hours	03 Hours
	Examination type (SEE)	**Theory**		

Course Learning Objectives:

CLO1: Understanding the principles and operations of various machine tools, such as lathes, milling machines, drilling machines, and shapers.

CLO2: To provide students with practical experience in using various workshop tools and machines.

CLO3: To familiarize students with different manufacturing processes, including machining, welding, sheet metal working, and foundry

CLO4: To introduce students to various hand tools, power tools, and machine tools used in workshops.

CLO5: To emphasize the importance of safety in a workshop environment and teach students proper safety procedures.

CLO6: To help students develop practical skills that are essential for engineering and technical fields.

Module-1

Introduction to Workshop Technology:

- Definition and scope of workshop technology
- Importance of workshop practices in engineering
- Safety measures and precautions in the workshop

Module-2

Workshop Tools and Equipment:

- Hand tools (files, hammers, chisels, etc.)
- Measuring instruments (vernier callipers, micrometres, etc.)
- Power tools (drills, lathes, milling machines, etc.)
- Workshop layout and organization

Module-3

Metal Working Processes:

- Sheet metal operations (cutting, bending, forming)
- Casting processes (sand casting, die casting)
- Forging processes (hot and cold forging)
- Welding processes (arc welding, gas welding, spot welding)
- Soldering and brazing

Module-4

Machine Tools and Operations:

- Lathe Machine: Turning, Facing, Threading, Etc.
- Milling Machine: Plain Milling, End Milling, Drilling, Etc.
- Drilling Machine: Drilling, Reaming, Tapping, Etc.
- Shaper and Planer: shaping and planning operations

Module-5

Workshop Practices:

- Practical demonstrations and exercises
- Workshop layout planning and management

Course outcome (Course Skill Set)

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

CO 1: Students gain practical experience using various workshop tools, machines, and equipment.
CO 2: They learn about different manufacturing processes such as casting, forging, machining, welding, and assembly.
CO 3: Students develop skills in using measuring instruments to ensure accuracy and quality in their work.
CO 4: They understand and practice safety procedures to prevent accidents and injuries in the workshop environment.
CO 5: Students learn about different materials used in manufacturing, their properties, and their suitability for specific applications
CO 6: They understand the theory behind different manufacturing processes, including their advantages and limitations.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks(18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation: 50 Marks

1. Two assignments tests;
2. First assignment after 30% completion of the syllabus for 50 marks
3. Second assignment after completion of 70% of the syllabus for 50 marks(May be quiz or other method of assignments)
4. The test after completion of 90 % syllabus is conducted for 100 marks.
5. The sum of the two assignments is scaled down to 25.
6. The marks scored in the test shall be scaled down to 25.
7. The final marks of the course/subject is the sum of the Assignment marks and test marks **(The class teacher may conduct the quiz/presentations/other suitable methods of assignment in place of two or one test)**

Semester-End Examination: 50 Marks

Question paper pattern:

• The question paper will have ten full questions carrying equal marks.
• Each full question will be for 20 marks.
• There will be two full questions (with a maximum of four sub-questions) from each module.
• Each full question will have sub- question covering all the topics under a module.
• The students will have to answer five full questions, selecting one full question from each module.
Marks scored will be scaled down to 50 marks

Web links and Video Lectures (e-Resources):

Suggested Learning Resources:

Books

1. Workshop Technology Part 1 by W.A.J Chapman
2. Workshop Technology Part 2 by W.A.J Chapman

Activity-Based Learning (Suggested Activities in Class)/Practical-Based learning

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