Community College of Skill Development

Lesson Plan: Quality Control and Safety

Program: B.Voc (Automobile) **Semester: I** **Course Code: AMV-101-V**
Credits: 3 (L-3, T-0, P-0)

Course Objectives:
To provide students with a fundamental understanding of workplace safety regulations, accident prevention methods, and the application of quality management tools, specifically Statistical Quality Control (SQC) and the 5S methodology, necessary for maintaining a safe and efficient manufacturing environment in the automobile industry.

Course Outcomes:
After the successful completion of the course, students will be able to:
CO1: To understand the importance of safety, health, and environmental practices in the workplace. Analyse the problems related to statistical quality control.
CO2: To analyze different types of accidents, their causes, and approaches to prevent them. Evaluate the importance of acceptance sampling.
CO3: To apply the principles of 5S (Sort, Set in order, Shine, Standardize, Sustain) to organize and maintain a safe and efficient workplace.
CO4: To evaluate manufacturing output for correct specifications and implement quality control measures.

Equipment required in Classroom/ Laboratory/ Workshop

i. LCD/Projector
ii. Whiteboard/ Black Marker

Assessment Scheme

S.No.	Criteria	Marks
1	End Term Examination	75
2	Internal Evaluation Scheme	25
2a	Class Tests	15
2a (i)	Class Test-I	7.5
2a (ii)	Class Test-II	7.5
2(b)	Teacher Assessment (Continuous Evaluation)	10

2b (i)	Attendance	5
2b (ii)	Assignment / Presentation	5

Lecture No.	Topic Covered	Details	Pedagogy	Date of Implementation	Course Outcomes Covered	Faculty Sign
1	Importance of Safety, Health, and Environment (SHE).	Discussion: Introduction to SHE and its legal necessity.	Interactive Lecture		CO 1	
2	Safety in Work Area, Tools, and Equipment.	Discussion: Consequences of poor safety practices (Case Studies).	Lecture + Examples		CO 1	
3	Objectives of Safety Management and Policy.	Review of management's role in safety.	Lecture		CO 1	
4	Role and Drafting of a Safety Policy.	Group Task: Draft a simple safety policy for a small industrial unit.	Lecture + Examples		CO 1	
5	Personal Protective Equipment (PPE) - Types (glasses, gloves, helmet).	PPE Demonstration: Overview of different PPE and when to use them.	Lecture + Examples		CO 1	
6	PPE Importance	Practical: Identify	Lecture + Examples		CO 1	

	and Fit Check.	correct use of various PPE.				
7	First Aid Kit: Contents, Use, and Storage.	Practical: Locate and demonstrate the correct use of items in a first aid box (Practical Exercise 1).	Lecture + Demonstration		CO 1	
8	Safety Equipment Manual and Maintenance.	Review procedure for documenting and maintaining safety equipment.	Lecture + Video		CO 1	
9	Importance of Safety in Materials Handling (Manual Handling).	Discuss safe lifting techniques and ergonomics.	Lecture + Examples		CO 1	
10	Importance of Safety in Materials Storage and Housekeeping.	Discussion: Material storage hazards (stacking, accessibility).	Lecture + Examples		CO 1	
11	Classification and Causes of Accidents.	Analyze accident reports (Activity 2) to determine root causes.	Lecture	08/09/2025	CO 2	
12	Approaches to Prevent Accidents.	Group discussion on proactive prevention strategies.	Lecture + Demo	08/09/2025	CO 2	
13	Accident Investigation and Reporting Procedures.	Role-playing: Conducting an accident interview.	Lecture + Examples	09/09/2025	CO 2	

14	Firefighting: Equipment and Procedures.	Demonstration/Video of fire extinguisher classes and usage.	Lecture + Examples	15/09/2025	CO 2	
15	Fire Safety and Evacuation Plans.	Discuss workplace evacuation procedures and routes.	Lecture + Examples	15/09/2025	CO 2	
16	Hazards and Risks: Definition and Difference. Identification of hazardous areas.	Group Activity: Basic Hazard Identification (HAZID) exercise.	Lecture + Examples	16/09/2025	CO 2	
17	Types of Hazards: Social, Industrial, Psychological.	Case study on managing psychosocial risks.	Lecture + Examples	06/10/2025	CO 2	
18	Types of Hazards: Chemical and Environmental.	Discuss Safety Data Sheets (SDS) and chemical storage.	Lecture + Examples	06/10/2025	CO 2	
19	Types of Hazards: Biological and Ergonomic.	Practical: Demonstrate correct posture for desk/assembly line work.	Lecture	13/10/2025	CO 2	
20	Introduction to OSHMS and OHSAS .	Overview of the legal and systemic framework for safety.	Lecture + Examples	14/10/2025	CO 2	
21	Introduction to OSHA and its role.	Presentation: Key roles and compliance requirements of OSHA.	Lecture + Examples	14/10/2025	CO 2	

22	Review of Unit II and Q&A.	Short quiz on accident causes and hazard types.	Interactive Session	27/10/2025	CO 2	
23	The Basic Principles of 5S: Sort (Seiri) and Set in order (Seiton).	Discuss how "Sort" impacts safety and efficiency.	Lecture + Examples	28/10/2025	CO 3	
24	The Basic Principles of 5S: Shine (Seiso).	Practical Tour/Observation: Identify 'Shine' opportunities in a given area.	Lecture + Examples	28/10/2025	CO 3	
25	The Basic Principles of 5S: Standardize (Seiketsu).	Group Activity: Design checklists for standardization.	Lecture	03/11/2025	CO 3	
26	The Basic Principles of 5S: Sustain (Shitsuke).	Discussion on Auditing and maintaining the discipline.	Lecture + Examples	04/11/2025	CO 3	
27	Importance of Waste Disposal and Segregation (Hazardous).	Classify common industrial wastes and discuss disposal.	Lecture + Examples	04/11/2025	CO 3	
28	Importance of Waste Disposal and Segregation (Non-Hazardous).	Discuss recycling and minimizing non-hazardous waste.	Lecture + Examples	10/11/2025	CO 3	

29	Labeling, Sorting, and Storage Procedures for Equipment and Spares.	Design a storage layout for a parts area based on .	Lecture	11/11/2025	CO 3	
30	Procedures for Equipment and Spares (Maintenance and Inventory).	Discuss SOPs for tools and spares.	Lecture + Examples	17/11/2025	CO 3	
31	Measurement of Correct Specifications (Thickness and Hardness).	Workshop: Demonstrate using relevant measuring instruments (e.g., Micrometer).	Lecture + Examples	18/11/2025	CO 4	
32	Measurement of Correct Specifications (Durability) and Different Types of Defects.	Discuss defect classification (critical, major, minor).	Lecture	18/11/2025	CO 4	
33	Quality Control Groups and their Objectives.	Case Study: Analyze product defects and assign responsibilities to Q.C. groups.	Lecture + Examples	25/11/2025	CO 4	
34	Concept and Objectives of Statistical Quality Control (SQC). Elements and Importance of SQC.	Introduction to the role of statistics in quality control.	Lecture + Examples	25/11/2025	CO 1, CO 4	

35	**Frequency Distributions (Mean, Median, Mode). Inspection by variables.**	**Problem Solving: Calculate and interpret measures of central tendency.**	**Lecture + Examples**	**25/11/2025**	**CO 4**	
36	**Control Charts: X-R Charts (Calculations and Interpretation), P-Charts and C-Charts (Application).**	**Practical: Plot a simple -R chart using sample data (Manual plotting exercise).**	**Lecture + Examples**	**01/12/2025**	**CO 4**	
37	**Acceptance Sampling and its importance.Introduction to ISO (Quality Management System).**	**Discussion: Risks (Producer's/Consumer's) and Sampling Plans. Overview of the key principles and requirements of ISO .**	**Lecture + Examples**	**02/12/2025**	**CO 2, CO 4**	
38	**KAIZEN () and Continuous Improvement Principles.**	**Discussion on the PDCA (Plan-Do-Check-Act) cycle.**	**Lecture + Examples**	**02/12/2025**	**CO 4**	

Text Books/ Reference Books:

1. Wren and Martin. High School English Grammar and Composition. New Delhi: RRP, 2007.
2. Murphy, Raymond. Essential English Grammar. New Delhi: Cambridge, 2017.
3. Malhotra, Prerna and Halder, Deb. Communication Skills: Theory and Practice.