



**J.C. BOSE UNIVERSITY OF SCIENCE AND
TECHNOLOGY, YMCA, FARIDABAD, HARYANA, (INDIA)**

A State Government University (Accredited 'A+' Grade by NAAC)

(Established by Haryana State Legislative Act No. 21 of 2009, Recognized by U.G.C. u/s 2 (f) and 12(B) of U.G.C. Act 1956)

SECTOR-6, MATHURA ROAD, FARIDABAD-121006, HARYANA, (INDIA)

Community College of Skill Development

Lesson Plan: Quality Control and Safety

Program: B. Voc. (Mech. Manufacturing) Semester: I Course Code: AMV-101V Credits: 3-0-0

Course Objectives: The objective of studying this course to know the importance of safety, health and environment and importance of 5's in the workplace. This course is designed to know the different types of hazards workers face when working in industry and different types of accidents that can arise due to these hazards.

Course Outcomes:

After the successful completion of the course, students will be able:

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

Lec. No.	Topic Covered	Pedagogy	Date of Implementation	Course Outcomes Covered	Faculty Sign
1	Introduction to Safety, Health and Environment	Lecture, discussion, real-life examples	4/8/2025	Understand the significance of safety and health in workplace.	
2	Need & Importance of safety, health and environment	Lecture, discussion, real-life examples	5/8/2025	Understand the necessity of safety, health and environment	
3	Cleaning of work area, tools, equipment, and materials	PPT demo, interactive discussion	5/8/2025	Apply cleaning procedures in workplace	
4	Objectives of safety management – Principles & Practices	Lecture, case study examples	12/8/2025	Identify key objectives and principles of safety management	
5	Personal Protective Equipment (PPE) – Types & Use (gloves, glasses, shoes, helmets)	Lecture with video demo., discussion	12/8/2025	Correctly select and use PPE for safety	
6	First Aid Kit – Contents & Usage, Equipment manuals – Reading & Following instructions	Lecture, Demo with kit	18/8/2025	Identify contents and use first aid kit appropriately, Follow instructions to operate equipment	
7	Classification of accidents (Industrial, Domestic)	Lecture with examples	19/8/2025	Classify accidents correctly based on type	
8	Classification of accidents (Mechanical, Electrical)	Lecture with examples	19/8/2025	Classify accidents correctly based on type	
9	Causes of accidents– Human, Mechanical, Environmental factors	Lecture, group discussion	25/8/2025	Identify causes of accidents in workplace scenarios	

10	Accident investigations and reporting – Procedures & Documentation	Tutorial, example analysis	26/8/2025	Prepare proper accident reports and documentation	
11	Approaches to accident prevention – Engineering, Administrative, Behavioral	Lecture with real-life examples	26/8/2025	Suggest measures to prevent accidents	
12	Fire Fighting – Types of fire, extinguishers, fire drills	Lecture with video demo	2/9/2025	Correctly use extinguishers and participate in fire drill	
13	Hazards & Risks –Definitions, differences, examples	Lecture, discussion	2/9/2025	Differentiate hazards and risks in workplace	
14	Hazards in industrial zones – Physical & Environmental hazards	Interactive Lecture, case studies	8/9/2025	Recognize physical and environmental hazards	
15	Chemical hazards – Case studies	Lecture, case study discussion	9/9/2025	Identify chemical hazards and mitigation	
16	Biological hazards: Causes and Prevention	Lecture, case discussion	9/9/2025	Identify biological hazards and mitigation	
17	Ergonomics hazards in workplace	Lecture with real world example, discussion	15/9/2025	Apply ergonomic principles and recognize psychosocial hazards	
18	Psychosocial hazards, Introduction to OSHMS	Lecture with example, discussion	16/9/2025	Identify Psychosocial hazards and mitigation and understand OSHMS.	
19	OHSAS 18001 & OSHA standards – overview & applications	Lecture, case examples	16/9/2025	Understand OHSAS 18001 and OSHA standards.	
20	Principles of 5S – Sorting, Setting, Shining, Standardizing, Sustaining	Lecture with examples, group discussion	6/10/2025	Apply 5S principles for workplace organization	
21	Implementation of 5S in manufacturing & workplace organization	Interactive lecture with Power point Presentation	13/10/2025	Implement 5S effectively in workplace	

22	Sorting of materials, tools and equipment and spare parts	PPT Lecture, discussion	14/10/2025	Understand the tools and equipment and spare parts.	
23	Procedures and policies related to 5S	Lecture, discussion	14/10/2025	Understand the procedures and policies related to 5S.	
25	Waste disposal – Hazardous vs Non-Hazardous waste	Interactive Lecture, Group discussion		Segregate hazardous and non-hazardous waste	
26	SOPs for waste segregation, labeling & storage procedures	Lecture with PPT, discussion		Follow correct SOPs for waste handling	
22	Importance of 5S for safety culture & efficiency	Lecture, case studies		Understand link between 5S, safety, and efficiency	
23	Measurement of output specifications – thickness, hardness, durability, tightness, finesse	Lecture with real-life example		Measure product specifications accurately	
24	Manufacturing standards & procedures followed in industries	Lecture, discussion		Understand manufacturing standards and compliance	
25	Types of defects in manufacturing – causes & prevention	Lecture, case studies		Analyze defects and propose preventive measures	
26	Inspection tools & techniques	Demonstration, hands-on practice		Use inspection tools effectively	
27	Case studies on quality inspection failures	Group discussion, presentation		Identify causes of quality failures and lessons learned	
28	Concept, Elements & Objectives of Quality Control	Lecture, example discussion		Explain elements and objectives of QC	
29	Quality control groups – Role & Responsibilities	Lecture, discussion		Understand QC group roles and responsibilities	
30	Statistical Quality Control (SQC) – Introduction	Lecture, numerical examples		Apply basic SQC principles	

31	Frequency distribution, Mean, Median, Mode, Standard Deviation	Lecture, problem solving numerical examples		Compute statistical parameters for QC	
32	Control Charts – X-R Charts (Variables)	Lecture, numerical examples		Draw and interpret X-R control charts	
33	P-Charts & C-Charts (Attributes)	Lecture, Video demo		Apply P and C charts in quality monitoring	
34	Acceptance Sampling – Methods & Applications	Lecture, Case examples		Select and apply acceptance sampling methods	
35	Modern QC Techniques – ISO 9000, KAIZEN, Six Sigma, 5S in Quality Control	Lecture, discussion, case studies		Apply modern QC techniques in industry	

Text/ Reference Books:

1. Industrial Safety and Health Management by C Ray Asfahl, Pearson publications.
2. Industrial Safety Management by N. K. Tarafdar.
3. Industrial Safety (Safety Management) by D S S Ganguly & C S Changeriya.