Community College of Skill Development

Lesson Plan: Material Science

Program: B. Voc. **Semester: III** **Course Code: MF-201** **Credits: 3**

Course Objectives:

To study the materials structure and their deformation. To understand ferrous metals. To understand non-metallic materials. To introduce heat treatment

Course Outcomes:

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

CO1: Analyze the relationship between the structure of metals and their mechanical properties.
CO2: Evaluate the mechanical properties End applications of various ferrous alloys.
CO3: Compare the properties end applications of various non-metallic materials in engineering.
CO4: Apply heat treatment processes to manipulate the microstructure and properties of metals.

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	Pedagogy	Date of Implementation	Course Outcomes Covered	Faculty Sign
1.	Structure of metals and its relation to their physical, mechanical and technological properties	Formative assessment and student centered	4/9/2025	CO1	sanjeev
2.	Elementary idea of arrangement of atoms	Formative assessment and student centered	4/9/2025	CO1	sanjeev
3.	Molecular & crystal structure and crystal imperfection	Formative assessment and student centered	5/9/2025	CO1	sanjeev
4.	Deformation in metals	Formative assessment and student centered	11/9/2025	CO1	sanjeev
5.	Hot working & cold working & its effect, grain size effect	Formative assessment and student centered	11/9/2025	CO1	sanjeev
6.	Solid sol., alloys and intermetallic compounds	Formative assessment and student centered	12/9/2025	CO1	sanjeev
7.	Classification of iron and steel	Formative assessment and student centered	18/9/2025	CO2	sanjeev
8.	Mech. Prop. Of various	Formative	18/9/2025	CO2	sanjeev

	steel, its uses, availability of steel in market	**assessment and student centered**			
9.	**Tool materials, effects of alloying elements**	**Formative assessment and student centered**	**19/9/2025**	**CO2**	**sanjeev**
10.	**Sessional exam**	**----------**	**25/9/2025**	**----------**	**sanjeev**
11.	**Sessional exam**	**----------**	**25/9/2025**	**----------**	**sanjeev**
12.	**Sessional exam**	**----------**	**26/9/2025**	**----------**	**sanjeev**
13.	**Plastic and other synthetic material**	**Formative assessment and student centered**	**3/10/2025**	**CO3**	**sanjeev**
14.	**Source of Natural and synthetic Plastic, Thermoset Thermoplastic,**	**Formative assessment and student centered**	**9/10/2025**	**CO3**	**sanjeev**
15.	**Various trades name Important properties and engineering use of plastic**	**Formative assessment and student centered**	**9/10/2025**	**CO3**	**sanjeev**
16.	**Paint, Enamels, lacqures, Characteristics of good paints**	**Formative assessment and student centered**	**16/10/2025**	**CO3**	**sanjeev**
17.	**lacquers Enamels Types of varnish and its purpose**	**Formative assessment and student centered**	**16/10/2025**	**CO3**	**sanjeev**
18.	**Preparation of varnish, Characteristics**	**Formative assessment and student**	**17/10/2025**	**CO3**	**sanjeev**

		centered			
19.	Trade name of Storage varnish, properties	Formative assessment and student centered	24/10/2025	CO3	sanjeev
20.	Heat insulating materials,	Formative assessment and student centered	31/10/2025	CO4	sanjeev
21.	Classification and Heat insulating materials,	Formative assessment and student centered	31/10/2025	CO4	sanjeev
22.	Hardware, GI and MS seat specification, storage of GI seats	Formative assessment and student centered	1/11/2025	CO4	sanjeev
23.	Heat treatment, Types of heat treatment, Purpose of heat treatment	Formative assessment and student centered	6/11/2025	CO4	sanjeev
24.	Iron carbon equilibrium diagram, T.T.T. curve	Formative assessment and student centered	6/11/2025	CO4	sanjeev
25.	Revision	Formative assessment and student centered	7/11/2025	CO1,2,3,4	sanjeev

Text Books:

1. **Foundation of materials Science and engineering by William F Smith**

Reference Books:

2. **Material size and engineering by William D Callester Jr.**
3. **Introduction to materials Science for engineers Bye James F Shackleford**