COURSE TITLE: COMPOSITE MATERIAL
COURSE CODE: 23ME709
REGULATION: NR23
Course Objectives

- Develop understanding of the structure of ceramic materials on multiple length scales.
- Develop knowledge of point defect generation in ceramic materials and their impact on transport properties.
- To describe key processing techniques for producing metal-, ceramic-, and polymer-matrix composites.
- To demonstrate the relationship among synthesis, processing, and properties in composite materials.

Course Outcomes
At the end of the course, students will be able to:
CO1: Understand the classification, advantages, and applications of composite materials along with reinforcement and matrix functions.
CO2: Describe various types of fibers, their properties, interface bonding, and methods to measure interfacial strength.
CO3: Analyze fabrication methods, properties, and interfaces of polymeric and ceramic matrix composites with their applications.
CO4: Explain fabrication techniques, interface characteristics, and applications of metal matrix and carbon fiber composites.
CO5: Apply micromechanical models to predict mechanical and thermal properties and stresses in composite materials.

Q.NO	QUESTION	COs	BT levels	POs
	Unit –I SHORT ANSWER QUESTIONS	CO1	L1	1, 3, 6,7
1	Factors Influence the properties of composite	CO1	L1	1,3,6,7
2	Name various phases of a composite materials	CO1	L1	1,3,6,7
3	Characteristics of composite materials	CO1	L1	1,3,6,7
4	List the classification of composite materials	CO1	L1	1,3,6,7
5	Name some of the commonly used polymeric matrix materials	CO1	L1	1,3,6,7
6	List the objectives of composite materials.	CO1	L1	1,3,6,7
7	What is the role of matrix in composite materials?	CO1	L1	1,3,6,7
8.	Numerate various applications of polymeric matrix composite	CO1	L1	1,3,6,7
9	Numerate various applications of metal matrix composite	CO1	L1	1,3,6,7
10	What is the role of reinforcement materials in composite materials?	CO1	L1	1,3,6,7
	LONG ANSWER QUESTIONS			
1.	Explain some of the commonly used polymeric matrix materials	CO1	L3	1,3,6,7
2.	What do you understand by the term polymers? Describe its	CO1	L2	1,3,6,7

	properties.			
3.	What is the role of the matrix in composite materials? Explain In – situ metal matrix composites.	**CO1**	**L1**	**1,3,6,7**
4	Give the Comparison between thermosetting and the thermoplastics polymers	**CO1**	**L3**	**1,3,6,7**
5	With the help of schematic diagram, explain melt infiltration process. state its advantages	**CO1**	**L3**	1,3,6,7
6	What are the most serious problems associated with ceramic matrix composite? How is the problem addressed?	**CO1**	**L3**	1,3,6,7
7	Composite materials are Ideally suited for many engineering applications, "designer's choice". Discuss	**CO1**	**L3**	1,3,6,7
8	What is the importance of matrix fiber compatibility? Explain.	**CO1**	L3	1,3,6,7
9	What is the different type of nature made composite? Explain.	**CO1**	L3	1,3,6,7
10	Draw stress-strain curves for (i) Various fiber (ii) Various Composites (iii) different matrices	**CO1**	L3	1,3,6,7