Marwadi University

Master of Technology

Structural Engineering

Experimental Techniques in Structural Engineering

01ST1208 (LC)

Objective of the Course:

- To understand overall behaviour of the structure by experimental methods.
- To design and conduct experiments, as well as to analyze and interpret data
- To acquire the knowledge in model analysis and compare the dynamic response of different systems.

Credit Earned: 2

Students learning outcomes:

After successful completion of the course, it is expected that student will be able to,

1. Understand the working of instruments and sensors.
2. Evaluate the response of various structural systems under dynamic loading.
3. Identify the appropriate retrofitting technique.
4. Determine the inherent dynamic properties of structure.

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	CSE (I)	IA (M)	Viva (V)	Term Work (TW)	
-	-	4	2	-	-	-	50	50	100

Detailed Syllabus

Sr No.	List of Experiments
1	Evaluation of structural response using various instrumentations i.e. strain gauges, LVDT, Dial gauge, Accelerometers, Load cell
2	Specimen preparation and testing of R.C. beams and study of their behavior.
3	To determine change in dynamic response of material due to damage
4	Apply the retrofitting techniques on damaged R. C. beam
5	Determine Stiffness of the system.
6	Experiments based on Free and forced vibrations
7	Assessment of the mode shapes and frequencies of MDOF system
8	Behaviour of the frame structures under forced vibration
9	Behaviour of the braced structures under forced vibration
10	Behaviour of the structural wall frame system under forced vibration
11	Soil Liquefaction test

Suggested Theory Distribution

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
5%	5%	20%	25%	25%	20%