ANALYSIS, DESIGN AND DETAILING OF STRUCTURES

Practicals : 3 Periods/Week Sessional marks: 40
Semester End Exam: 3 Hrs. External Exam Marks : 60

Course objectives:

- To analyse the structures like beams, frames for different loading combinations of dead, live and earthquake loading using softwares
- To design the structures like beams, columns, footings and slabs using softwares
- To learn the reinforcement and other details of various reinforced concrete and steel structural elements like beams, footings, steel structures connections, welded plate girder and steel and reinforced concrete buildings.
- To understand the code requirements and provisions for reinforcement detailing
- To draw the reinforcement and other details of various structural elements using computer software packages like Auto CAD,RIVET etc

Course out comes:

By the end of this course students will have the capability/knowledge of

- Analysing and designing the structures for different loading combinations Using computer software
- Reinforcement and details of various structural elements
- presenting various structural elements details for the purpose of field execution as per code requirements
- drawing each and every details of various structural elements using computer software packages

PART-A ***(At least five of the following shall be done and recorded)***

Students are required to analyse and design the following structures using software packages like STAAD Pro/STRUDS/STRAP etc.

1. Analysis and design of a two span continuous beam with one side fixed and other side overhang
2. Analysis and design of a single bay single storeyed plane frame with vertical legs subjected to gravity and lateral loads
3. Analysis and design of a plane frame (2D)of a four storeyed RCC residential building subjected to 1.2(DL+LL+/-EQX)
4. Analysis and design of a two storeyed RCC framed building (3D) subjected to 1.5(DL+LL)
5. Analysis and design of a steel roof truss of an industrial shed subjected to (DL+/-WL)
6. Design of one way and two way slabs
7. Design of isolated footing

PART-B (At least five of the following)

Students are required to detail different structural elements using software packages like Auto CAD/Micro station/Rivet etc.,

8. Detailing of continuous beam with one side fixed and other side overhanging
9. Detailing of a single bay single storeyed plane frame with vertical legs
10. Detailing of a pile foundation with pile cap
11. Detailing of typical elements of a two storeyed RCC framed building
12. Detailing of industrial shed steel roof truss
13. Detailing of a steel beam to column moment resistant connection with bolts

14. Detailing of a welded plate girder