B. E. CIVIL ENGINEERING
Choice Based Credit System (CBCS) and Outcome Based Education (OBE)
SEMESTER - VI
SOFTWARE APPLICATION LABORATORY

Course Code	18CVL66	CIE Marks	40
Teaching Hours/Week(L:T:P)	(0:2:2)	SEE Marks	60
Credits	02	Exam Hours	03

Course Learning Objectives: This course will enable students to
1. Use industry standard software in a professional set up.
2. Understand the elements of finite element modeling, specification of loads and boundary condition, performing analysis and interpretation of results for final design.
3. Develop customized automation tools.

Module -1

Use of civil engineering software's:
Use of software's for:
1.   Analysis of plane trusses, continuous beams, portal frames.
2.   3D analysis of multistoried frame structures.

Module -2

1. **Project Management- Exercise on Project planning and scheduling of a building project using any project management software:**
a. Understanding basic features of Project management software
b. Constructing Project: create WBS, Activities, and tasks and Computation Time using Excel spread sheet and transferring the same to Project management software.
c. Identification of Predecessor and Successor activities with constrain
d. Constructing Network diagram (AON Diagram) and analyzing for Critical path, Critical activities and Othernon Critical paths, Project duration, Floats.
e. Study on various View options available
f. Basic understanding about Resource Creation and allocation
g. Understanding about Splitting the activity, Linking multiple activity, assigning Constrains, Merging Multiple projects, Creating Baseline Project
1. **GIS applications using open source software:**
a. To create shape files for point, line and polygon features with a map as reference.
b. To create decision maps for specific purpose.

Module -3

Use of EXCEL spread sheets:
Design of singly reinforced and doubly reinforced rectangular beams, design of one way and two way slabs, computation of earthwork, Design of horizontal curve by offset method, Design of super elevation.

Course Outcomes: After studying this course, students will be able to:
use software skills in a professional set up to automate the work and thereby reduce cycle time for completion of the work

Question paper pattern:
- The question paper will have 6 questions under 3 modules.
- There will be two full questions (with a maximum of three subdivisions, if necessary) from each module.
- Each full question shall cover the topics under a module.
- Module-1: 40 Marks, Module-2: 30 Marks, Module-3: 30 Marks.
- The students shall answer three full questions, selecting one full question from each module.

Reference Books: Training manuals and User manuals and Relevant course reference books