Program : **Diploma in Civil Engineering**	
Course Code : **6017**	Course Title: **Computer Application Lab**
Semester : **6**	Credits: **2.5**
Course Category: **Program Core**	
Periods per week: **4 (L:0, T:1, P:3)**	Periods per semester:**60**

Course Objectives:

- To provide hands-on experience for the students with softwares in project management, structural analysis and design, concrete mix design, and estimating.
- To enable the students to do the practical problems by using the available application software packages.

Course Prerequisites:

Topic	Course code	Course name	Semester
Network diagrams		Construction management &safety	5
Building Estimate		Estimating and costing	4
Structural analysis		Theory of structures	4
Mix design of concrete		Concrete technology	3

Course Outcomes :

On completion of the course, the student will be able to:

COn	Description	Duration (Hours)	Cognitive Level
CO1	Identify the task and duration and estimate the time required for completing a project using management software	12	Applying
CO2	Carry out the analysis and design of structures and prepare the detailing using a design software	18	Applying
CO3	Prepare the mix proportions for concrete with given strength and workability	12	Applying

CO4	Prepare the detailed estimate of a building using an estimation package	14	Applying
	Series test	4	

CO – PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1				3		3	
CO2			3	3			
CO3		3		3			
CO4	3			3			

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline:

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	**Identify the task and duration and estimate the time required for completing a project using management software**		
M1.01	Identify task & their duration	3	Applying
M1.02	Assign resources – Linking tasks	3	Understanding
M1.03	Estimate time required for completing the project	3	Applying
M1.04	Identify the critical path	3	Applying
CO2	**Carry out the analysis and design of structures and prepare the detailing using design software**		
M2.01	Perform analysis by using structural analysis and design application software (at least one package)	9	Applying
M2.02	Design of structures using the design package	6	Applying
M2.03	Preparation of ductile detailing by using any available package	3	Applying

	Series Test I	2	
CO3	**Prepare the mix proportions for concrete with given strength and workability using any available Concrete Mix Design Package**		
M3.01	Prepare the tables for material properties for mix design.	6	Applying
M3.02	Design the concrete mix for a given strength and workability using any available Concrete mix design package	6	Applying
CO4	**Prepare a detailed estimate of a building using an estimation package**		
M4.01	Perform detailed quantity calculations by using Available software packages	6	Applying
M4.02	Prepare the conveyance statement with software packages	4	Applying
M4.03	Prepare detailed estimate and bill of quantities for a building by using available software packages	4	Applying
	Series Test II	2	

Text / Reference:

T/R	Book Title/Author
T1	Microsoft Project 2019 Step by Step Cindy Lewis, Carl Chatfield, Timothy Johnson
R1	Staad Pro V8i for Beginners: With Indian Examples Paperback by T S Sharma
R2	Practical Concrete Mix Design, Avijit Chaubey

Online Resources:

Sl.No	Website Link
1	https://resources.oreilly.com/examples/9780735626959-files/