20CE3651 - COMPUTER APPLICATIONS IN CIVIL ENGINEERING LAB

Offering Branches	CE		
Course Category:	Professional core course	Credits:	1.5
Course Type:	Laboratory	Lecture-Tutorial-Practical:	0-0-3
Prerequisites:	NIL	Continuous Evaluation:	15
		Semester End Evaluation:	35
		Total Marks:	50

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	**Explore** and **evaluate** open source software applications in civil engineering	K4
CO2	**Analyse and design** structural elements of Reinforced Concrete Structures using STAAD Software	K6
CO3	**Analyse and design** structural members of Steel Structures using STAAD Software	K6
CO4	**Analyse** Geo spatial data and create maps and reports using GIS Software	K4
CO5	**Apply** Geo spatial data and create maps and reports related to water resources and transportation engineering using GIS Software	K3

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3								3	3
CO2	3	3	3	3	3								3	3
CO3	3	3	3	3	3								3	3
CO4	3	3	3	3	3								3	3
CO5	3	3	3	3	3								3	2
Avg.	3	3	3	3	3								3	3

1- Low	2-Medium	3-High

Course Content

Experiment No.1	Introduction to various computer applications in Civil Engineering, Listing out various open source software's available. Download and explore any one open source software in related to Civil Engineering application and prepare a report and record the same.	CO1
Experiment No.2	List of Analysis and Design to be performed using software STAAD.Pro 1. Introduction to STAAD Pro software and basic beam analysis. 2. Structures subjected to wind and earthquake loads. (minimum five storey), Typical detailing of structural elements.	**CO2**
Experiment No.3	Analysis and Design of steel truss to be performed using software STAAD.Pro	**CO3**
Experiment No.4	List of experiments to be performed by Geographical Information System (GIS) 1. Creation and analysis of spatial data using GIS. 2. Generation of maps and reports based on specific queries.	**CO4**
Experiment No.5	Simple applications of GIS in water Resources Engineering & Transportation Engineering	**CO5**

Learning Resources

Text Books & Reference Manuals	1. Concept and Techniques of GIS by C.P.L.O. Albert, K.W. Yong, Prentice Hall Publishers.
Reference Books	1. https://desktop.arcgis.com/en/arcmap/10.3/map/reports/creating-a-report.htm