DEPARTMENT OF CIVIL ENGINEERING
SCHEME OF COURSE WORK

Course Details:

Course Title	**COMPUTER APPLICATIONS IN CIVIL ENGG LAB**
Course Code	**20CE1120**
L T P C	**0 0 3 1.5**
Program	**B.Tech.**
Specialization	**CIVIL ENGINEERING**
Semester	**V**
Prerequisites	**Surveying, Strength of Materials, Structural Analysis, Earthquake Resistant Design of Structures, Geotechnical Engineering-I&II, Water resource Engineering, Highway Engineering.**
Courses to which it is a prerequisite	

COURSE OUTCOMES (COs):

After completion of this course the student would be able to

CO1: Analyse 2D and 3D frames using software

CO2: Calculate the fundamental frequency and mode shapes for a given structure using software**.**

CO3: Analyze and design the trusses and pipe networks using software

CO4: Calculate the area and volume of a given block level survey using software

CO5: Write a program to calculate the safe bearing capacity of soil

PROGRAMME OUTCOMES

1. Graduates will be able to apply the knowledge of mathematics, science, engineering fundamentals to solve complex civil engineering problems.
2. Graduates will attain the capability to identify, formulate and analyse problems related to civil engineering and substantiate the conclusions
3. Graduates will be in a position to design solutions for civil engineering problems and design system components and processes that meet the specified needs with appropriate consideration to public health and safety.
4. Graduates will be able to perform analysis and interpretation of data by using research methods such as design of experiments to synthesize the information and to provide valid conclusions.
5. Graduates will be able to select and apply appropriate techniques from the available resources and modern civil engineering and software tools, and will be able to predict and

model complex engineering activities with an understanding of the practical limitations.

6. Graduates will be able to carry out their professional practice in civil engineering by appropriately considering and weighing the issues related to society and culture and the consequent responsibilities.
7. Graduates will be able to understand the impact of the professional engineering solutions on environmental safety and legal issues.
8. Graduates will transform into responsible citizens by resorting to professional ethics and norms of the engineering practice.
9. Graduates will be able to function effectively in individual capacity as well as a member in diverse teams and in multidisciplinary streams.
10. Graduates will be able to communicate fluently on complex engineering activities with the engineering community and society, and will be able to prepare reports and make presentations effectively.
11. Graduates will be able to demonstrate knowledge and understanding of the engineering and management principles and apply the same while managing projects in multidisciplinary environments.
12. Graduates will engage themselves in independent and life-long learning in the broadest context of technological change while continuing professional practice in their specialized areas of civil engineering.

PROGRAMME SPECIFIC OUTCOMES(PSOs):

1. Collect, process and analyse the data from topographic surveys, remote sensing, hydrogeological investigations, geotechnical explorations, and integrate the data for planning of civil engineering infrastructure.
2. Analyse and design of substructures and superstructures for buildings, bridges, irrigation structures and pavements.
3. Estimate, cost evaluation, execution and management of civil engineering projects.

Course Outcome Vs Program Outcomes:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	-	2	3	-	-	-	-	-	-	-
CO2	3	-	-	-	3	-	-	-	-	-	-	-
CO3	3	2	3	-	2	-	-	-	-	-	-	-
CO4	2	2	-	2	2	-	-	-	-	-	-	-
CO5	2	-	-	-	2	-	-	-	-	-	-	-

Course Outcome Vs Programme Specific Outcomes:

CO	PSO1	PSO2	PSO3
CO1	-	3	-
CO2	-	3	-
CO3	3	-	-
CO4	-	3	-
CO5	2	-	-

Mapping Levels:1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), put -: No Correlation

Assessment Methods:	Day to Day Evaluation / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	Topics	CO	Sample questions	Teaching-learning strategy	Assessment Method & Schedule
1	Analysis of Continuous beams	1	Analyse the given Continuous beams.	Demonstration/ LCD projector / Practice	Evaluation of Observation, Record and Viva-voce.
2	Analysis of 2D frames for combined gravity and lateral loads.	1	Analyse the given 2D frames for combined gravity and lateral loads.		
3-4	Analysis of 3D frames for combined gravity and lateral loads.	1	Analyse the given 3D frames for combined gravity and lateral loads.		
5	Analysis of trusses.	3	Analyse the given truss.		
6	Determine the fundamental frequency and mode shapes for a given structure.	2	Determine the fundamental frequency and mode shapes for a given structure.		
7	Calculation of area and volume for a given block level survey data and to plot the contours.	4	Calculate the area and volume for a given block level survey data and to plot the contours.		
8	**INTERNAL EXAM-I**				
9	To design the pipe network for a sewer line.	3	Design the pipe network for a sewer line.	Demonstration/ LCD projector / Practice	Evaluation of Observation, Record and Viva-voce.
10	Stability analysis of gravity dams.		Stability analysis of gravity dams.		
11-12	Calculation of earth pressures on retaining wall and assessment of slope stability of a finite slope.		Calculate the earth pressures on retaining wall and assessment of slope stability of a finite slope.		

13	Determination of safe bearing capacity of soil using "C" Programming.	5	Determine the safe bearing capacity of soil using "C" Programming..		
14	Design of Flexible pavement.		Design the Flexible pavement.		
15	Design of rigid pavement.		Design the rigid pavement.		
16	**INTERNAL EXAM-II**				
17	**END EXAM**				