**17CE42E2 – CAAD IN CIVIL ENGINEERING**

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| **Course Category**  | Core Elective | **Credits**  | 3 |
| **Course Type**  | Theory | **Lecture - Tutorial - Practical**  | 3 - 0 - 0 |
| **Prerequisite**  | Computer Aided Engineering and Drawing | **Sessional Evaluation**  | 40 |
| **Semester End Exam Evaluation**  | 60 |
| **Total Marks**  | 100 |

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| **Course Objectives** | 1. To understand the concept of computer aided design in civil engineering.
2. To draw 1-D, 2-D and 3-D drawings using C-Graphics.
3. To apply the principles of computer graphics for drawing a line, circle and ellipse.
4. To prepare excel sheets for matrix multiplication.
5. To prepare excel sheet for step by step analysis of beams using stiffness method.
6. To understand the concept of data base management.
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| **Course****Outcomes** | CO1 | Understand importance of CAD. |
| CO2 | Draw line, circle and ellipse using C- Graphics. |
| CO3 | Draw 2-D and 3-D Drawings using C-Graphics. |
| CO4 | Prepare the Excel sheet for stiffness method. |
| CO5 | Analyse beams using Excel sheets. |
| CO6 | Prepare database management. |
| **Course Content** | **UNIT-I****INTRODUCTION TO COMPUTER AIDED DESIGN**: Reasons for implementing CAD – Design process – Applications of computers to design – Benefits of computer Aided design.**UNIT-II****PRINCIPLES OF COMPUTER GRAPHICS**: Introduction – Graphic primitives – point plotting –Drawing of lines – Bresenham’s Algorithm – C programme to draw a line – Circle – Ellipse using Breasenham’s algorithm.**UNIT-III****TRANSFORMATION IN GRAPHICS:** Coordinate system used line graphics & windowing –View port – 2-D transformations – Clipping – 3-D transformation – C-Graphics.**UNIT-IV****STIFFNESS METHOD**: Microsoft excel procedure for stiffness method of analysis step by step procedure using excel – examples using excel.**UNIT-V****ANALYSIS OF BEAMS USING STIFFNESS METHOD**: Long hand solution of single span beams –Continuous beams solution of single span beams –Continuous beams using excel.**UNIT-VI****DATABASE:** Introduction – Concept of a database – Objectives of databases – Design of data base – Design consideration of data base. |
| **Textbooks****and References** | **TEXTBOOKS:**1. Introduction to C++ Programming and Graphics by Pozrikidis, C, Springer
2. Graphics under C by Yashavant, P. Kanetkar.
3. An Introduction to the C Programming Language and Software Design by Tim Bailey.

**REFERENCES:**1. Computer Graphics C version by Donald Hearn.
2. Data analysis and business modeling using Microsoft excel by Manohar hansa Lysander.
3. Microsoft Excel Data Analysis by Etheridge D.
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