Department of Highway Engineering

Technical Engineering College

Erbil Polytechnic University

Subject: Computer Aided Design

Course Book – (SEMESTER 8)

Lecturer's name: Dr. Ghafur H. Ahmed

Academic Year: 2022/2023

Course Book

1. Course name	Computer Aided Design
2. Lecturer in charge	Ghafur H. Ahmed
3. Department/ College	Highway Engineering Department
4. Contact	e-mail: ghafur.ahmed@epu.edu.iq Tel: 00964 750 463 10 43
5. Time (in hours) per week	Theory: 0 Practical: 3
6. Office hours	Sunday and Wednesday: 8:30AM – 1:00PM, Monday: 9:00AM – 11:30AM, Tuesday 11:30AM – 1:00PM
7. Course code	CAD805
8. Lecturer's academic profile	Started academic career since 2013 to date.
9. Keywords	Computer aided design, structural analysis, design of buildings and bridges

10. Course overview:

This is a technical design course to teach students who are interested in behavior and design of structural systems (buildings and bridges, steel and concrete) utilizing computers in the design process so that the students will become familiar with skills required for the overall structural system analysis and design.

11. Course objective:

Objective 1. To understand basic design criteria, and procedure of structural systems,
Objective 2. To understand various structural systems through case studies,
Objective 3. To use computer software for structural analysis and design and for architectural and engineering drawings,

Objective 4. To work cooperatively through team work, and
Objective 5. To communicate through written and oral presentations .

12. Student's obligation

a. To attend the classes regularly with minimum absence.
b. To participate actively in the class discussion and Q & A session
c. Study on daily basis to digest the class material
d. To write note off-handouts
e. Prepared for sudden Quizzes
f. Vet through the references provided by the lecturer and to solve as much as possible of homework and exercises for the subjective materials.
g. Prepare the assignment and the seminar as instructed by the lecturer.

13. Forms of learning

Basically, a handout shall be given to the students at the beginning of the academic year. The page-by-page read shall be performed by the lecturer and to illustrate the points with aide of white board whenever necessary. The video clips that illustrate further the subject material shall be illustrated with the aid of overhead projector.

14. Assessment scheme

The overall semester-work mark is set to 5 marks with two semester exams, mid-term exam on 24 marks and the final exam 40 marks. The remained (36) is basically divided into five portions one of which holds (8) marks for 3 Quizzes, (14) marks are for a seminar, 10 marks for homework, and 2 marks left for presence and absence.

15. Student learning outcome:

By the end of the current course, the student shall be able to learn the major activities related to the computer aided structural analysis and design. The student would be able to classify structures, recognize functions of structural

elements, and estimate the causes of failures in structures. Students shall have design skills and learning how to put the loads on the structures, then analyzing the state of stresses and deformations. The most effect matter the student learns in this course is to decide on safe and most economical structural design for the subjective projects.

16. Course Reading List and References:

ACI 318-19Building Code Requirements for Structural Concrete
AASHTO LRFD SPECIFICATIONS FOR BRIDGE DESIGN-2017.

17. The Topics:		**Lecturer's name**
Section-1	Introduction to ETABS	Ghafur H. Ahmed
Section-2	Analysis of Beams for Different Loads & Support Conditions	
Section-3	Analysis of Different Shaped Trusses	
Section-4	Analysis of Frames	
Section-5	Analysis of 3D Shapes and Drawing SFD and BMD	
Section-6	Analysis of Reinforced Beams and Columns	
Section-7	Analysis and Design of Multistory Reinforced Concrete Buildings	
Section-8	Analysis of Building Systems for Wind Load and Seismic Loads	
Section-9	Design of Slabs and Decks	
Section-10	Printing and Understanding the Design Reports	
Section-11	Introduction to Prestressed Concrete	
Section-12	Introduction to CSI Bridge Design	
Section-13	Design of Reinforced Concrete T-beam Bridges	
Section-14	Analysis and Design of Prestressed Concrete Bridges	
Section-15	Analysis and Design of Cable Stayed and Suspension BRIDGES	

18. Practical Topics (If there is any)	
N/A	
19. Examinations:	
20. Extra notes: No comments	
21. Peer review	**پێداچوونەوەی هاوەڵ**