

Course Description Structural Analysis II

This description provides a brief summary of the most important characteristics of the course and the expected learning outcomes, indicating the maximum benefit from the provided learning methods. Those methods must be linked to the program description.

1. Educational Institution	University of Warith Al-Anbiyaa
2. Department / Center	Civil Engineering
3. Course Name/ Level	Structural Analysis II/ 3 rd
4. Lecturer name:	Lect. Dr. Qassim Ali Husain
5. Teaching Methods	Theoretical Classes
6. Year/semester	2023-2024(2 nd semester)
7. Number of teaching hours	60 hrs. (theoretical)
8. The date the description preparation	1/2/2024
9. Course objectives	<p>Providing students with a general knowledge skill about analyzing definite and indefinite structures statically and finding a degree to determine and teaching the student the concept of the energy method to find displacements in trusses, beams, and frames and teaching him to analyze statically indeterminate structures using the force method and the displacement method for various structures.</p>

10. Course outcomes and the teaching, learning and assessment methods.

A. Cognitive goals: the student has to be able to:

- To recognize statically defined and indeterminate structures and how to differentiate between them
- To become familiar with the imaginary method for calculating displacements
- To become familiar with the force method for analyzing statically indeterminate structures
- To learn about the method of displacement and inclination to analyze statically indeterminate structures

- To learn about the method of moment distribution for analyzing statically indeterminate structures

B. Acquired skills from the course

- The student's knowledge of the concept of structural analysis and how loads are transferred through structural members
- Developing the student's concept of the relationship between structural analysis and design
- Enable the student to model the engineering problem and how to apply engineering theories to it

C. Teaching and Learning methods

- Continuous daily and weekly surprise tests.
- Exercises and activities in the classroom
- Directing students to some sources that contain examples and exercises to benefit from them
- Preparing integrated lectures based on specialized and modern sources as well as realistic cases that have an impact on the field.
- Explaining the lectures in three stages: explaining the topic in a simplified manner, then explaining it in an expanded and detailed manner, and concluding with a summary of the topic. Various means are used to explain the subject, including the traditional blackboard, digital and smart displays, as well as the use of miniature models and the use of assets within the classroom, as well as body language.
- Giving examples and unsolved cases and leaving them to be solved by the students in the form of optional or mandatory assignments.
- Positive interaction with students during office hours and answering their inquiries

D. Evaluation Methods

- Oral examination during daily classes.
- Joined discussions during lectures.
- Attendance.
- Monthly examinations.
- Mid-year examinations.
- Final-Year examinations.

E. Emotional and value goals

- The student should listen carefully to the teacher's explanation. And be aware of the importance of scientific material
- Responding to the teacher's directions, including commitment to attendance, staying calm, completing homework assignments on time, and...

F. Transferable general and qualifying skills (other skills related to employability and personal development).

- Developing the student's ability to deal with technical means.
- Developing the student's ability to deal with the Internet.
- Developing the student's ability to deal with multiple media.
- Developing the student's ability to dialogue and discuss

week	Subject	notes
1	Introduction	
2	Deflections by virtual work method; Trusses	
3	Deflections by virtual work method; Beams	
4	Deflections by virtual work method; Frames	
5	Analysis of statically indeterminate Structures by the force method: Trusses	
6	Analysis of statically indeterminate Structures by the force method: Beams	
7	Analysis of statically indeterminate Structures by the force method: Frames	
8	Analysis of statically indeterminate structures by slope-deflection method: Beams	
9	Analysis of statically indeterminate structures by slope-deflection method: braced Frames	
11-10	Analysis of statically indeterminate structures by slope-deflection method: frames with side sway	
12	Analysis of statically indeterminate structures by moment distribution method: Introduction	
14-13	Analysis of statically indeterminate structures by moment distribution method: Introduction	
15	Analysis of statically indeterminate structures by moment distribution method: braced Frames	

References

1. Prescribed books required (textbook)

- Structural Analysis by R. C. Hibbeler, Tenth edition

2. Main references	<ul style="list-style-type: none">• Elementary theory of structures by Yuan-Yu Hsieh, second edition.• Structural Analysis by Jack C. McCormac.
3. Recommended references (journals, articles)	
4. Web sites and electronic references.	https://www.youtube.com/watch?v=MJL1QPNtwGQ

Course development plan

Expanding the solution to new problems and exposure to existing situations in practice