



Department of Architectural Engineering

College of Engineering

University of Cihan- Sulaimaniya

Subject: Steel Structure

Course Book – Year 4

Lecturer's name: Diyari B. Hussein

Academic Year: 2023/2024

Course Book

1. Course name	Steel Structure
2. Lecturer in charge	Diyari B. Hussein
3. Department/ College	Architecture/Engineering
4. Time (in hours) per week	Theory: 3 Practical: 0
5. Office hours	Saturday (9:30 AM – 12:30 AM)
6. Course code	ARC4207
7. Teacher's academic profile	Earned a bachelor's degree in civil engineering at the University of Sulaimani, Sulaymaneyh/Iraq, and a master's degree in structural engineering at Budapest University of Technology and Economics, Budapest/Hungary, and individual thesis that was 'Comparative analysis of strengthening methods for RC monolithic columns'.
8. Keywords	Steel Structure, Tension Member, Compression member, Beam, Column, and Welding
9. Course overview: The considerations may need to be included in the design process. They include quantifiable behavior such as deformation, fatigue, fire resistance, and dynamic behavior; considerations such as corrosion and service accommodation which may influence both detail and overall concept, but in a more qualitative way; and appearance, which is largely a subjective judgment. In addition, considerations of economy are likely to be a significant influence on the great majority of structural designs.	
10. Course objective: The precise objectives of structural design vary from one project to another. In all cases, the avoidance of collapse is an important - if not the most important - requirement, and an adequate factor of safety must be provided. In this context, the structure must be designed to fulfill both strength and stability requirements.	
11. Student's obligation Students should be on the commitment to lectures, do their homework, and prepare themselves for exams and quizzes.	

12. Forms of teaching

- ✓ **Data show**
- ✓ **Whiteboard**

Students are provided with handouts for each chapter to be available with them during the lectures. The handout includes explanations, examples, problems, and homework.

Some examples have been left unsolved provided with blank spaces to be filled during lectures.

13. Assessment scheme

Midterm Examination	30 %
Attendance, Quiz, Homework	10 %
Final theory exam	60 %

14. Student learning outcome:

After successful completion of the course, students are expected to have

- An ability to distribute dead and live loads from slabs to the supporting beams
- How to distribute loads and moments between beams and columns to maintain equilibrium
- An ability to design the steel members such as; (Tension members, Compression members, and beams)
- Ability to define problems for the design of Steel elements that meet code requirements based on strength, stiffness, and serviceability considerations.
- An ability to design fasteners (Bolts and Welding)

Knowledge of current code requirements for the design of steel elements, and Ability to express ideas effectively through written homework assignments.

15. Course Reading List and References:

Design of steel structures by Jack McCormack 5th edition

Steel structures; design and behavior by Salmon, G. & Johnson, J.E. 4th edition.

ASD Annual of Steel Construction 15th edition, American Institute of steel construction (ASIC)

ASD Annual of Steel Construction 15th edition, American Institute of Steel Construction (ASIC)

16. The Topics:

Lecture No	Topic
1	Introduction to steel structures and steel design
2	Analysis of tension members (Net area and effects of staggered holes)
3	Analysis of tension members (Net area and effects of staggered holes)
4	Analysis of tension members (block shear)
5	Fasteners
6	Bolts and weld connections design
7	Compression members (Column sections, Buckling, Euler formula and slenderness ratio)
8	Compression members (Column sections, Buckling, Euler formula and slenderness ratio)
9	Compression members (Column sections, Buckling, Euler formula and slenderness ratio)
10	Design of beams and moments
11	Design of beams and moments
12	Design of beams and moments
13	Design of roof trusses
14	Design of roof trusses
Final Examination	

17. Peer review

Main Lecturer in charge
Mr. Diyari Burhan Hussein

Head of The Department
Mrs. Tara Azad Rauof