

Faculty of Engineering & Technology

Steel Structures for Architects

Information :

Course Code : SCM 418

Level : Undergraduate

Course Hours : 2.00- Hours

Department : Department of Architectural Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Ahmed Amr Kadry Ahmed Shaheen	10
Assistant Lecturer	MOHAMMED TAHER ABDELHAMID MOHAMMED YOUSSEF	

Area Of Study :

Upon successful completion of the course, the student should be able to:

1. Develop design process awareness (including data gathering and analysis)
2. Share ideas and work in a team or a group
3. Develop drawing and representation techniques
4. Develop statical systems of steel structures including suggestion of main and secondary elements.
5. Choice of optimum main systems and calculate approximately the size of elements.
6. Choice of best connection type and make the necessary details.

Description :

Design principles of steel structures, Structural systems, Design loads, Design of members subjected to axial forces, flexure, or shear, Design of bolted and welded connections, Structural details for trusses and frames, Details of connections, Steel structures.

Course outcomes :

a. Knowledge and Understanding: :

1 -	Demonstrate knowledge and understanding of scientific background (theories and history) of design of steel as structural material.
2 -	Define design problems and how to solve it.
3 -	Define main building elements and how to analyze each element and design it.
4 -	Define the main connections and calculate the necessary connectors and how to arrange these connectors in set of detail drawings.

b. Intellectual Skills: :

1 -	Analyze and solve design problems using models, drawings and diagrams.
2 -	Conceptualize, investigate and develop the design of two dimensional structural elements.
3 -	Create structural design of steel elements and connections.
4 -	Decide the best structural system and the optimum section size.

c. Professional and Practical Skills: :

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| 1 - | Identify data and requirements for preparing the steel building layout and details. |
| 2 - | submit professional neat drawings. |

d. General and Transferable Skills: :

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| 1 - | Communicate effectively with other people using visual, graphic, written and verbal means. |
| 2 - | Work in a self-directed manner. |
| 3 - | Work coherently and successfully as a part of a team in projects, assignments. |
| 4 - | Analyze problems and use innovative thinking in their solution. |
| 5 - | Use the Internet in searching for information about specific building types. |

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Preparation of General Layout	12	6	6
Calculation of loads and analysis preparation	4	2	2
Design of Tension Members	4	2	2
Design compression members	8	4	4
Design of beams	4	2	2
Design of connections and detailing	12	6	6
Design of beam-columns	8	4	4

Teaching And Learning Methodologies :

- Lectures.
- Design Classes.
- Design assignments.
- Information collection from different sources.
- Class discussions, sessions and design critiques.

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments.	10.00		
Attendance & Participation.	10.00		
Final-term examination.	40.00		
Mid. term Exams.	40.00		

Course Notes :

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Recommended books :

Design and behavior of steel structures,
The Egyptian Code of Practice of Design and Construction of Steel Structures.

Periodicals :

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Web Sites :

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