Faculty of Engineering & Technology

Metallic Structures 1

Information :

Course Code :	SCM 413	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Structural Engineering & Construction Management

Instructor Information :

Title	Name	Office hours
Lecturer	Ahmed Amr Kadry Ahmed Shaheen	6
Assistant Lecturer	MOHAMMED TAHER ABDELHAMID MOHAMMED YOUSSEF	2

Area Of Study :

Enrich the student ability to know the main types of truss systems and know the theory of transferring loads (vertical and transverse loads) in truss system.
Train the students to design welded and bolted connections of truss members and drawing its details of connection.

Train the students to design purlins and secondary beam of mezzanine floor as well as design beam-columns in steel framing system.
Train the students to design members of horizontal and vertical bracing as compression and tension members.

Description :

Introduction, Tension members, Compression members, Columns, Beams (Rolled sections), Beam-columns, Wind bracings.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Estimate loads (dead, life and wind) on truss structure system.
2 -	Design of tension and compression members of truss structure systems.
3 -	Design of steel members (purlins, secondary beam, beam-column)
b.Intellectual Skills: :	
1 -	Select steel members (angles, I-beam, channel) for the proposed structure supporting its function and available resources.
2 -	Design the chosen steel member structural system on a conceptual level and in details according to different codes of practice achieving safety and serviceability
c.Professional and Practical Skills: :	
1 -	Design and solve steel system engineering problems.
2 -	Carry out neat detailed drawings manually and using computer programs for different steel members.
d.General and Transferable Skills: :	
1 -	Work in stressful environment and within constraints.
2 -	Manage time and resources.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction with application to steel structures	1	1	2
Load and tension members	1	1	2
Examples on Tension Members	1	1	2
Section classification, slenderness ratios , buckling lengths	1	1	2
Compression members	2	2	4
Non-pre-tensioned bolted connections: shear, tension & shear and tension	1	1	2
Pre-tensioned bolted connections: shear, tension & shear and tension	1	1	2
Laterally supported beams: floor beams and their connections ; Roof purlins: hot rolled sections and tie rods	2	2	4
Laterally unsupported beams: crane girders	1	1	2
Wind bracings	1	1	2
Welded connections	2	2	4

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Performance	10.00		
Assignments/Studio work	5.00		
Final Exam	40.00		
Quizes	5.00		
Two Mid term exams	40.00		