

Construction & Building Engineering Courses (CB)

Structural Analysis & Metallic Structures Courses Group

CB 444 – Design of Metallic Structures

COURSE INFORMATION

Course Title: Design of Metallic Structures

Code: CB 444

Hours: Lecture – 4 Hrs. Tutorial – 2 Hrs. Credit –3.

Prerequisite: CB 343

GRADING

Class Performance/Attendance: 10%

Midterm # 1/Assignments – (7th Week): 30%

Midterm # 2/Assignments – (12th Week): 20%

Final Exam: 40%

COURSE DESCRIPTION

Introduction to metallic structures, Structural properties and allowable stresses of steels, Fields of applications of steels, Loads, Planning & Bracing of steel structures.

Design of axially loaded tension and compression steel members, Design of steel beams and beam-columns, Design of steelwork connections, Steel frames, Steel bridges, Construction of steel structures.

TEXT BOOK

STEEL STRUCTURE DESIGN: ALLOWABLE STRESS DESIGN by
DESSOUKI, ABDELRAHIM KHALIL Publisher

Egyptian Code of Practice for Steel Constructions and Bridges, Code No. 205/2007.

REFERENCE BOOKS

Egyptian Code of Practice for Loads in Buildings, Code No. 45/1993.

Basic Steel Design by JONSTAN, B.G., Lin,F.J. and GALAMOS, T.V., Publisher:
Prentice Hall, Englewood, Cliffs, USA 5th Edition

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COURSE AIM

The course covers the subjects of planning, bracing of metal structures and the design of its elements and their connections. The course deals with also the subject of the construction of metal structures in addition to the safety precautions, durability and sustainability.

SPECIFIC OUTCOMES OF INSTRUCTION

- The student should be able to design the bracing of metal structures and the design of its elements and their connections. The course deals with also the subject of the construction of metal structures in addition to the safety precautions, durability and sustainability.
- The students should be able of planning and design different structural elements and connections of metallic structures in addition to introduce them to the construction of such structures.

COURSE OUTLINE

- Week Number 1:* Introduction to metallic structures.
- Week Number 2:* Planning and bracing of steel structures, Applications.
- Week Number 3:* Design of steel tension members, Worked examples.
- Week Number 4-5:* Design of axially loaded compression steel members, Worked examples.
- Week Number 6:* Design of steel beams and its supports, Worked examples.
- Week Number 7-8:* Design of steel beam-columns, Worked examples & 7th week examination.
- Week Number 9:* Design of bolted steel connections, Worked examples.
- Week Number 10:* Design of welded steel connections, Worked examples.
- Week Number 11:* Design of special steel connections, Worked examples.
- Week Number 12:* Design of steel frames & 12th week examination.
- Week Number 13-14:* Design of steel bridges.
- Week Number 15:* Construction of steel structures.
- Week Number 16:* Final Exam.

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COURSE COORDINATOR AND DEMAND

Course Coordinator: Dr. Mostafa Khalifa.

Course Demand: *Required*