

Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Authority
Department of Quality Assurance and Academic Accreditation

Academic Program Description Form for Colleges and Institutes Academic Year

University: Shatt Al-Arab
College/Institute: Engineering
Scientific Department: Civil
Date of Form Completion: 01/09/2025



Signature

Name of Head of Department:

Asst. Lecturer Nabeel Najm Abdullah



Signature

Name of Scientific Assistant

Dr. Jawad Kadhim

Reviewed by:
Quality Assurance and University Performance Division
Name of Division Director: Dr. Jasem Mohsen Yasser

Signature:



الدكتور
جاسم محمد ياسر
Dr. Jasim Al-Battat



أ.م.د. احسان قاسم محمد
عميد كلية الهندسة

Dean's Approval

Design of Steel Structures-1

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	Shatt Al-Arab University
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Design of steel Structures-1
4. Modes of Attendance offered	Class attendance
5. Semester/Year	1 st semester / 4th year
6. Number of hours tuition (total)	60 hrs.
7. Date of production/revision of this specification	1-9-2025
8. Aims of the Course	
1- Understanding steel as a structural material, and get knowledge of its mechanical properties. 2- Knowledge of design codes and standards. 3- Learning to identify and evaluate the various loads. 4-Understanding the analysis and design of tension members in steel structures. 5- Studying the analysis and design of compression members.	

9• Learning Outcomes, Teaching, Learning and Assessment Method
A- Cognitive objectives A1- Understanding steel as a structural material, and get knowledge of its mechanical properties. A2- - Knowledge of design codes and standards A3- Understanding the analysis and design of tension and compression members in steel structures. B- Skill objectives specific to the course. B1- provision of necessary skills to deal with steel structures. B2- Ability to analyze tension and compression members. B3- Knowledge of the procedures involved in designing tension and compression members. C. Thinking Skills C1- Analytical thinking: analyze steel structural members under different loading conditions. C2- Design thinking: develop efficient and economical steel structural designs that satisfy strength, and serviceability requirements. C3- Decision-making skills: choose of suitable steel grade and sections based on engineering judgment and standards.
Teaching and Learning Methods
•Theoretical lectures, discussion, and writing reports.

Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the lecture. • short exams during the theoretical lecture. • Midterm exam.
• Final exams.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Getting Knowledge of the course	Introduction	Lecture and discussion	Direct questions
2	4	Understanding the benefits of steel	Advantages and disadvantages of steel as a structural material,	Lecture and discussion	Direct questions
3	4	Recognizing steel shapes, grades, and mechanical properties of steel	cold-formed steel shapes, steel grades, stress-strain relationships for structural steel,	Lecture and discussion	Short exam
4	4	Learning about specifications and design methods.	Specifications, loads, design methods (load and resistance factor design, LRFD, and the allowable strength design, ASD),	Lecture and discussion	Direct questions

5	4	Identifying nominal strength and load combinations	nominal strength, load combinations for LRFD and ASD methods, description of the AISC manual	Lecture and discussion	Direct questions
6	4	Learning the behaviour of tension members	Tension members: Introduction, tensile strength of tension members, net area	Lecture and discussion	Short exam
7	4	Calculating the net cross-sectional area of the member	effective area, connecting elements for tension members.	Lecture and discussion	Direct questions
8	4	Understanding block shear mode of failure	block shear	Lecture and discussion	Midterm exam
9	4	Performing the design of tension members	design of tension members, selection of sections, design to LRFD,	Lecture and discussion	Direct questions
10	4	Performing the design using AISC Tables and the design of built-up tension members	design to ASD, design tables, built-up tension members.	Lecture and discussion	
11	4	Learning the analysis of axially loaded compression members	Analysis of axially loaded compression members: Modes of failure, sections used for columns, the Euler formula, effective lengths of columns	Lecture and discussion	Direct questions
12	4	Knowing the difference between stiffened and unstiffened element. And classification of column according to length	stiffened and unstiffened elements, long, short and intermediate columns	Lecture and discussion	Direct questions
13	4	Performing the design of axially loaded compression members.	Design of axially loaded compression members: AISC requirements, maximum slenderness ratio, design tables.	Lecture and discussion	

14	4	Understanding the behaviour of columns with different unsupported length, and the design of built-up column.	columns with different unsupported lengths, built-up columns, design of built-up columns with lacing, columns within rigid frames and the alignment charts.	Lecture and discussion	Short exam
15	4	Introducing basic information about beam behaviour	Introduction to beams:	Lecture and discussion	

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1- AISC Steel Construction Manual, Fifteenth edition-2017. 2- Structural Steel Design.by McCormac and Csernak, 6th edition, 2018.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	Steel Design, by Segui, 6 th edition, 2018.
B- Electronic references, websites	

12. Course development plan
Adding new subjects to the curricula within the development of the course by no more than 5%. Adding new references