

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



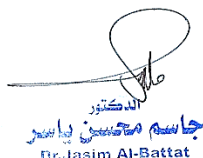
Signature

Name of Scientific Assistant

Dr. Jawad Kadhim

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

Signature:



Dr. Jasim Al-Battat



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

Dean's Approval

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Steel 2		Module Delivery	
Module Type	Core		☐ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE413			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level		4		Semester of Delivery
Administering Department		Type Dept. Code	College	Type College Code
Module Leader			e-mail	
Module Leader's Acad. Title			Module Leader's Qualification	
Module Tutor			e-mail	
Peer Reviewer Name		Name	e-mail	E-mail
Scientific Committee Approval Date		1/09/2025	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Soil Mechanics Concrete Design	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1- Understanding the behaviour of beams in steel structures. 2- Learning the analysis and design of beams. 3- Studying the analysis and design of beam-column members. 4- Investigating the behaviour and design of bolted connection under the effect of concentric and eccentric loading. 5- Understanding the behaviour and design of welded connection.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	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.
Indicative Contents المحتويات الإرشادية	- 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.
	- Direct questions in a manner (how and why) for the subject during the lecture. - short exams during the theoretical lecture. - Midterm exam.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	I view teaching as a process of encouraging students to make connections between their own experience and to foster critical thinking skills and problem-solving. I am more concerned with the student's understanding of fundamental course concepts and their ability to apply them in new problem-solving situations. Exams should be designed to bring together different concepts from individual examples and homework problems and combine them. My intent in developing exam questions is not to evaluate whether a student can solve a given problem, but to determine whether they understand and can apply the concepts required to solve this problem. After all, the chance that they will face the exact problem in practice is negligible, but the interaction of concepts to solve new problem is vital. As a result, students work is graded with respect to the process used in solving the problem rather than the final answer they will get. A professor should be sensitive to the background and preparation of the students. The way the students are treated has a great influence on the student's performance. I strive to demonstrate to each student my respect for them as individuals and for their contributions to the learning process. Thus, I try to learn every student's name and maintain a high level of classroom interaction. The class atmosphere is very relaxed, so students feel comfortable contributing and asking questions. To further facilitate students learning, I like to provide opportunities for reflection and feedback from students via after-class and office discussions, peer-to-peer feedback on assignments and learning activities and formal and informal evaluations. Students' responses and inputs are very helpful for improving my teaching skills.
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ 15 اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	90	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	10
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	60	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

	Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Quizzes	2	10% (10)	3 , 7	All
Assignments	2	10% (10)	2,4,6,8,10,12	All

Formative assessment	Class activity	1	10% (10)		
	Report	1	10% (10)		
Summative assessment	Midterm Exam	1 hr	10% (10)	10	1-5
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Design of Beams for Moments and shear: Introduction, Plastic behavior (zone1).
Week 2	Plastic behavior (zone1). design of beams - zone1 (full plastic moment), lateral supports of beams,
Week 3	inelastic buckling (zone 2), bending coefficients, moment capacities (zone 2), design of beams – zone 3,
Week 4	elastic buckling,(zone 3), AISC beam design charts, noncompact sections
Week 5	Design for shear, unsymmetrical bending, and design of purlins.
Week 6	Bending and Axial Compression (Beam-Columns): Bending and axial compression, Beam – Columns, first order and second order moments, analysis
Week 7	effective length, approximate second order analysis method.
Week 8	magnification factors, moment modification factors.
Week 9	design of beam-columns in braced frames
Week 10	Bolted Connections: Types of bolts, high - strength bolts, snug - tight joints, pretension joints, slip - critical joints, fully pretensioning methods, sizes of bolt holes, load transfer, lap joint, butt joint, failure of bolted joints,
Week 11	bearing type connections. shear strength and bearing strength for bearing type connections (load pass through center of gravity of connection).
Week 12	Eccentrically Loaded Bolted Connections: Bolts subjected to eccentric shear, Elastic analysis method, reduced eccentricity method, instantaneous center of rotation method.
Week 13	AISC - Part7 Tables, bearing - type connections subjected to shear and tension.
Week 14	Welded Connections: Welding advantages, types of welding, classification of welds, type of weld, type of joints, fillet welds, plug and slot welds, welding symbols, strength of welds

Week 15	Bolted Connections: Types of bolts, high - strength bolts, snug - tight joints, pretension joints, slip - critical joints, fully pretensioning methods, sizes of bolt holes, load transfer, lap joint, butt joint, failure of bolted joints,
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- AISC Steel Construction Manual, Fifteenth edition-2017. 2- Structural Steel Design.by McCormac and Csernak, 6th edition, 2018.	Yes
Recommended Texts		No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.