MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	STRUCTURAL ANALYSIS THEORY I			**Module Delivery**	
Module Type	***CORE***			**Theory** **Lecture** **Practical**	
Module Code	UOMU023053				
ECTS Credits	5				
SWL (hr/sem)	125				
Module Level	1		**Semester of Delivery**	5	
Administering Department	Building and construction techniques		**College**	Al-Mustaqbal university	
Module Leader	Assist. lec kawther Hussein shaalan		**e-mail**	kawthar.hussein.shaalan@uomus.edu.iq	
Module Leader's Acad. Title	***Senior Chief Engineer***		**Module Leader's Qualification**	***None***	
Module Tutor	***None***		**e-mail**	***None***	
Peer Reviewer Name			**e-mail**		
Review Committee Approval	01/10/2025		**Version Number**	1.0	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**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	The student will be able to 1. define all types of structures and their stability, 2. define the methods of determination of the structure deformation under the load, 3. study the methods of analysis and internal forces determination of determinate and indeterminate structures, study the methods used for analysis of structural elements due to moving loads using the influence lines.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	upon completion of this course the students will: 1- The student will learn the methods of structural analysis and predict the internal forces and compute the external forces for different types of structures. 2- Apply different techniques of structural analysis and the methods of presenting the actual structure, connection between the theoretical analysis and the actual engineering structures. 3- To apply appropriate engineering solutions to solve the problems of stability, safety of structural elements.		

	4- Perform engineering work in accordance with health, safety and economic constraints related to the analyses of structures. 5- Ability to apply knowledge of basic mathematics through differential equations, science, and engineering to solving civil engineering problems.. 6- Demonstrate proficiency in the structural analysis of statically determinate structures, including deflection calculations.
Indicative Contents المحتويات الإرشادية	Introduction) 6 hr) • Definition of engineering structures • Classification of engineering structures • Forces applied on engineering structures • Types of loads and supports Stability and determinacy of structures (6 hr) • Method used for stability of engineering structure • Stability and determinacy of beams • Stability and determinacy of trusses • Stability and determinacy of rigid frames • Stability and determinacy of composite structures Statically determinate structures(18hr) • Statically determinate beams Drawing of shear force and bending moments diagram • Analysis of statically determinate truss • Statically determinate rigid frames Drawing of shear force and bending moments diagram Influence line for statically determinate structures (9hr) Moving concentrated loads (9hr) • Criteria for maximum • Absolute maximum bending moment Approximate analysis for statically indeterminate structures (6hr) Elastic deformation of structures (Beams, Truss, Rigid frames) (9hr) • Double-integration method. • Virtual work method (Unit load method) Slope-deflection method for statically indeterminate beams and rigid frames (12hr) • Without joint translation • With joint translation Moment distribution method without joint translation (12hr) • Fixed-end moment • Element stiffness

	• Distribution factor, carry-over factor • Distribution of external moment applied to a joint • The process of locking and unlocking :one joint • The process of locking and unlocking :two joint • Modified stiffness factor Moment distribution method with joint translation • Analysis of statically indeterminate rigid frames with one degree of freedom
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Assessment is based on 1- Exams. 2- Student feedback. 3- Seminars.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7

	Tutorial	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week	**Syllabus**
1	Introduction (1) • Definition of engineering structures • Classification of engineering structures
2	Introduction (2) • Forces applied on engineering structures • Types of loads and supports
3	Stability and determinacy of structures (1) Method used for stability of engineering structure • Stability and determinacy of beams • Stability and determinacy of trusses
4	Stability and determinacy of structures (2) • Stability and determinacy of rigid frames • Stability and determinacy of composite structures
5	Statically determinate structures(1) • Statically determinate beams Drawing of shear force and bending moments diagram
6	Statically determinate structures(2) • Statically determinate beams Drawing of shear force and bending moments diagram
7	Statically determinate structures(3) • Analysis of statically determinate truss
8	Statically determinate structures(4) • Statically determinate rigid frames Drawing of shear force and bending moments diagram
9	Statically determinate structures(5) • Statically determinate rigid frames Drawing of shear force and bending moments diagram
10	Statically determinate structures(6) • Statically determinate rigid frames Drawing of shear force and bending moments diagram

11	Influence line for statically determinate structures (1)
12	Influence line for statically determinate structures (2) Influence line for statically determinate structures (3)
13	Moving concentrated loads (1) • Criteria for maximum • Absolute maximum bending moment
14	Moving concentrated loads (2) • Criteria for maximum • Absolute maximum bending moment
15	Moving concentrated loads (3) • Criteria for maximum • Absolute maximum bending moment

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		Yes
Recommended Texts	1. Elementary theory of structures / Yuan Y. Hsieh 2. Structural analysis / Russell C. Hibbeler 3. Structural and Stress Analysis / T.H.G. Megson 4. Fundamentals of structural analysis/ Kenneth M. Leet, Chia Ming Hang and Anne M. Giberl	No
Websites		

APPENDIX:

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	مقبول بقرار	(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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي