

Module (Course Syllabus) Catalogue 2023-2024

College/ Institute	Erbil Technical Engineering college	
Department	Civil Engineering Department	
Module Name	Theory of Elasticity	
Module Code		
Degree	Technical Diploma <input type="checkbox"/>	Bachler <input type="checkbox"/>
	High Diploma <input type="checkbox"/>	Master <input checked="" type="checkbox"/>
		PhD <input type="checkbox"/>
Semester		
Qualification		
Scientific Title		
ECTS (Credits)		
Module type	Prerequisite <input type="checkbox"/>	Core <input checked="" type="checkbox"/>
		Assist. <input type="checkbox"/>
Weekly hours		
Weekly hours (Theory)	(3)hr Class	()Total hrs Workload
Weekly hours (Practical)	()hr Class	()Total hrs Workload
Number of Weeks		
Lecturer (Theory)	Prof. Dr. Mereen Hassan Fahmi Rasheed	
E-Mail & Mobile NO.	mereen.akrawi@epu.edu.iq (07504615781)	
Lecturer (Practical)		
E-Mail & Mobile NO.		
Websites		

Course Book

Course Description	Introduction to the stress and strain relationship in plane stress and plane strain problems, solution of two-dimensional problems in Cartesian and polar coordinate systems by polynomial stress function, Fourier series and finite difference method. Also study of torsion in members with different cross section shapes.				
Course objectives	Introducing students to the basic concepts and solution techniques of the two-dimensional elasticity problems by different methods.				
Student's obligation					
Required Learning Materials					
Evaluation	Task	Weight (Marks)	Due Week	Relevant Learning Outcome	
	Paper Review	20%	10	1-7	
	Assignments				
		10%	8	1-7	
	Quiz	5%	3-10	1-7	
	Lab.				
	Midterm Exam	15%	8	1-5	
	Final Exam	50%	15	1-7	
Total	100				
Specific learning outcome:	<ol style="list-style-type: none"> 1. Demonstrate a systematic and critical understanding of the theories, principles of Elasticity. 2. Ability to apply contemporary theories, processes and tools in the development and evaluation of solutions to different problems in Cartesian and polar coordinate systems. 3. Ability to use techniques, skills and modern tools necessary for advanced problems in Elasticity. 				
Course References:	<ol style="list-style-type: none"> 1- Theory of Elasticity by Timoshenko. 2- Theory of Elasticity by Barbar. 3- Theory of Elasticity by Landau. 				

4- Theory of Elasticity by Chau and Pagano. 5- Solid Mechanics by Raymond.		
Course topics (Theory)	Week	Learning Outcome
Week 1: Introduction. Week 1: Solution of two-dimensional problems in Cartesian coordinate system. using Polynomial stress function.	1	1
Week 2: Semi-infinite medium problem. Week 2: Stress analysis of beams.	2	2
Week 3: Determination of displacements.	3	2
Week 4: Solution of two-dimensional problems using Fourier series.	4	2,3
Week 5: Solution of two-dimensional problems using Finite difference method.	5	2,3
Week 6: Solution of two-dimensional problems in Polar coordinate system.	6	4
Week 7: Solution of Axisymmetric problems.	7	4,5
Week 8: Stress analysis of rotatory disk.	8	4,5
Week 9: Stresses in a semi-infinite plate subjected to a concentrated force.	9	6
Week 10: Torsion of bars with circular and elliptic cross section.	10	6
Week 11: Torsion of bars with rectangular cross section.	11	6,7
Week 12: Membrane analogy. Final Examination.	12	6,7
Additional topics: 1- General theorems. 2- Effective width of a wide beam flanges. 3- Stretching of a prismatic bar by its own weight. 4- Pure bending of a prismatic bars. 5- Pure bending of plates. 6- Pure bending of curved bars. 7- Waves. 8- Thermal stresses. Bending of bars.		

Practical Topics	Week	Learning Outcome

Questions Example Design

Extra notes:

External Evaluator
I have reviewed the course catalogue which are prepared will covered the required subjected related to the course (Theory of Plates and Shells)

Asst. Prof. Bahman Omar Taha 

