Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Technology college
Department	Automotive Technology Engineering
Module Name	Strength of Materials
Module Code	MED602
Degree	Technical Diploma ☐ Bachelor ☐ High Diploma ☐ Master ☐ PhD ☐
Semester	six
Qualification	
Scientific Title	
ECTS (Credits)	6
Module type	Prerequisite ☐ Core ☐ Assist. ☐
Weekly hours	
Weekly hours (Theory)	(2)hr Class (27)Total hrs Workload
Weekly hours (Practical)	(2)hr Class (27)Total hrs Workload
Number of Weeks	12
Lecturer (Theory)	Prof.Dr.Basim Mohammed Fadhil
E-Mail & Mobile NO.	Basim.fadhil@epu.edu.iq
Lecturer (Practical)	
E-Mail & Mobile NO.	
Websites	

Course Book

Course Description	This course is concerned with the study of the important mechanical elements in mechanical design, including the study of stresses as well as theories of failure. And shaft design, riveted joints, riveted joints, screwed joints,.Keys and coupling, power screws and flat belt pulleys.
Course objectives	The objectives of the course are to: • Cover the basics of machine design, including the design process, engineering mechanics and materials, failure Prevention under static and variable loading, and characteristics of the principal types of mechanical elements. • Offer a practical approach to the subject through a wide range of realworld applications and examples. • Encourage students to link design and analysis. • Encourage students to link fundamental concepts with practical component specification.
Student's obligation	The student's obligations are: 1-attending the lectures in the class and online, 2-doing homework, 3- doing assignments and quizzes.4- doing examinations.
Required Learning Materials	Engineering mechanics, Strength of materials, Engineering drawing. Mathematics I and II.

Evaluation		Task	Weight (Marks)	Due Week	Relevant Learning Outcome
		Paper Review			
	Assignments	Homework	10%	3,6	
		Class Activity	2%		
		Report	8%	6	
		Seminar	8%	9	
		Essay			
		Project/poster			
	Quiz		8%	5,8	
	Lab.				
	Midterm Exam		24%		
	Final Exam		40%		
	Total		100%		

Specific learning outcome:	The student will be able to design and analyse the most important machine elements like; shaft, riveted joints, welded joints, screwed joints, keys and coupling, power screws and flat belt pulleys
Course References:	1- A Textbook Of Machine Design, R.S. Khurmi, J.K. Gupta 2- Shigley's Mechanical Engineering Design,

Course topics (Theory)	Week	Learning Outcome
Introduction to mechanical design	1	
Torsional and Bending Stresses in Machine Parts, torsional sheer stress, bending stress ,	2,3	
Bending Moment and Shear Force,	4,5	
riveted joints: Types of Rivet Heads. Failures of a Riveted Joint, Strength of a Riveted Joint.	6,7	
Welded joints: Introduction. Advantages and Disadvantages of Welded Joints over Riveted Joints, Types of Welded Joints, Strength of Transverse Fillet Welded Joints,	8	
Screwed joints: Introduction. Advantages and Disadvantages of Screwed Joints. Stresses in Screwed Fastening due to Static Loading. Stresses due to External Forces. Stress due to Combined Forces.	9,10	
Springs, Terms used in Compression Springs, End Connections for Compression Helical Springs, Stresses in Helical Springs of Circular Wire, Deflection of Helical Springs of Circular Wire	11,12	
Shafts: Introduction. 2. Material Used for Shafts. 3. Manufacturing of Shafts. 4. Types of Shafts.5. Standard Sizes of Transmission Shafts. 6. Stresses in Shafts. 7. Maximum Permissible Working Stresses for Transmission Shafts. 8. Design of Shafts. 9. Shafts Subjected to Twisting Moment Only. 10. Shafts Subjected to Bending Moment Only. 11. Shafts Subjected to Combined Twisting Moment and Bending Moment.	13,14	

Practical Topics	Week	Learning Outcome

Questions Example Design

Extra notes:

External Evaluator