Course Description Form

1. Course Name: **Strength of Materials**
2. Course Code: MPAC206
3. Semester / Year: 2023 -2024
4. Description Preparation Date: 1/1/2023
5. Available Attendance Forms: 116 H
6. Number of Credit Hours (Total) / Number of Units (Total) 240
7. Course administrator's name (mention all, if more than one name)
Name: Samer Aswad Kokz Email: sameralsaeedi@gmail.com
8. Course Objectives

Course Objectives	This course is the foundation to many advanced techniques that allow engineers to design machine components, mechanisms, predict failure and understand the physical properties of materials. Mechanics of Materials gives the student basic tools for stress, strain and deformation analysis. Methods for determining the stresses, strains and deformations produced by applied loads are presented. Engineering design concepts are integrated throughout the course.
9. Teaching and Learning Strategies	
Strategy	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1st week	Theoretical + 2 practical.	The student understands the subject	Introduction — Stress and Strain.	Theoretical + practical	quiz
2nd week	Theoretical + 2 practical	The student understands the subject	Direct stresses: Tension, Compression, Shear and Bearing	Theoretical + practical	quiz
3rd week	Theoretical + 2 practical	The student understands the subject	Statically Indeterminate Problems	Theoretical + practical	quiz
4th week	Theoretical + 2 practical	The student understands the subject	Statically Indeterminate Problems	Theoretical + practical	quiz
5th week	Theoretical + 2 practical	The student understands the subject	Thermal Stresses	Theoretical + practical	quiz
6th week	Theoretical + 2 practical	The student understands the subject	Stress Concentrations	Theoretical + practical	quiz
7th week	Theoretical + 2 practical	The student understands the subject	Rivets Joints	Theoretical + practical	quiz
8th week	Theoretical + 2 practical	The student understands the subject	Welded Joints	Theoretical + practical	quiz
9th week	Theoretical + 2 practical	The student understands the subject	Thin wall vessels	Theoretical + practical	quiz
10th week	Theoretical + 2 practical	The student understands the subject	Pressure vessels	Theoretical + practical	quiz
11th week	Theoretical + 2 practical	The student understands the subject	Stress variations with angles	Theoretical + practical	quiz
12th week	Theoretical + 2 practical	The student understands the subject	Mohr - circle.	Theoretical + practical	quiz
13th week	Theoretical + 2 practical	The student understands the subject	Mohr - circle.	Theoretical + practical	quiz
14th week	Theoretical + 2 practical	The student understands the subject	Torsion in circular shaft	Theoretical + practical	quiz
15th week	Theoretical + 2 practical	The student understands the subject	Beams / Shear Force & Bending moment	Theoretical + practical	quiz
16th week	Theoretical + 2 practical	The student understands the subject	Shear Force Diagram & Bending Moment Diagram	Theoretical + practical	quiz
17th week	Theoretical + 2 practical	The student understands the subject	Shear Force Diagram & Bending Moment Diagram	Theoretical + practical	quiz

18th week	Theoretical + 2 practical	The student understands the subject	Bending Stress in Beams	Theoretical + practical	quiz
19th week	Theoretical + 2 practical	The student understands the subject	Bending Stress in Beams	Theoretical + practical	quiz
20th week	Theoretical + 2 practical	The student understands the subject	Vertical Shear in Beams	Theoretical + practical	quiz
21st week	Theoretical + 2 practical	The student understands the subject	Beams Sections	Theoretical + practical	quiz
22nd week	Theoretical + 2 practical	The student understands the subject	Combined Stresses in Beams	Theoretical + practical	quiz
23rd week	Theoretical + 2 practical	The student understands the subject	Bending Deflection in Beams by Double Integration Method	Theoretical + practical	quiz
24th week	Theoretical + 2 practical	The student understands the subject	Bending Deflection in beams by Moment Area Method	Theoretical + practical	quiz
25th week	Theoretical + 2 practical	The student understands the subject	Bending Deflection in beams by Moment Area Method	Theoretical + practical	quiz
26th week	Theoretical + 2 practical	The student understands the subject	Statically Indeterminate Beams	Theoretical + practical	quiz
27th week	Theoretical + 2 practical	The student understands the subject	Statically Indeterminate Beams	Theoretical + practical	quiz
28th week	Theoretical + 2 practical	The student understands the subject	Columns	Theoretical + practical	quiz
29th week	Theoretical + 2 practical	The student understands the subject	Euler's Beam Equation.	Theoretical + practical	quiz
30th week	Theoretical + 2 practical	The student understands the subject	J.B. Johnson Beam Equation	Theoretical + practical	quiz

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Mechanics of materials By Hearn 2. Mechanics of materials By Dean Updike 3. Mechanics of materials By R.C. Hibbeler
Main references (sources)	1. Mechanics of materials By F.P. Beer 2. Mechanics of materials By Goodno and Gere
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	