

GE 201 Statics

Department of Civil Engineering King Saud University

Course Description: GE 201 Statics (Required for a BSCE degree)	Force systems; vector analysis, moments and couples in 2D and 3D. Equilibrium of force systems. Analysis of structures; plan trusses and frames. Distributed force system; centroids and composite bodies. Area moments of inertia. Analysis of beams. Friction. 3 (3,1, 0)
Prerequisite	MATH 106 and MATH 107, Prerequisite by Topics: 1. Knowledge of mathematics and physics. 2. Understanding calculus including, integration and matrices. 3. Determining the area properties of various cross sections.
Course Learning Objectives	Students completing this course successfully will be able to 1. Find moment at any point in a 2D and/or 3D structure, 2. Use equilibrium equations to analyze 2D engineering problems, 3. Draw free body diagrams of truss, beam, and frame structures, 4. Determine forces in truss structures using various methods. 5. Find the centroids and the area moment of inertias of cross sections with various geometries and composite bodies, 6. Determine shear force and moment for beams under various loading, 7. Analyze and solve frictional problems,
Topics Covered	1. Introduction (1 hr) 2. Force Systems: 2D and 3D (12 hr) 3. Equilibrium, system isolation (5 hr) 4. Analysis of trusses and frames (8 hr) 5. Distribution of forces, centroids and composite bodies (5 hr) 6. Area moment of inertias (5 hr) 7. Shear force and moment for beams (4 hr) 8. Friction (2 hr)
Class/ tutorial Schedule	Class is held three times per week in 50-minute lecture sessions. There is also a 50-minute weekly tutorial associated with this course.
Contribution of Course to Meeting the Professional Component	Students learn the analysis process to be involved in designing various engineering components used in professional engineering.
Relationship of Course to Program Outcomes	1. Students apply algebra, elementary calculus, and engineering science 2. Students are able to identify and formulate an engineering

	<p>problem and to develop a solution.</p> <ol style="list-style-type: none"> 3. Students recognize the importance of analysis in designing various engineering components. 4. Students are encouraged to submit accurate analysis in an efficient and professional way. 5. Students recognize the importance of reading and understanding technical contents in English in order to achieve life-long learning and be able to carryout their responsibilities. 6. Students recognize the importance of working in multi-disciplinary teams.
Textbook(s) and/or Other Required Material	Engineering Mechanics, Volume 1, Statics (5th edition) by J. L. Meriam and L. G. Kraige
Date	First Semester 1428-29
Instructors	Dr. Abdulrahim Arafah (Office: 2A42) Dr. Ala Malaikah (Office: 2A55) Dr. M. Iqbal Khan (Office: 2A73/3)

Grade Distribution

Mid-term Exam	35%
Lecture Quiz and Attendance	5%
Tutorial & Homeworks	10%
Final Exam	50%

Class Quiz:

Quizzes will be conducted from time to time in both lecture and tutorial classes. Tutorial marks will be based on quiz, homework and attendance.

Mid Term Exams:

First Mid-Term	Tuesday	3 Dhu Al-Qadah 1428H (13 /11/ 2007)	6:00 – 7:30 pm
Second Mid-Term	Tuesday	22 Dhu Al-Hajjah 1428H (1 /1 / 2008)	6:00 – 7:30 pm