

# 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 Outcomes**

**Students completing this course successfully will be able to**

- 1. Analyze 2D and 3D force system and calculate moment about any point/axis in a 2D and 3D structures**
- 2. Analyze truss, beam, and frame structures using equilibrium equations**
- 3. Locate centroid of regular and composite cross sections**
- 4. Evaluate area moment of inertia of engineering cross sections about different axes.**
- 5. Analyze and solve friction related equilibrium problems**

**Topics Covered**

1. Introduction (2 hrs)
2. Force Systems: 2D and 3D (15 hrs)
3. Equilibrium, system isolation (4 hrs)
4. Analysis of trusses and frames (8 hrs)
5. Distribution of forces, centroids and composite bodies (4 hrs)
6. Area moment of inertias (4 hrs)
7. Shear force and moment for simple determinate beams (3 hrs)
8. Friction (2 hrs)

**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.

**Textbook(s) and/or Other Required Material**

Engineering Mechanics, Volume 1, **Statics**,  
8<sup>th</sup> Edition, SI units Version  
by J. L. Meriam and L. G. Kraige

**Date**

First Semester 1441-42 (2020-21)

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## Grade Distribution

<b>Final Exam</b>	<b>40%</b>
<b>Semester work</b>	<b>60%</b>
Mid-term Exams	50%
Tutorial	5%
Model Demonstration (MD)	5%

### Class Quizzes and Tutorial:

Quizzes will be conducted from time to time in both lecture and tutorial classes.

Tutorial marks will be based on the best 5 quizzes: 5%

Model Demonstration (MD) will be based on attendance in MD and report writing: 5%

### **Mid Term Exams**

Mid Term Exam schedule will be announced by the College of Engineering administration.