

Outcomes Based Learning Matrix

Course: ENGT 275 Strength of Materials

Department: ENGT

Course Outcomes	Outcome Activities	Assessment Tools
Students will be able to:		
Understand the concepts and effects of materials under various loads and the effect of loads. (WC, QL, IL, CCT, Int L)	Through lecture and laboratory activities learn how various loads and stresses effect different materials.	Students comprehension of these topics will be assessed in homework and exams. Laboratory analysis of the different properties of materials and the subsequent report is also used to assess the students understanding.
Analyze structural designs subject to various forces and loads. (WC, QL, IL, CCT, Int L)	Through lecture and lab experiments students learn how the application of physics and Statics principles are used to analyze structural loading.	Students comprehension of these topics will be assessed in homework and exams. Laboratory analysis material stress properties and the subsequent report is also used to assess the students understanding.
Analyze columns and pressure vessels under various loads (WC, QL, IL, CCT, Int L)	Through lecture and laboratory experiments students will learn how pressure and compressive stress forces affect different applications.	Students comprehension of these topics will be assessed in homework and exams. Laboratory analysis of the compression of concrete columns is also analyzed.
Understand engineering responsibility and ethics as it applies to the design of machine parts and structures. (WC, QL, IL, CCT, Int L)	Through lecture students will learn about engineering ethics and the responsibility and impact and engineer can have on society.	Students comprehension of these topics will be assessed in homework and exams
Illustrate the concepts of stress and strain at a point and the stress/strain relationship. (WC, QL, IL, CCT, Int L)	Through lecture understand the different types of stress and how different materials react to this stress in terms of deformation.	Students comprehension of these topics will be assessed in homework and exams. Students will use tensile testing machines to develop a stress-strain curve of various samples and write a report on their experiment results to assess their understanding further.