MSE 370 – Mechanical Behavior of Materials

Credits and contact hours:	3 credits – 45 hrs.
Indicate: math, basic science, engineering topic or other	Engineering topic
Instructor's or course coordinator's name:	Erica Corral
Textbook, title, author and year:	Mechanical Behavior of Materials, 2nd Ed., Thomas H. Courtney, Waveland Press Inc., 2005. Mechanical Behavior of Materials, 2nd Ed., William F. Hosford., Cambridge University Press., 2010.
Other Supplemental materials:	D2L
2020-2021 catalog description:	This course focuses on the mechanical behavior of metals, ceramics and polymers in order to introduce fundamental topics of mechanical properties of materials.
Prerequisites:	MSE 222 and MSE 223R
Co-requisites:	none
Required, Elective, or Selected Elective:	Required
Instruction Outcomes:	
Student Outcomes – Listed in Criterion 3 or any other outcomes are addressed by the course:	To produce graduates who can:

✓1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

3. an ability to communicate effectively with a range of audiences

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

✓6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

✓7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Topics covered:

- Imperfections in Solids
- Mechanical Properties
- Deformation Mechanisms
- Fracture
- Fatigue
- Creep
- Composites