

- Course Number and Title: ENGR 401. Engineering Capstone I
- Catalog Description: Seniors will work in teams to apply a systematic design process to real world multidisciplinary problems. Problems selected from a broad spectrum of interest areas. Students will utilize the knowledge and skills acquired in earlier course work and incorporate appropriate engineering standards and multiple realistic constraints. Emphasis is placed on the design process, the technical aspects of the design, and the development of a prototype that meets design objectives. 1st of 2 course sequence
- Credit Hours: 3 Credits (1+6P)
- Prerequisite(s) / Corequisite(s): Prerequisite(s): M E 326 or E E 300 or (I E 316, I E 365 and I E 351)
Corequisite(s): None
- Required: Required for BSME Degree
- Course Availability: Fall Semester Only
- Instructor (Usual): Luke Nogales (See <https://et.nmsu.edu/people/people-directory.html>)
- Textbook: Ulrich, K.T., Eppinger, S.D., and Yang, M.C., *Product Design and Development*, 7th Ed., McGraw-Hill Education, 2020 (SBN-10: 1260043657 or ISBN-13: 9781260043655)
- Course Learning Objectives: After completing this course, a student should be able to:
 - 1) Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
 - 2) 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) Communicate effectively with a range of audiences.
 - 4) 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) Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
 - 6) Develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions.
 - 7) Acquire and apply new knowledge as needed, using appropriate learning strategies.

- Topics Covered:
 - Product Development
 - Project Management
 - Teamwork
 - Innovation Research
 - Industry Codes and Standards
 - Safety
 - Specifications
 - Concept Development
 - Product Architecture
 - Cost Analysis
 - Professional Development