

Course discipline/number/title: CAD 2458: Product Design

A. CATALOG DESCRIPTION

1. Credits: 5
2. Hours/Week: 2 lecture, 6 lab
3. Prerequisites (Course discipline/number): CAD 2323, CAD 2324, CAD 2358, CAD 2460
4. MnTC Goals (if any): NA

Students will learn design concepts, how to design parts, and investigate alternative design solutions. Students will then prepare a complete graphic display of solutions including an assembly drawing, details, manufacturing processes required and tooling specifications. Students will learn to calculate sheet metal bend allowance and apply those dimensions to flat layouts. Plastic mold processes will be explored. Each student will design an injection mold cavity. The class will provide a typical mechanical design experience as a member of an industrial design team. This course will be taught in a state-of-the-art facility featuring the latest release of SolidWorks. Students must receive a grade of C or better in all prerequisite courses.

B. DATE LAST REVISED (Month, year): October, 2017

C. OUTLINE OF MAJOR CONTENT AREAS:

1. Product design using SolidWorks
2. Introduction to product design
3. Design concepts
4. Create design tables using SolidWorks
5. Sheet Metal bend Allowance
6. Plastics
 - a) Injection Mold design
 - b) Plastic Processes

D. LEARNING OUTCOMES (GENERAL): The student will be able to:

1. Learn design concepts.
2. Master sheet metal bend allowance and layouts.
3. Create design tables using SolidWorks.
4. Review various plastic molding processes.
5. Create injection molds.
6. Draw detailed parts.
7. Make oral presentations.
8. Evaluate design problems.
9. Plan production methods and processes.
10. Solve problems with a practical solution.
11. Work as a team to produce a layout, detail and assembly drawing for a product design project.

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING:

Methods may include but not limited to:

1. Tests
2. Quizzes
3. Drawings
4. Project notebooks
5. Oral Presentations

G. RCTC CORE OUTCOME(S) ADDRESSED:

Personal and Professional Accountability. Students will take responsibility as active learners for achieving their educational and personal goals.

H. SPECIAL INFORMATION (if any): None