

SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Manufacturing Engineering Technology Program
Revision Date: August 2024

I. CATALOG DESCRIPTION

Course Number: MFGT2668
Course Title: Product & Machine Design
Prerequisite(s): PHYS1017 or PHYS1150, MFGT2559 and MFGT2680
Catalog Description: Analysis of practical design and production problems. Development of manufacturing and inspection procedures and the necessary equipment needed to manufacture specific products or components. Previously learned skills and concepts applied in the development of economical designs.
Credit Hours: 2
Class Hours: 0
Lab Hours: 90
Total Contact Hours: 90

II. COURSE OBJECTIVES: *Course will:*

- A. Introduce proper process for product design.
- B. Introduce Quality Function Deployment (QFD).

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

- A. Student Learning Outcomes: *Student will be able to:*
 - 1. Demonstrate their ability to conceive research, design and draw a complete set of working drawings for a product and/or a machine part based upon a certain theme to be manufactured.
 - 2. Discuss a group project with other students to work towards a common goal.
 - 3. Illustrate file management with the use of the file vault.
- B. General Education Learning Outcomes (GELOs)
 - 1. GELO #3: Critical Thinking & Problem Solving
Outcome 1: Collect, identify, interpret and analyze data.

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

- A. The students design project will consist of parametric dynamic solid models. The project will be created using current standards. Design considerations will cover the areas of form, fit and functionality of the assembly. Special emphasis will be placed on the manufacturing process and the economics of manufacturing of the project.

V. INSTRUCTIONAL MATERIALS

- A. Required Text(s): *Machinery's Handbook* (current edition –see instructor)
- B. Other Resources:
 - 1. Supplemental handouts supplied by instructor
 - 2. Graph Paper 8 ½" by 11" (either 4 squares/inch or 5 squares/inch is recommended)
 - 3. Notebook 8 ½" by 11" (100 pages minimum)

VI. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 - 1. Lecture
 - 2. Small and large group discussion
 - 3. Video presentation
 - 4. Demonstrations
 - 5. Handouts
 - 6. Observations
 - 7. Assigned lab projects
 - 8. Field trips

VII. METHODS OF EVALUATION (*course outline will provide more detailed information*)

- A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
 - 1. Notebook (if required)
 - 2. Quizzes
 - 3. Tests
 - 4. Lab grades

VIII. SPECIFIC COURSE REQUIREMENTS:

- A. Completion of all tests, projects, assignments, and notebook (if required).
- B. Must earn a final grade of 60% (1.0) or higher.
- C. Program shop safety rules will be followed. **Please see the course outline for any additional safety rules established by the instructor.**