

Common Course Outline
DFAB 102
Advanced Digital Fabrication
3 Credits

Community College of Baltimore County

Description

DFAB 102 - Advanced Digital Fabrication presents advanced fabrication principles using digital design and prototyping as a problem solving tool. These principles include advanced knowledge of each machine's operation and a working knowledge of the related software. This class introduces students to supplemental skills such as casting, microcontrollers, 3-D scanning and other complex fabrication processes and design strategies.

3 Credits: 2 lecture hours and 2 lab hours

Prerequisites: DFAB 101 and CADD 242 or consent from program coordinator.

Overall Course Objectives

Upon completion of this course the students will be able to:

1. utilize digital fabrication equipment to produce a product;
2. identify the appropriate software for the product;
3. provide examples of contemporary design and fabrication strategies;
4. choose the proper material including any non-traditional or composite material for the product;
5. compare production methods and discuss the most effective process for the product;
6. determine when to use complex processes such as double sided machining, jigs, fixtures, molding, casting; or adding electronic components;
7. define and utilize fundamental construction principles such as dimensional stability, material properties and part tolerances; and
8. apply the complementary features of different fabrication methods.

Major Topics

- I. Equipment Safety
- II. Digital Fabrication Software
- III. Digital Fabrication Equipment
- IV. 3-D Designs and 3-D Design Software
- V. 3-D Project Creation
- VI. 3-D Object Scanning
- VII. Castings
- VIII. Electronic Components
- IX. Project Assembly
- X. Manufacturing Processes

Course Requirements

Grading/Exams:

Grading procedures will be determined by the individual faculty member and will be provided on the first day of class.

The following will be required for this course:

- Project utilizing each machine designed and built by the student, responding to a prompt from the instructor.
- Minimum of two quizzes
- Midterm exam
- Written comprehensive exam with final project
- Minimum of five homework assignments

Students are required to utilize appropriate academic resources.

Other Course Information

This course is a Design, Fabrication, & Advanced Manufacturing core course, and an elective for other degree programs. Portions of this class will be taught in a lab environment.