Common Course Outline
DFAB 101
Digital Fabrication Fundamentals
3 Credits

Community College of Baltimore County

Description

DFAB 101 – Digital Fabrication Fundamentals introduces basic fabrication principles using digital design and prototyping as a problem-solving tool. The students develop a working knowledge of the operation of a variety of fabrication equipment and related design and machine operating software. Emphasis on critical thinking allows the students to evaluate their ideas and consider the practical implications of taking a digital design to the prototyping stage. Lab assignments provide an opportunity to design and then fabricate a project on the equipment.

3 credits: 2 hours lecture and 2 hours lab

Prerequisites: CADD 101 or the consent of the program coordinator.

Overall Course Objectives

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

1. describe the different pieces of fabrication equipment and how they are used;
2. explain the various types of software that can be used for digital fabrication;
3. identify the best way to make a prototype when presented with a digital design;
4. apply fundamental construction principles such as dimensional stability;
5. recognize the implications of mass manufacturing when designing a prototype;
6. operate the machines to produce prototypes;
7. test prototypes for form and fit; and
8. discuss how digital fabrication is implemented in other fields.

Major Topics

I. Safety
II. Digital Fabrication Software
III. Digital Fabrication Equipment
IV. Materials
V. Design Manipulation
VI. File Formats
VII. Design Concepts
VIII. Manufacturing Concepts
IX. Open-Source Design Software

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 on multiple machines designed and built by the student, responding to a prompt from the instructor. Each prompt is developed for the student to create a design utilizing each machine's strengths and limitations
- Minimum of two quizzes
- Midterm exam
- Written comprehensive exam with a final project
- Minimum of five homework assignments

Students are required to utilize appropriate academic resources.

Other 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.

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