

CAMM 231

Integrated Fabrication and Design/Build Technology

3 Credits (2 lecture hours, 2 lab hours)

Community College of Baltimore County

Common Course Outline

Description

CAMM 231 – Integrated Fabrication and Design/Build Technology: includes the opportunity to work as a team to demonstrate proficiency in fabrication software, equipment, materials, and techniques. Students design and fabricate a series of modules or components to be assembled into a larger system as might be seen in manufacturing. Projects incorporate contemporary design and fabrication strategies such as tool-free assembly, zero waste, and flat-pack systems.

Pre-requisites: CAMM 131, CADD 242 and CAMM 111

Overall Course Objectives

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

1. utilize digital fabrication tools to design and create a comprehensive project;
2. incorporate contemporary design strategies into a comprehensive project;
3. formulate fabrication strategies;
4. demonstrate contemporary manufacturing strategies, including zero waste, tool-free assembly, press-fit and slip-fit assemblies, and flat-packing;
5. demonstrate fundamental principles of manufacturing, including dimensional stability and tolerances;
6. apply strategies for product development, “time-to-market,” technology commercialization, production, distribution, and operations;
7. incorporate designed and built components into a team project;
8. examine industry obligations, both ethical and legal, to environmental stewardship, regulation compliance, and social responsibility;
9. implement strategies for reducing waste, cost, and time;
10. evaluate a project to choose the most appropriate tools, materials, and fabrication techniques;
11. develop an effective business plan including a cost/benefit model, production plan, and distribution plan; and
12. analyze case studies and recommend resolution strategies for real-world applications.

Major Topics

- I. Safety

The Common Course Outline (CCO) determines the essential nature of each course.
For more information, see your professor’s syllabus.

- II. Group Project Procedures
- III. Project Design
- IV. Project Assembly
- V. Flat-Pack Procedures
- VI. Digital Fabrication Techniques
- VII. Digital Design Techniques
- VIII. Electronic Design Techniques
- IX. Equipment Operation in the Fab Lab and Manual Machine Shop

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Four quizzes
- Eight homework assignments
- Midterm exam
- Final exam
- Final group project

Other Course Information

This class will be taught in a fabrication lab.

Date Revised: 1/5/2021