



# UMBC

## Post Baccalaureate Certificate in Integrated Product Development and Manufacturing

**Post Baccalaureate Certificate:**  
*Integrated Product Development  
and Manufacturing*



### **INTEGRATED PRODUCT DEVELOPMENT AND MANUFACTURING - A PROFESSIONALLY-FOCUSED AND RELEVANT GRADUATE CERTIFICATE**

- » Gain technical expertise in key aspects of product realization.
- » Learn the organizational, logistic, and technical requirements of current manufacturing processes and methods.
- » Acquire hands-on experience with a selection of fabrication tools/processes.

### **WHEN YOU CHOOSE UMBC PROFESSIONAL PROGRAMS, YOU CAN COUNT ON:**

- » Courses developed and taught by industry experts and designed to address real-world problems in the workplace.
- » Programs that bring the real-world experiences of students and faculty into the classroom.
- » Curriculum that focuses on the manufacturing processes involved in product development.
- » Flexible evening class schedule that accommodates working professionals.
- » Wide-ranging resources offered at a top-notch public research university.

### **WHY UMBC?**

- » UMBC provides a comprehensive and quality education at a manageable cost.
- » UMBC is classified by the Carnegie Foundation as a Research University (High Research Activity).
- » UMBC is uniquely positioned to provide education and training that respond to the state's need for qualified technical professionals in the engineering field.
- » The 2017 U.S. News & World Report Best Colleges guide ranks UMBC in the top five on its closely-watched Most Innovative Schools list and has recognized UMBC as a global leader in higher education.

**ipdm.umbc.edu**

**For program information:**  
Dr. Toby Gouker  
Interim Program Director  
tgouker@umbc.edu

**For application information:**  
Kim Edmonds  
Program Manager  
kedmonds@umbc.edu | 410-455-3445

## ADMISSIONS REQUIREMENTS

- » A bachelor's degree in a technical background, marketing, industrial design and similar disciplines. Note: Engineering background not necessary with appropriate experience
- » 3-5 years experience in product and systems development
- » Minimum undergraduate GPA of 3.0 on a 4.0 scale

## ADMISSIONS DEADLINES

Fall: August 1

Spring: December 1

For detailed application process please visit [ipdm.umbc.edu](http://ipdm.umbc.edu)

**Office of Professional Programs**  
UMBC's Office of Professional Programs offers a broad array of professionally focused master's degree and certificate programs that address industry needs while anticipating future opportunities.  
[professionalprograms.umbc.edu](http://professionalprograms.umbc.edu)

# Post-Baccalaureate Certificate:

## *Integrated Product Development and Manufacturing* 12 Credits (4 courses)

### REQUIRED COURSES 12 CREDITS

#### **ENME 615: Product Development**

This course will address the methods and processes for developing new products, defining market opportunities, product planning, product design and manufacturing. Topics covered will include market research and collecting user requirements, translation of user needs into product specifications, prototyping/market testing to evaluate product concepts, product design, manufacturing planning, and product launch. This should be the first course a student takes in the certificate program.

#### **ENME 616: Manufacturing Operations**

This course will cover the process of translating a prototype into a viable product; specifically focusing on the business/operational aspects of product development and manufacturing. Topics covered will include manufacturing process planning, 3 statistical process control and six sigma, product testing, lean manufacturing, and supply chain management.

#### **ENME 617: Advanced Manufacturing Processes**

The focus of the course is for the students to develop an understanding of the design for manufacturing and assembly (DFMA) process, specifically how to select a fabrication process for a particular component/application and then optimize the design for that process. The course will cover the spectrum of manufacturing processes, from prototyping and digital fabrication methods to machining and injection molding and will include hands-on fabrication of components using a variety of fabrication methods (machining, digital fabrication, injection molding).

#### **ENME 618: Organizational Management for Product Design & Manufacturing**

The course will cover management of the product development process and crossfunctional product development teams. It will include organizational structures, personality profiles and diversity, management practices, the challenges of crossfunctional team dynamics, project management tools, earned value, and fundamentals of budgets/accounting.



Please consult [ipdm.umbc.edu](http://ipdm.umbc.edu) for typical schedule.