

# MET-3840: SMART MANUFACTURING INTERNSHIP II

## Cuyahoga Community College

### Viewing: MET-3840 : Smart Manufacturing Internship II

**Board of Trustees:**

January 2024

**Academic Term:**

Fall 2024

**Subject Code**

MET - Mech Eng/Manuf Ind Eng Tech

**Course Number:**

3840

**Title:**

Smart Manufacturing Internship II

**Catalog Description:**

Introduces concepts of entrepreneurship and entrepreneurial thinking applied to Industry 4.0. Using a hands-on learning approach coupled with a paid internship, this course teaches key skills in entrepreneurship that students can utilize in launching startup technology businesses or executing new product development ventures. 180 hours of approved work is required.

**Credit Hour(s):**

1

**Lecture Hour(s):**

1

**Lab Hour(s):**

0

**Other Hour(s):**

180

### Requisites

**Prerequisite and Corequisite**

Department approval: Satisfactory completion of MET-3830 and approval of internship position and location.

### Outcomes

**Course Outcome(s):**

Explore the idea of entrepreneurship and its impact on modern manufacturing.

**Objective(s):**

1. Develop an understanding of the Innovation Economy of Ohio and the opportunities available for manufacturing entrepreneurship.
2. Develop an appreciation and understanding of the importance of developing personal business relationships with professionals in various sectors of manufacturing.

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**Course Outcome(s):**

Examine the entrepreneurial process to include idea generation and feasibility exploration as applied to the manufacturing enterprise.

**Objective(s):**

1. Evaluate marketing opportunities related to the expanding regional manufacturing environment.
2. Calculate the relationship between risk and opportunities and expected return on investment.

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**Course Outcome(s):**

Create and present a business plan for a technology idea.

**Objective(s):**

1. Learn fundamentals of soliciting business or project start-up funds.
2. Evaluate means of structuring and growing a business using marketing, sales, and distribution strategies.
3. Understand the value of partnering for success and the power dynamic inherent to a diverse team of business stakeholders.

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**Methods of Evaluation:**

1. Written evaluation completed by work site supervisor.
2. Work records maintained by student.
3. Communications between the instructor and work site supervisor.
4. Student narrative of internship experience.
5. Other assignments as directed by instructor.

**Course Content Outline:**

1. Introduction to Entrepreneurship
  - a. Introduction to Technology
  - b. Entrepreneurship and Technology Ventures
  - c. Attributes of Successful Entrepreneurs
  - d. Manufacturing and Engineering Entrepreneurs
  - e. The Mindset of the Entrepreneurial Leader
  - f. Creating and Selling the Entrepreneurial Value Proposition
2. Idea Generation and Feasibility Analysis
  - a. Entrepreneurial Idea Generation and Feasibility Analysis
  - b. Technology Commercialization Potential
  - c. Paths and Barriers from Idea to Market
  - d. Assessing and Presenting an Opportunity
3. Business Planning and Execution
  - a. Business Structuring and Strategy
  - b. Business Planning and the Business Plan
  - c. Financial Analysis and Projections
  - d. Market and Competitive Analysis
  - e. Presentation of the Opportunity
  - f. Intellectual Property Strategies for Technology Companies
  - g. Marketing, Sales, and Distribution Strategies
  - h. Investment and Financial Strategies
  - i. Venture Growth and Value Harvesting

Supervised field experience at a manufacturing facility. 180 clock hours per semester spent gaining practical, hands-on, professional work experience as a manufacturing engineer trainee. The Program Manager and/or Manufacturing CoE Instructor must approve student internship sites. The instructor will meet with the student at their work site to evaluate the student according to prescribed objectives of the course.

**Resources**

Byers, Thomas H., Richard C. Dorf and Andrew J. Nelson. *Technology Ventures: From Idea to Enterprise*. 5th ed. McGraw-Hill, 2018.

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De La Guardia, Rick. *Engineer to Entrepreneur: Success Strategies to Manage Your Career and Start Your Own Firm*. 1st ed. ASCE, 2016.

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Sides, Charles H. and Ann Mrvica. *Internships: Theory and Practice*. 1st ed. Routledge, 2017.

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Sweitzer, H. Frederick and Mary A. King. *The Successful Internship*. 5th ed. Cengage Learning, 2018.

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*Tri-C Cooperative Education Student Handbook.* <https://www.tri-c.edu/career-services/student-career-services/documents/tric-coop-studentbook-lowres.pdf>

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