ATMT-1809: SPECIAL TOPICS: INTRODUCTION TO MANUFACTURING

Cuyahoga Community College

Viewing: ATMT-1809 : Special Topics: Introduction to Manufacturing

Board of Trustees:
JUNE 2026

Academic Term:
Fall 2026

Subject Code
ATMT - Appd Ind Tech-ManufacturingTec

Course Number:
1809

Title:
Special Topics: Introduction to Manufacturing

Catalog Description:
This course is designed to show students the reality of modern manufacturing of new innovation, making an impact, and a chance to play a role in the future. It will provide activities to expand students' knowledge and awareness of the manufacturing industry; and discover how diverse the careers are in design, engineering, or even the business side of the industry.

Credit Hour(s):
2

Lecture Hour(s):
1

Lab Hour(s):
2

Requisites

Prerequisite and Corequisite
None.

Outcomes

Course Outcome(s):
Apply basic math concepts, operations, and blueprint reading to determine the tools needed to fabricate products accurately.

Essential Learning Outcome Mapping:
Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

Objective(s):
1. Describe precision measurement and layout.
2. Use basic measuring tools.
3. Explain the applications of hand tools.
4. Use hand tools correctly.
5. Describe how to use basic measuring tools correctly.
6. Explain how math is applied and used in the fabrication of products.

Course Outcome(s):
Apply critical thinking to assemble products from blueprints using safe and proper techniques in a collaborative environment.

Essential Learning Outcome Mapping:

Critical/Creative Thinking: Analyze, evaluate, and synthesize information in order to consider problems/ideas and transform them in innovative or imaginative ways.

Objective(s):

1. Explain the manufacturing pathways.
2. Demonstrate knowledge and exposure to the manufacturing industry through experiential learning.
3. Demonstrate standard shop safety practices.
4. Demonstrate assembly from blueprints.
5. Demonstrate organization, communication, and teamwork.
6. Use appropriate personal protective equipment.
7. Explain entry-level career opportunities in manufacturing, construction, and welding.

Methods of Evaluation:

1. Hands-on labs
2. Attendance
3. Assignments
4. Participation
5. Exams

Course Content Outline:

1. Exposure to the manufacturing industry
    a. Overview of modern manufacturing and innovation
    b. Understanding the impact of manufacturing on society and industry
    c. Experiential learning activities related to manufacturing pathways
2. Practice professional workplace skills
    a. Organization
        i. Maintain an orderly and efficient workspace
        ii. Follow established procedures and instructions
    b. Communication
        i. Communicate clearly with instructors and peers
        ii. Share information effectively during lab and team activities
    c. Teamwork
        i. Work cooperatively in group settings
        ii. Demonstrate responsibility and accountability in team tasks
3. Demonstrate standard shop safety practices
    a. Identify shop hazards
    b. Follow safety rules and procedures
    c. Use appropriate personal protective equipment (PPE) at all times
4. Use hand tools correctly
    a. Identify common hand tools
    b. Demonstrate proper and safe use of hand tools
    c. Explain appropriate applications of each tool
5. Use basic measuring tools
    a. Identify basic measuring instruments
    b. Perform accurate measurements
    c. Apply precision measurement and layout techniques
6. Apply basic math and blueprint concepts
    a. Use basic math operations related to manufacturing tasks
    b. Read and interpret basic blueprints
    c. Determine required tools and materials from drawings
7. Assemble products from assembly blueprints

a. Interpret assembly instructions and drawings
b. Apply critical thinking to solve assembly challenges
c. Demonstrate accuracy and quality during assembly processes

8. Explore entry#level career pathways
   a. Introduction to careers in manufacturing
   b. Overview of construction and welding opportunities
   c. Discussion of entry#level expectations and skill requirements

Religious Accommodation

Before reviewing the course schedule, students should carefully review the following religious accommodation policy and other required instructional policies:

Religious Accommodation:

Students seeking an accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor with written notice of the specific dates for which the student requires an accommodation and must do so not later than fourteen (14) days after the first day of instruction. Please submit requests for accommodations at this link: https://portal2.tri-c.edu/ReligiousAccommodation/ Religious Accommodation Form. Students with questions about their religious accommodations under Ohio's Testing Your Faith Act may contact the College's Office of General Counsel and Legal Services by phone at 216.987.4856 or via email at legal@tri-c.edu.

Other Required Instructional Policies:

https://www.tri-c.edu/student-resources/curriculum/documents/syllabus-part-b.pdf

Weekly Schedule

	Topics
Week 1	Introduction to the machine shop
Week 2	Safety
Week 3	Basic Measurement
Week 4	Basic Measurement
Week 5	Basic blueprints
Week 6	Basic blueprints
Week 7	Review
Week 8	Exam
Week 9	Threaded Fasteners
Week 10	Hand tools
Week 11	Assembly Drawings
Week 12	Portable machine tools
Week 13	Application of tools
Week 14	Application of tools
Week 15	Review
Week 16	Final exam/evaluation

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Required/Recommended Readings

Instructor-provided materials

Resources for the Instructor

Hoffman, Peter and Eric Hopewell. *Precision Machine Technology*. Cengage Learning, 2019.

Additional Resources for the Instructor

https://ntma.org/

https://ntma.org/training-and-education/

Top of page
Key: 4841