

COURSE SYLLABUS

Course Number: TBD

Course Title: Introduction to Manufacturing Technology

Course Pre-requisites: None

Structure of Course: 45/0/0/0

Credit Hours: 4.5 QTR. 3.0 SEM.

Class Hours: 45

Lab Hours: 0

Total Contact Hours: 45

Course Description: Introduce students to theory and operation of manufacturing including manufacturing processes and equipment overview, manufacturing design, production process and flow, materials, machine operations and logistics.

Textbook: Tooling U-SME Online resource

I. COURSE OBJECTIVES

Course will:

- A. Introduce the student to processes and equipment utilized in the manufacturing environment.
- B. Compare and contrast different material types and their application.
- C. Introduce the concepts of production monitoring and control processes.
- D. Explain different forms of production logistics in a manufacturing process.

II. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. STUDENT LEARNING OUTCOMES

Student will be able to:

1. Identify the different stages of a manufacturing process.
2. Interpret the elements of the product design process.
3. Identify the common machines used in a manufacturing process.
4. Explain the operations and capabilities of machines used in manufacturing.
5. Determine the operations used in finishing manufactured products.
6. Explain the operations and capabilities of automated machines used in manufacturing.
7. Interpret the functionality of base lining and documentation in a manufacturing process.
8. Determine the main elements of quality assurance in a process.
9. Identify characteristics of end product logistics.

B. GENERAL EDUCATION LEARNING OUTCOMES

1. Communicate Effectively: The ability to confidently communicate in writing, speaking, reading and listening and coherently for a specific purpose and audience, while using and acknowledging sources effectively.
2. Thinking Critically: The ability to examine data, ideas, issues and arguments; understand and evaluate assumptions and evidence; and reach logically valid conclusions.

III. CONTENT/TOPICAL OUTLINE

A. Manufacturing Process Overview

1. Product concepts
2. Market feasibility
3. Engineering design
4. Prototyping
5. Production
6. Marketing/sales

B. Manufacturing Design

1. Product analysis
 - a. Materials
 - b. Cost
2. Production methods
 - a. Assembly lines
 - b. Work cells
 - c. Inventory
 - d. Work flow
3. Quality control
 - a. Production monitoring
 - b. Product testing

C. Production Processes

1. Machine and process overviews
 - a. Boring and machining
 - b. Presses
 - c. Molding/Casting
 - d. Welding
 - e. Finishing
 - f. Assembly
2. Materials
 - a. Applicable types
 - b. Cost
 - c. Availability

D. Production Machine Operations

1. Presses
2. Molding/Casting
3. Drilling/Boring
4. Machining
5. Welding
6. Finishing
7. Advanced Intelligence Automation
8. Programmable Logic Controllers

E. Production Monitoring

1. Monitoring production processes
 - a. Baselines
 - b. Environmental control
2. Quality improvement
 - a. Production improvement

F. Finished Product Logistics

1. Delivery methods
2. Delivery options
3. Customer interaction

IV. INSTRUCTIONAL MATERIALS

- A. Required Text(s): See Instructor
- B. Other Resources: Access to toolingu.com and additional resources as necessary

V. METHODS OF PRESENTATION/INSTRUCTION

- A. Methods of presentation typically include a combination of the following:
 1. Lecture
 2. Computer based

VI. METHODS OF EVALUATION

- A. Methods of evaluation typically include a combination of the following:
 1. Unit Tests
 2. Quizzes
 3. Lab Grade
 4. Attendance: Regular, punctual attendance is required in all credit courses. Each instructor will inform students by means of a syllabus of attendance requirements at the first class meeting. Any class or lab session missed, regardless of cause, reduces the opportunity for learning and may affect achievement.

Students are responsible for all instruction missed, regardless of the reason for the absence. The student will be held responsible for notifying the instructor of any anticipated absences. The instructor has the prerogative to decide whether the student will be permitted to make up work missed during the absence.

Attendance Contract: Each instructor shall provide, in writing, to each student on the first day of each class the specific rewards and/or consequences related to attendance in his/her class. This "Attendance Contract" shall also identify, for each class, the definitions of tardies, absences and specific expectations of each student with regard to attendance in that class.

These "Attendance Contracts" will be signed and returned to the instructor within two class periods. If a student fails to return the signed attendance contract within the two days stated above, it is assumed the student agrees with the instructor's attendance policy.