

Introduction to Manufacturing: Course Syllabus

Introduction to Manufacturing: Product Design & Innovation

COURSE DESCRIPTION:

Think about the last time you visited your favorite store. Have you ever wondered how the products you buy make it to the store shelves? Whether it's video games, clothing, or sports equipment, the goods we purchase must go through a manufacturing process before they can be marketed and sold. In this course, you'll learn about the types of manufacturing systems and processes used to create the products we buy every day. You'll also be introduced to the various career opportunities in the manufacturing industry including those for engineers, technicians, and supervisors. As a culminating project, you'll plan your own manufacturing process for a new product or invention! If you thought manufacturing was little more than mundane assembly lines, this course will show you just how exciting and fruitful the industry can be.

Unit 1: Introduction to Manufacturing

After studying this unit, you will be able to:

- * Identify the disciplines within the field of manufacturing—including engineering, science, and technology—and understand how they work together to achieve a final goal.**
- * Identify manufacturing processes, such as input, output, and feedback.**
- * Distinguish between different types of manufacturing methods and processes.**
- * Discuss the steps in the risk management process.**

ASSIGNMENTS:

**Introduction to Manufacturing: Unit
Text Questions**

Homework

10 points

Introduction to Manufacturing Unit #1 Activity #1	<i>Activity</i>	15 points
Introduction to Manufacturing: Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 1 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 1 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 1 Quiz – Introduction to Manufacturing	<i>Quiz</i>	15 points

Unit 2: Success in Manufacturing, Part 1: Soft Skills

After studying this unit, you will be able to:

- * **Discuss regulations and expectations in the workplace.**
- * **Demonstrate communication techniques necessary to succeed in manufacturing.**
- * **Define work ethic.**
- * **Use time-management techniques.**
- * **Explain how negotiation affects conflict resolution.**

ASSIGNMENTS:

Success in Manufacturing, Part 1: Soft Skills: Unit Text Questions	<i>Homework</i>	10 points
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Introduction to Manufacturing Unit #2 Activity #1	<i>Activity</i>	15 points
Success in Manufacturing, Part 1: Soft Skills: Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 2 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 2 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 2 Quiz – Success in Manufacturing, Part 1: Soft Skills	<i>Quiz</i>	15 points

Unit 3: Success in Manufacturing, Part 2: Teamwork

After studying this unit, you will be able to:

- * **Describe how teams function together, solve problems, and measure results.**
- * **Identify team roles.**
- * **Discuss theories of motivation.**
- * **Identify the stages of team development.**

ASSIGNMENTS:

Success in Manufacturing, Part 2: Teamwork: Unit Text Questions	<i>Homework</i>	10 points
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Introduction to Manufacturing Unit #3 Activity #1	<i>Activity</i>	15 points
Success in Manufacturing, Part 2: Teamwork: Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 3 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 3 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 3 Quiz – Success in Manufacturing, Part 2: Teamwork	<i>Quiz</i>	15 points

Unit 4: Success in Manufacturing, Part 3: Manufacturing Applications (Hard Skills)

After studying this unit, you will be able to:

- * **Discuss roles and tasks common in the manufacturing industry.**
- * **Describe quality and how it is measured in manufacturing.**
- * **Discuss how inventory is managed in the manufacturing industry.**
- * **Evaluate different quality control applications in manufacturing.**
- * **Define work systems design and human resource management.**

ASSIGNMENTS:

Success in Manufacturing, Part 3: Manufacturing Applications (Hard Skills): Unit Text Questions	<i>Homework</i>	10 points
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Introduction to Manufacturing Unit #4 Activity #1	<i>Activity</i>	15 points
Success in Manufacturing, Part 3: Manufacturing Applications (Hard Skills): Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 1 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 1 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 4 Quiz – Success in Manufacturing, Part 3: Manufacturing Applications (Hard Skills)	<i>Quiz</i>	15 points

Introduction to Manufacturing Midterm Exam

Learning Objectives:

- * **Review information acquired and mastered from this course up to this point.**
- * **Take a course exam based on material from the first four units in this course**
(Note: You will be able to open this exam only one time.)

ASSIGNMENT:

Introduction to Manufacturing Midterm Exam	<i>Exam</i>	50 points
Midterm Discussion Assignment	<i>Discussion</i>	5 points

Unit 5: Success in Manufacturing, Part 4: Engineering Applications (Hard Skills)

After studying this unit, you will be able to:

- * Analyze engineering concepts.
- * Describe and produce engineering drawings.
- * Compare and contrast lean manufacturing and lean engineering.
- * Define manufacturing engineering and systems engineering.

ASSIGNMENTS:

Success in Manufacturing, Part 4: Engineering Applications (Hard Skills): Unit Text Questions	<i>Homework</i>	10 points
Introduction to Manufacturing Unit #5 Activity #1	<i>Activity</i>	15 points
Success in Manufacturing, Part 4: Engineering Applications (Hard Skills): Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 5 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 5 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 5 Quiz – Success in Manufacturing, Part 4: Engineering Applications (Hard Skills)	<i>Quiz</i>	15 points

Unit 6: Workplace Safety

After studying this unit, you will be able to:

- * Discuss workers' rights.**
- * Evaluate hazards manufacturing employees face.**
- * Identify government regulations that protect workers in the manufacturing industry.**
- * Explain how to identify and dispose of hazardous material.**

ASSIGNMENTS:

Safety in Manufacturing: Unit Text Questions	<i>Homework</i>	10 points
Introduction to Manufacturing Unit #6 Activity #1	<i>Activity</i>	15 points
Safety in Manufacturing: Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 6 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 6 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 6 Quiz – Safety in Manufacturing	<i>Quiz</i>	15 points

Unit 7: Careers in Manufacturing

After studying this unit, you will be able to:

- * Analyze the various specializations in manufacturing.**
- * Identify the education and training required for various careers in manufacturing.**
- * Report on a specific career in the manufacturing industry.**
- * Evaluate personal career goals.**

ASSIGNMENTS:

Careers in Manufacturing: Unit Text Questions	<i>Homework</i>	10 points
Introduction to Manufacturing Unit #7 Activity #1	<i>Activity</i>	15 points
Careers in Manufacturing: Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 7 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 7 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 7 Quiz – Careers in Manufacturing	<i>Quiz</i>	15 points

Unit 8: Culminating Manufacturing Project

After studying this unit, you will be able to:

- * Discuss the stages of new product development.**
- * Examine how companies have new products manufactured.**
- * Describe effective marketing techniques.**
- * Participate in the operation of a manufacturing project.**

ASSIGNMENTS:

Culminating Manufacturing Project: Unit Text Questions	<i>Homework</i>	10 points
Culminating Manufacturing Project: Investor Presentation Activity	<i>Activity</i>	15 points
Culminating Manufacturing Project: Online Introduction to Manufacturing Lab Questions	<i>Homework</i>	10 points
Unit 8 Discussion Assignment 1	<i>Discussion</i>	5 points
Unit 8 Discussion Assignment 2	<i>Discussion</i>	5 points
Unit 8 Quiz – Culminating Manufacturing Project	<i>Quiz</i>	15 points

Introduction to Manufacturing Final Exam

Learning Objectives:

- * Review information acquired and mastered from this course up to this point.
- * Take a course exam based on material from units five to eight in this course – the last four units. (Note: You will be able to open this exam only one time.)

ASSIGNMENT:

Introduction to Manufacturing Final Exam	<i>Exam</i>	50 points
Class Reflection Discussion Assignment	<i>Discussion</i>	10 points