



monarch

Curriculum Catalog

Career and Technical Education Series

Careers in Manufacturing Processes

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Careers in Manufacturing Processes Course Overview

Careers in Manufacturing Processes concerns the manufacturing process, from the conception of a new product through the prototype stage to fabrication, assembly, testing, and customer satisfaction. Manufacturing is the beating heart of American enterprise. Indeed, it is the heart of the economy of any advanced industrialized nation. This course examines every aspect of the manufacturing process from strategy and management to factory-floor tactics.

Objectives

- Analyze means for achieving excellence in a manufacturing company.
- Develop skills to draw up a manufacturing plan and schedule.
- Chart the manufacturing skills needed to research and create products that address the needs of current and future customers.
- Apply market research, analytical skills, and financial understanding to the concepts of entrepreneurial endeavors in manufacturing.
- Analyze engineering, quality, and manufacturing responsibilities needed to build an excellent process and team approach.
- Recognize the need for accurate records and for making decisions based on data and facts.
- Analyze data, records, and budgets to determine optimal business and management strategies for the company.
- Develop interpersonal, communication, and critical thinking skills to work in teams and to use the skills of all team members.
- Chart the job and skill types that create manufacturing processes from conception to postpurchase.
- Instruct others on the basics of maintaining safe working environments.
- Analyze the cultures of high-performing companies, and differentiate among various kinds of continuous improvement and lean manufacturing strategies.
- Analyze fabrication, assembly, inspection, and testing as they combine in a value stream to produce a quality product meeting or even exceed customer expectations.
- Analyze the function and requirements of product service in the field and warranty work on products and how these two activities affect budgets and manpower.

Unit 1: Introduction to Manufacturing and Corporate Culture				
Assignments				
Careers in Manufacturing Processes	1.	Course Overview	10.	Market Research and Core Competencies
	2.	Introduction to Manufacturing and Corporate Culture	11.	Project: Preparing to Work with Your Dream Company
	3.	The Economic Impact of Manufacturing	12.	Moving Forward into Preproduction
	4.	Project: Learning about a Manufacturing Company	13.	Quiz 2: Customers and Manufacturing
	5.	The Manufacturing Career	14.	Special Project*
	6.	Project: Looking at Work, Looking for Work	15.	Test
	7.	Quiz 1: The Role of Manufacturing	16.	Course Project Part 1: Introduction of Your Product or the Improvement to a Product*
	8.	Customers' Values and Needs	17.	Glossary and Credits
	9.	Project: My Product to Improve the World		

Unit 2: Product Development Phase	
Careers in Manufacturing Processes	Assignments
	1. The Product Development Process
	2. Organizing a Product Development Team
	3. Project: Picking a Manufacturing Career
	4. The Evaluation of Alternative Designs Using 3P
	5. Project: What Do Others Think of an Idea?
	6. Quiz 1: Developing a Product
	7. Building and Testing Prototypes
	8. Prototype Flow from Procurement to Testing
	9. Project: Prototype Project Manager for an Industrial Dishwasher
	10. Release to Production
	11. Project: Project Assessment for Overseeing Testing of a Bicycle Trailer
	12. Quiz 2: Prototypes and Preproduction Testing
	13. Special Project*
	14. Test
	15. Course Project Part 2: Prototype Phase*
16. Glossary and Credits	

Unit 3: Production I	
Careers in Manufacturing Processes	Assignments
	1. Production Planning
	2. Bill of Materials and Cost Collection
	3. Project: Bill of Materials and Cost Collection for a Fundraiser
	4. Lean Manufacturing
	5. Project: A System of Profound Knowledge
	6. Quiz 1: Planning Production
	7. Production Procurement
	8. Project: Creating Documentation
	9. Scheduling Material
	10. Identifying Critical Parts and Materials
	11. Project: Researching Supply Chain Risk
	12. Quiz 2: Procurement
	13. Special Project*
	14. Test
	15. Course Project Part 3: Staffing*
16. Glossary and Credits	

Unit 4: Production II	
Careers in Manufacturing Processes	Assignments
	1. Core Competencies and Production
	2. Project: Investigate the Flexible Manufacturing System (FMS)
	3. Manufacturing Processes, Safety, and Jobs
	4. Core Competencies and Production
	5. Project: Working with TIM WOOD
	6. Quiz 1: The Manufacturing Process
	7. Assembly and Testing
	8. Quality and Safety
	9. Project: Ways OSHA Promotes Worker Safety
	10. Continuous Improvement
	11. Project: Baldrige Award Winners and How They Won
	12. Quiz 2: Assembling and Testing Products
	13. Special Project*
	14. Test
	15. Course Project Part 4: Production Phase*
16. Glossary and Credits	

Careers in Manufacturing Processes	Unit 5: Customer Service: Before Delivery to After Delivery	
	Assignments	
	1. Customer Acceptance	10. Customer Satisfaction and Delight
	2. Project: Career Choices	11. Project: Customer Delight at a Car Accessories Store
	3. The Packing Process	12. Quiz 2: After Delivery
	4. Project: Dunnage	13. Special Project*
	5. Shipping	14. Test
	6. Quiz 1: Delivering the Product	15. Course Project Part 5: Delivery*
	7. Field Service	16. Glossary and Credits
	8. Project: Creating a Field Service Department	
9. Warranty Service		

Careers in Manufacturing	Unit 6: Course Project, Review, and Exam	
	Assignments	
	1. Course Project Part 6: Corporate Responsibility*	3. Exam
	2. Review	

(*) Indicates alternative assignment