CONTENTS IN BRIEF

UNIT 1 THE WORLD OF MANUFACTURING
Chapter 1 Careers in Manufacturing ........................................ 24
Chapter 2 Trends in Manufacturing ........................................ 48
Chapter 3 Inside the Manufacturing Workplace ...................... 66

UNIT 2 A SAFE & PRODUCTIVE WORKSPACE
Chapter 4 Safety Practices ................................................. 94
Chapter 5 Communication Skills ........................................ 126
Chapter 6 Teamwork Skills ................................................ 144
Chapter 7 Meeting Customer Needs .................................... 164

UNIT 3 PRODUCING PRODUCTS
Chapter 8 Production Basics .............................................. 182
Chapter 9 Production Materials ........................................ 196
Chapter 10 Production Processes ....................................... 220
Chapter 11 Tool & Equipment Operation ............................. 250
Chapter 12 Production Planning & Work Flow ...................... 274
Chapter 13 Production Components ................................ 294
Chapter 14 Controlling & Documenting Production ............. 312
Chapter 15 Packaging & Distributing Products .................... 326

UNIT 4 QUALITY MANAGEMENT
Chapter 16 Continuous Improvement .................................. 346
Chapter 17 Inspection & Auditing ...................................... 366
Chapter 18 Preventive & Corrective Actions ....................... 384
UNIT 1 THE WORLD OF MANUFACTURING

CHAPTER 1 CAREERS IN MANUFACTURING ...........................................24

SECTION 1.1 CHOOSING A CAREER ..........25
- Why Choose Manufacturing?
- Manufacturing Subindustries
- High-Performance Manufacturing

SECTION 1.2 WORKING ON THE FRONTLINES.................................35
- Production: The Heart of Manufacturing
- Manufacturing Concentrations
- The Importance of Cross-Training
- Career Pathways
Why Choose A Manufacturing Career?

Section 1.1

• **Manufacturing** is the process of changing raw or processed materials into products people can use

• The people who do this work are called **Frontline workers**

• **Consumer goods** are products designed for personal use

• **Suppliers** produce products for manufacturers
Manufacturing Sub-Industries

• Chemical
• Electrical Equipment & Appliances
• Computers & Electronic Products
• Food & Beverage
• Furniture
• Machinery
• Transportation Equipment

• Petroleum & Coal Products
• Nonmetallic Minerals
• Plastics & Rubber
• Printing
• Primary & Fabricated Metals
• Textile, Textile Products
• Wood & Paper
High-performance manufacturing combines a
  – highly skilled and empowered workforce
  – advanced technology and
  – new ways of working to achieve superior levels of quality, customer satisfaction, and efficiency
<table>
<thead>
<tr>
<th>Frontline Production Worker of the Past</th>
<th>Frontline Production Worker of the Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carried out simple, repetitive tasks</td>
<td>Takes on a broad range of complex responsibilities</td>
</tr>
<tr>
<td>Followed orders</td>
<td>Makes decisions</td>
</tr>
<tr>
<td>Took every problem to a manager</td>
<td>Solves many problems on own or in a work group</td>
</tr>
<tr>
<td>Worked alone</td>
<td>Works in teams</td>
</tr>
<tr>
<td>Left quality to someone else</td>
<td>Considers quality a key part of job</td>
</tr>
<tr>
<td>Used manual machines and tools</td>
<td>Works with advanced technologies</td>
</tr>
<tr>
<td>Passive safety role</td>
<td>Actively cares for own and co-workers’ safety</td>
</tr>
</tbody>
</table>
To Reach High-Performance Workplace Goals
High-Performance Manufacturers:

- Rely on a highly skilled workforce at every level of the organization
- Expect all workers to make decisions and solve problems
- Share information about the company goals and strategies with all workers
• Use innovative work practices and apply advanced technologies
• Provide a workplace that is free of safety and environmental hazards
• Invest in updating worker skills
• Reward and recognize workers for their contributions
Apply It!
Pg. 33

• Category: Information Technology
  – Using Information and Communication Technology

• Process:
  – Class Discussion

• Time: :05

• Task:
  – Read I.T. – on pg. 33
  – Discuss as class, impact of CAD on manufacturing
Knowledge Check!

- **Category:**
  - Review

- **Process:**
  - Class Discussion

- **Time:** :00

- **Question:**
  - Why is manufacturing an excellent career choice?
  - Name the 14 manufacturing sub-industries
  - Identify the benefits of working in a high performance manufacturing workplace
Working on the Frontlines: Section 1.2

• **Production** is all the activities involved in the making, assembling, packaging, and distribution of manufactured goods
Range of Production Responsibilities:

- Identify customer needs
- Determining resources needed to make a product
- Team coordination, goals, assignments and training
- Scheduling
Range of Production Responsibilities:

• Set up / operation of equipment
• Monitoring production process
• Maintaining machines / equipment
• Maintaining safe work area
• Continuous improvement of process
• Preparing products for packaging and shipment
## Manufacturing Concentrations

<table>
<thead>
<tr>
<th>Manufacturing Concentration</th>
<th>Description of Work</th>
<th>Sample Job Classifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>Set up, operate, monitor, control, and improve manufacturing processes and schedules to meet customer and business requirements.</td>
<td>• Operator • Production Associate • Assembler • Set-up Operator • Fabricator • Systems Operator • Production Lead</td>
</tr>
<tr>
<td>Manufacturing Production Process Development</td>
<td>Develop, implement, and improve the manufacturing process through early production and process changes. Assess product and process design for manufacturability.</td>
<td>• Manufacturing Technician • Process Improvement Technician • Jig-and-Fixture Designer</td>
</tr>
<tr>
<td>Quality Assurance</td>
<td>Ensure that the manufacturing system meets quality system requirements as defined by business and its customers.</td>
<td>• Lab Technician • SPC Coordinator • Inspector</td>
</tr>
<tr>
<td>Health, Safety, and Environmental Assurance</td>
<td>Ensure that the manufacturing system meets health, safety, and environmental requirements.</td>
<td>• Health and Safety Representative • Safety Coordinator • Safety Team Leader</td>
</tr>
<tr>
<td>Maintenance, Installation, and Repair</td>
<td>Ensure that the maintenance of the manufacturing system fulfills customer and business requirements. Install and repair equipment on the manufacturing floor.</td>
<td>• Industrial Maintenance Mechanic • Industrial Maintenance Electrician • Millwright</td>
</tr>
<tr>
<td>Logistics and Inventory Control</td>
<td>Plan and control the movement and storage of materials and products in the manufacturing system.</td>
<td>• Material Handler • Material Mover • Material Associate</td>
</tr>
</tbody>
</table>
Importance of Cross-Training

• Cross-training leads to a more efficient manufacturing process
• Cross-training contributes new ideas
Career Pathways:

• What do you see yourself doing in the future?
• Category: Teamwork
  – Adaptability

• Process:
  – Individual / Group 3-5

• Time: :15

• Task:
  – Read Teamwork pg. 39
  – Apply It! #1 Individual
  – Apply It! #2 Group
  – Spokesperson to report out
Knowledge Check!

Pg. 39

• Category:
  – Review

• Process:
  – Class Discussion

• Time: :00

• Questions:
  – Identify the major responsibilities of a frontline production worker
  – Identify the six frontline manufacturing concentrations
  – Why is cross-training important?
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