

Career Clusters & Pathways



Focusing Education on the Future!

Preparing for Success in Manufacturing





- Prepares learners for careers in planning, managing, and performing the processing of materials into intermediate or final products.
- Careers include related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.
- Employment is expected to increase slightly as strong demand continues for high-tech electrical goods and pharmaceuticals.

Necessary Skills and Traits

- Solid background in math, science and technical skills
- Knowledgeable in their subject
- Industry also plays a major role in training/career development by supporting apprenticeships, training, joint industry/school programs and industry training leading to certification and college credit.



Preparing for Success in **Manufacturing**

Production
Manufacturing Production Process Development
Maintenance, Installation & Repair



Preparing for Success in Manufacturing

Production



Career Cluster Area: Manufacturing

Career Pathway: Production

Pathway Major Courses

3 + 1

To complete a pathway, one must take **THREE Pathway Required Concentration Courses and ONE additional Pathway Elective Course.**

■ Pathway Concentration Courses (3)

- Arc Welding I
- Electrical Systems I*
- Introduction to Manufacturing/Engineering Sciences
- Introduction to Precision Machining

■ Pathway Elective Courses (1)

- Apprenticeship/Internship
- Electrical I*
- Foundations of Engineering and Technology
- Introduction to Construction*
- Occupational Safety & Fundamentals
- Other Pathway Concentration Course

Other Recommended Electives

Production

- Algebra I
- Informal Geometry
- Modern Language
- Physical Science
- Pre-Algebra

Post-Secondary Degrees, Diplomas & Certificates Production

■ Technical Colleges

- Electrical Control Systems
- Industrial Mechanical Technology
- Industrial Motor Control
- Machine Tool Technology
- Welding & Joining Technology

■ Colleges/Universities

- Applied Science in Technology
- Design Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

Careers in Production

- Assembler
- Instrument Maker
- Manager, Supervisor
- Production Associate
- Sheet Metal Worker
- Electrical Installer
- Machinist
- Bookbinder
- Machine Operator
- Millwright
- Painter
- Welder
- Repairer
- CNC Technician
- Calibration Technician
- Hand Packer and Packager
- Medical Appliance Maker
- Pattern & Model Maker
- Solderer and Brazier
- Equipment Assembler
- CNC Programmer
- Electrical Installer and Repairer
- Hoist and Winch Operator
- Precision Optical Goods Worker
- Tool and Die Maker
- Automated Manufacturing Tech
- CNC Operator



Employment Outlook Production

- Individuals with a broad range of skills or a specific skill that cannot be automated will experience job growth and find their services in demand.
- Welders, tool and die makers, and multiple machine operators are examples of these growth occupations.

Preparing for Success in **Manufacturing**

**Manufacturing Production
Process Development**



Career Cluster Area: Manufacturing

Career Pathway: **Manufacturing Production Process Development**

Pathway Major Courses

3 + 1

To complete a pathway, one must take **THREE Pathway Required Concentration Courses and ONE additional Pathway Elective Course.**

■ Pathway Concentration Courses (3)

- Integrating Systems
- Intro to Manufacturing/Engineering Science
- Mechanical/Electrical Systems I

■ Pathway Elective Courses (1)

- Apprenticeship/Internship
- Drafting Technology: Introduction
- Foundations of Engineering and Technology

Other Recommended Electives

Manufacturing Production Process Development

- Algebra I
- Informal Geometry
- Introduction to Engineering Drawing
- Peer Leadership
- Pre Algebra
- Pre-Engineering Technology

Post-Secondary Degrees, Diplomas & Certificates Manufacturing Production Process Development

■ Technical Colleges

- Electrical Control Systems
- Industrial Mechanical Tech
- Industrial Motor Control

■ Colleges/Universities

- Electrical Engineering
- Industrial Engineering

Careers in Manufacturing

Production Process Development

- Design Engineer
- Electronics Engineer
- Manufacturing Engineer
- Production Manager
- Supervisor
- Labor Relations Manager
- Engineering Technician
- Manufacturing Technician
- Purchasing Agent
- Electrical Technician
- Power Generating and Reactor Plant Operator
- Industrial Engineer
- Precision Inspector, Tester and Grader
- Process Improvement Technician
- Electronic Technician and Technologist



Employment Outlook

Manufacturing Production Process Development

- Employment in some of the occupations in this pathway are predicted to grow more slowly than the average because of increasing automation in the manufacturing sector.
- Electrical engineering positions will grow about as fast as the average.

Preparing for Success in Manufacturing

**Maintenance, Installation
& Repair**



Career Cluster Area: Manufacturing

Career Pathway: Maintenance, Installation & Repair

Pathway Major Courses

3 + 1

To complete a pathway, one must take **THREE** Pathway Required Concentration Courses and **ONE** additional Pathway Elective Course.

■ Pathway Concentration Courses (3)

- Arc Welding I
- Electrical Systems I
- Intro to Manufacturing/Engineering Sciences
- Introduction to Precision Machining

■ Pathway Elective Courses (1)

- Apprenticeship/Internship
- Drafting Technology: Introduction
- Engineering Concepts
- Other Pathway Concentration Course

Other Recommended Electives

Maintenance, Installation & Repair

- Algebra I
- Informal Geometry
- Integrating Systems
- Physical Science
- Pre-Algebra

Post-Secondary Degrees, Diplomas & Certificates Maintenance, Installation & Repair

■ Technical Colleges

- Electrical Control Systems
- Industrial Mechanical Technician
- Industrial Motor Control
- Machine Tool Tech
- Welding & Joining Tech

■ Colleges/Universities

- Applied Science in Technology
- Design Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

Careers in Maintenance, Installation & Repair

- Computer Installer/Repairer
- Facility Electrician
- Instrument Control Technician
- Job/Fixture Designer
- Laser Systems Technician
- Maintenance Repairer
- CNC Programmer
- Computer Maintenance Technician
- Industrial Facilities Manager
- Industrial Maintenance Electrician
- Industrial Maintenance Mechanic
- Instrument Calibration and Repairer
- Security System Installer/Repairer
- CNC Specialist/CNC Operator
- Electrical Equipment Installer/Repairer
- Industrial Machinery Mechanic
- Industrial Electronic Installer/Repairer
- Industrial Maintenance Technician
- Plumber, Pipe Fitter and Steam Fitter
- Biomedical Equipment Technician
- Machinist/Welder



Employment Outlook

Maintenance, Installation & Repair

- In this pathway, Maintenance Technicians and Repair positions will experience average growth for jobs across all sectors.
- In addition, job opportunities will be plentiful because of a shortage of qualified applicants. This will, in part, be due to the increasing complexity of equipment.
- The best job prospects will be for those with broad skill sets.

Preparing for Success in **Manufacturing**

**Production
Manufacturing Production Process
Development
Maintenance, Installation & Repair**



Preparing for Success in Manufacturing



HALL CAREER COUNTY CLUSTERS

Focusing Education on the Future!

