



Your Student's Head Start on Career Goals and College Aspirations



MANUFACTURING HEALTH, SAFETY, AND ENVIRONMENTAL ASSURANCE PATHWAY

The Destinations **Health, Safety, and Environmental Assurance Pathway** prepares students to design safety processes and protocols to protect workers, conduct employee safety trainings, and investigate workplace accidents and incidents.

SAMPLE COURSE PROGRESSION



Possible Careers

- Environmental Science and Protection Technician
- Construction and Building Inspector
- Occupational Health and Safety Technician
- Fire Inspector and Investigator
- Hazardous Materials Removal Worker

Industry-Recognized Credentials

- Destinations programs prepare students for the:
- MSSC Certified Production Technician Certification

Success Beyond High School

- Destinations graduates may pursue:
- Environmental health engineering certificate
 - Associate's degree in applied sciences
 - Bachelor's degree in engineering

DID YOU KNOW? **

CONSTRUCTION AND BUILDING INSPECTORS CAN EARN

\$53,450/YR

12% JOB GROWTH EXPECTED BY 2022

OCCUPATIONAL HEALTH AND SAFETY TECHNICIANS CAN EARN

\$47,440/YR

11% JOB GROWTH EXPECTED BY 2022

*Program may be accelerated depending on student goals and abilities and course availability. **Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2014-15 Edition*.



MANUFACTURING HEALTH, SAFETY, AND ENVIRONMENTAL ASSURANCE PATHWAY

COURSE DESCRIPTIONS

IT AND MANUFACTURING EXPLORATIONS

This course is designed as an exploration of two career clusters. Students receive an introduction to these fields so they can better assess which pathway to pursue. The first half of the course introduces the essentials of web design, from planning page layouts to publishing a complete site to the web. Students learn how to use HTML to design their own web pages. The course covers basic HTML tags for formatting text as well as more advanced tags. Through real-world design scenarios and hands-on projects, students create compelling, usable websites using the latest suite of free tools. The second half of the course introduces engineering and advanced manufacturing.

FUNDAMENTALS OF MANUFACTURING

In this course, students develop foundational skills in basic mechanisms and robotics to include: parts identification and applications of robotic arms in manufacturing, Computer Aided Design (CAD) with SpectraCAD, Computer Numerical Control (CNC) machining, and foundational employability skills.

MANUFACTURING SYSTEMS

In this course, students develop skills in automated systems, basic robot programs, Computer Aided Manufacturing (CAM) with SpectraCAM Milling, and the CAD/CAM process of developing Computer Numerical Control (CNC) milling programs. Students also work with fluid power (pneumatics) as used in manufacturing systems and hand tools and are introduced to quality control (QC) and skills measurement.

ADVANCED MANUFACTURING TOPICS 1 AND 2[†]

In these courses, students develop skills in advanced manufacturing through virtual projects in CAD/CAM/CNC. They then progress to flexible manufacturing systems in a virtual environment. Students integrate robotic systems with robotics and material handling. The course addresses the foundational skill: Industrial Safety Lock Out Tag Out. Additionally, students develop skills in complete automated systems with SkillsUSA robotics projects (RAT). They complete research projects in advanced manufacturing methods and applications and prepare for certifications.

HEALTH AND SAFETY/ENVIRONMENTAL SAFETY[†]

Course description pending.

MSSC AND NOCTI EXAM PREP[†]

These courses prepare students for exams that test basic skills in professional areas. They include practice tests and strategies for showing the skills and knowledge they have acquired.

[†] Course(s) may not be available until fall of 2017.

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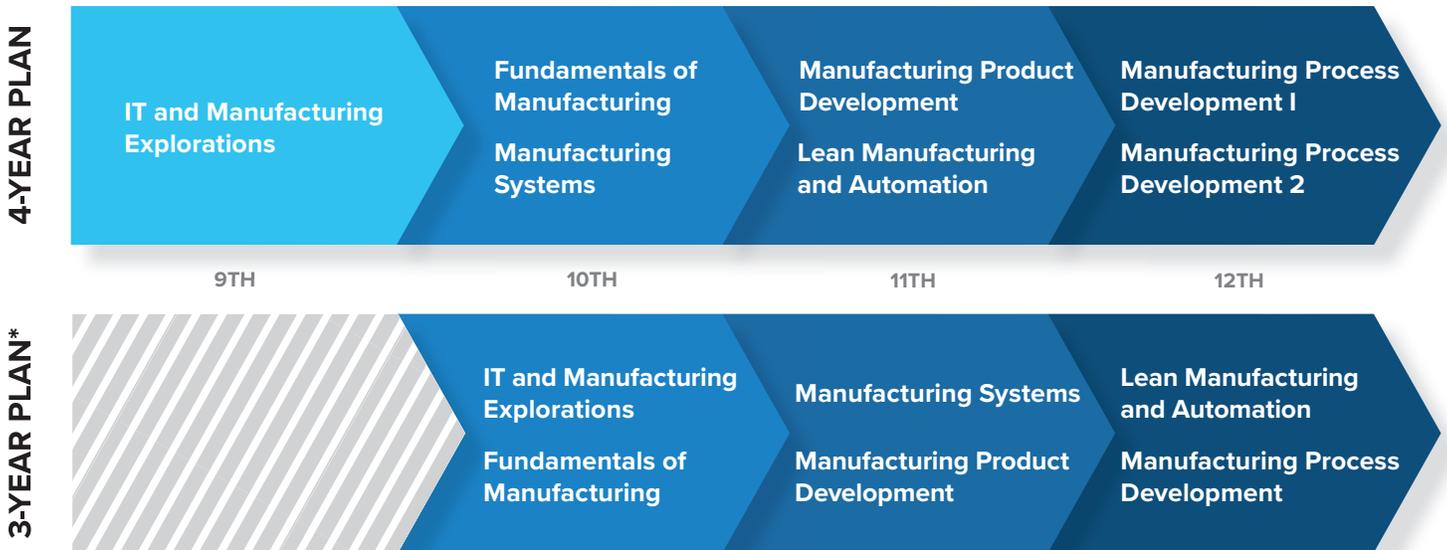
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MANUFACTURING MANUFACTURING PRODUCT PROCESS DEVELOPMENT PATHWAY

The Destinations **Manufacturing Product Process Development Pathway** prepares students to test or modify machinery; work with engineers or technologists; and operate valves, pumps, engines, and generators.

SAMPLE COURSE PROGRESSION



Possible Careers

- Chemical Equipment Operator
- Electrical Engineering Technician
- Electromechanical Equipment Assembler
- Quality Control Analyst

Industry-Recognized Credentials

- Destinations programs prepare students for the:
- National Occupational Competency Testing Institute Manufacturing Technology Exam
 - MSSC Certified Production Technician Certification

Success Beyond High School

- Destinations graduates may pursue:
- Structural welding certificate
 - Associate's degree in electrical technology
 - Bachelor's degree in mechanical engineering

DID YOU KNOW?*

**INDUSTRIAL MACHINERY MECHANICS
CAN EARN**

\$45,840/YR

**17% JOB GROWTH
EXPECTED BY 2022**

**STATIONARY ENGINEERS
CAN EARN**

\$53,560/YR

**3% JOB GROWTH
EXPECTED BY 2022**

*Program may be accelerated depending on student goals and abilities and course availability. **Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2014-15 Edition*.



MANUFACTURING MANUFACTURING PRODUCT PROCESS DEVELOPMENT PATHWAY

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In this course, students develop foundational skills in basic mechanisms and robotics to include: parts identification and applications of robotic arms in manufacturing, Computer Aided Design (CAD) with SpectraCAD, Computer Numerical Control (CNC) machining, and foundational employability skills.

MANUFACTURING SYSTEMS

In this course, students develop skills in automated systems, basic robot programs, Computer Aided Manufacturing (CAM) with SpectraCAM Milling, and the CAD/CAM process of developing Computer Numerical Control (CNC) milling programs. Students also work with fluid power (pneumatics) as used in manufacturing systems and hand tools, and are introduced to quality control (QC) and skills measurement.

MANUFACTURING PRODUCT DEVELOPMENT

In this course, students explore rapid prototyping, Computer Aided Manufacturing (CAM) with SpectraCAM Turning, and the CAD/CAM process of developing Computer Numerical Control (CNC) turning programs. Students also begin advanced robotics programming with the ER4u robot and gain exposure to power tools and math for technicians.

LEAN MANUFACTURING AND AUTOMATION

In this course, students develop an understanding of lean manufacturing, skills in robotics, material handling, and electrical systems, while continuing with projects in Computer Numerical Control (CNC) milling and turning. The course also includes foundational skills in math for technicians and blueprint reading.

MANUFACTURING PROCESS DEVELOPMENT 1 AND 2

In these courses, students develop skills in manufacturing processes development through research projects on current trends and applications in the world of manufacturing. Students also develop virtual projects in CAD/CAM/CNC. They work with flexible manufacturing systems in a virtual environment, as well as with robotics and material handling as an integral element of manufacturing processes. The courses address the foundational skill: Industrial Safety Lock Out Tag Out. Additionally, students develop skills with projects in advanced flexible manufacturing systems with the ER4u robot, CNC machines in a virtual environment, and automated systems with SkillsUSA robotics projects (RAT). Students participate in research projects in manufacturing methods and applications and prepare for certification exams.

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MANUFACTURING—PRODUCTION PATHWAY

The Destinations **Business Information Management Pathway** prepares students to work in a business setting with charts, data, and numbers, and to manage money and finances.

SAMPLE COURSE PROGRESSION

4-YEAR PLAN



3-YEAR PLAN*



Possible Careers

- Computer-Controlled Machine Tool Operator
- Machinist
- Boiler Operator
- Machine Maintenance Worker
- Welder

Industry-Recognized Credentials

- Destinations programs prepare students for the:
- National Occupational Competency Testing Institute Precision Machining Exam
 - NIMS Computer Numerical Control (CNC) Machine Operator Certification

Success Beyond High School

- Destinations graduates may pursue:
- Mechanic certificate
 - Associate's degree in applied sciences
 - Bachelor's degree in industrial technology

DID YOU KNOW? **

WELDERS
CAN EARN

\$36,300/YR

6% JOB GROWTH
EXPECTED BY 2022

MACHINISTS
CAN EARN

\$40,910/YR

7% JOB GROWTH
EXPECTED BY 2022

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MANUFACTURING PRODUCTION PATHWAY

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