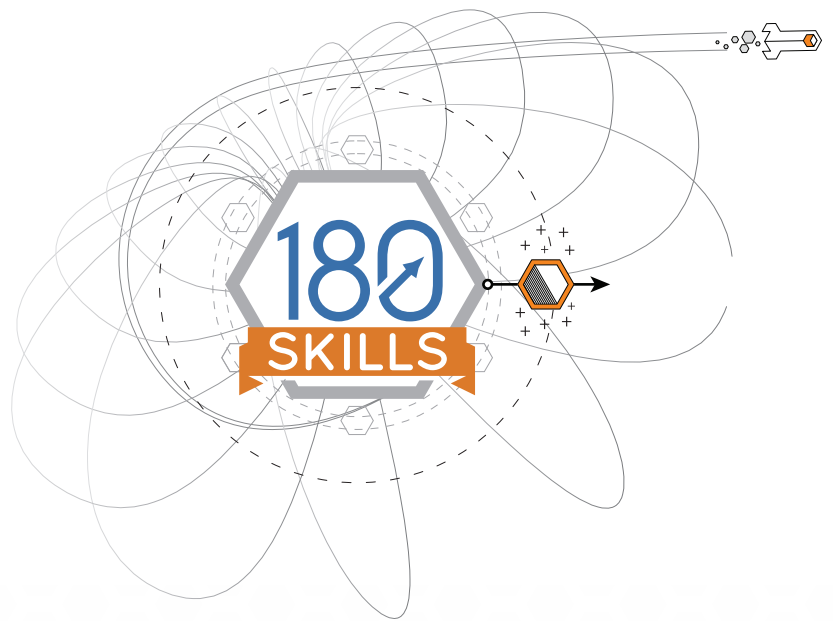


# CAREER PROGRAM CATALOG



BECAUSE YOU CAN'T LIVE LIFE WITHOUT SKILLS





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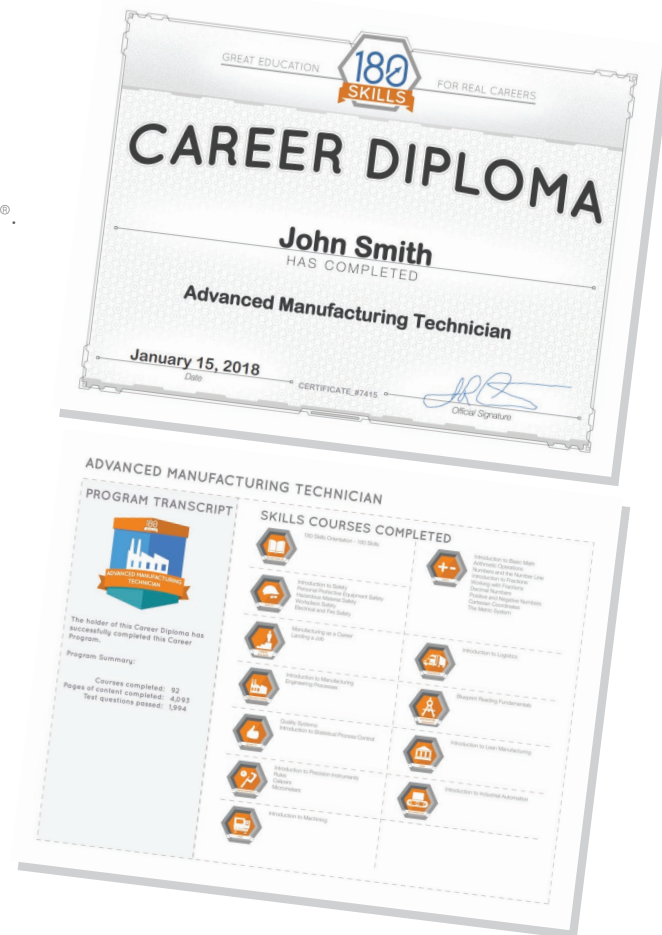
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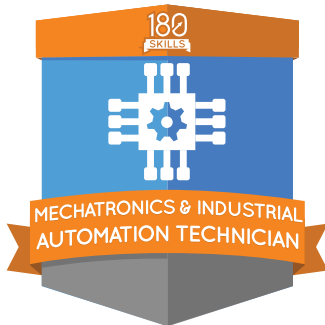
MADE IN AMERICA







## ADVANCED MANUFACTURING CAREER PROGRAMS



## AEROSPACE MANUFACTURING CAREER PROGRAMS







## ADVANCED MANUFACTURING CAREER PROGRAMS







# ADVANCED MANUFACTURING TECHNICIAN

## LAUNCH A CAREER AS A MAKER

Advanced manufacturing technicians perform many important tasks such as product assembly, machine operation, and quality assurance. Advanced manufacturing technicians play a key role in the manufacture of many commercial products.

Employment of advanced manufacturing technicians is projected to grow 4 percent from 2012 to 2022. Qualified applicants, including those with technical training and certification, should have the best job opportunities in the manufacturing sector, particularly in growing, high-technology industries, such as aerospace and electro-medical devices.\*

## INCOME OPPORTUNITIES

Salaries for entry-level manufacturing positions, such as assemblers and fabricators, ranges from \$36,020 to \$95,960. \*

\*Source: U.S. Bureau of Labor Statistics, 2016.

## HIRING INDUSTRIES

Automotive  
Aerospace  
Civil infrastructure  
Consumer products  
Construction  
Electrical equipment  
Marine  
Military  
Materials processing  
Medical devices

## CAREER PROGRAM SUMMARY

Micro-credentials 25  
Skills Courses 93  
Time to complete 1.5 months\*

\* Completing three modules per day



O\*NET job code: 17-3029.09

INTraining code: 7547



# ADVANCED MANUFACTURING PRODUCTION TECHNICIAN



## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning .....	STU-1004



## CAREER BUILDING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Manufacturing as a Career</b>	Manufacturing - A Future Worth Exploring.....	CAR-2001
	Manufacturing - Components of Production.....	CAR-2002
	Manufacturing - Credentials and Competencies .....	CAR-2003
	Manufacturing - Career Planning and Resources.....	CAR-2004



## MANUFACTURING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Manufacturing</b>	What is Advanced Manufacturing? .....	MFG-1001
	Manufacturing History and Technology .....	MFG-1002
	From Ideas to Products .....	MFG-1003
	From Design to Manufacturing .....	MFG-1004
	Safety, Quality and the Environment in Manufacturing .....	MFG-1005
	Measuring Success in Manufacturing.....	MFG-1006
	Careers in Manufacturing.....	MFG-1007



## LOGISTICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Logistics</b>	What is Logistics? .....	LOG-1001
	Logistics Technology.....	LOG-1002
	Inventory.....	LOG-1003
	Distribution and Transportation .....	LOG-1004
	Safety, Quality and the Environment in Logistics .....	LOG-1005
	Winning in Logistics.....	LOG-1006
	Careers in Logistics .....	LOG-1007
<b>Manufacturing &amp; Logistics Game</b>	The Game of Manufacturing and Logistics .....	MFG-1008







## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations .....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions .....	MTH-1005
	Decimal Numbers .....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers .....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System .....	MTH-1009



## HEALTH & SAFETY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Safety</b>	Introduction to OSHA .....	SAF-1001
	Making Work a Safer Place .....	SAF-1002
	Help! What to Do in an Emergency .....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment .....	SAF-1004
	Eye and Face Protection .....	SAF-1005
	Head Protection .....	SAF-1006
	Foot and Leg Protection .....	SAF-1007
	Hand and Arm Protection .....	SAF-1008
	Body Protection .....	SAF-1009
	Hearing Protection .....	SAF-1010
	Respiratory Protection .....	SAF-1011
<b>Hazardous Material Safety</b>	Hazardous Materials .....	SAF-1012
	HazCom .....	SAF-1013
	Hazardous Waste .....	SAF-1014
	Hazard Material Storage .....	SAF-1015
<b>Workplace Safety</b>	Work Area Safety .....	SAF-1016
	Permit-Related Safety .....	SAF-1017
	Fall Prevention .....	SAF-1018
	Ladder Safety .....	SAF-1019
<b>Electrical and Fire Safety</b>	Electrical Safety .....	SAF-1020
	Lockout/Tagout .....	SAF-1021





MICRO CREDENTIAL

SKILLS COURSE

## MANUFACTURING

NUMBER

### Engineering Processes

The Engineering Process.....	MFG-1009
Information Sharing.....	MFG-1010



MICRO CREDENTIAL

SKILLS COURSE

## QUALITY

NUMBER

### Quality Systems

Introduction to Quality.....	QUA-1001
ISO 9000 .....	QUA-1002
Standards Organizations.....	QUA-1003
Quality Organizations.....	QUA-1004
Basic Quality Roles and Responsibilities.....	QUA-1005

### Introduction to Statistical Process Control

Introduction to SPC .....	QUA-1011
Probability and Variation.....	QUA-1012
The Control Chart.....	QUA-1013



MICRO CREDENTIAL

SKILLS COURSE

## ENGINEERING DRAWINGS

NUMBER

### Blueprint Reading Fundamentals

Introduction to Blueprints.....	DWG-1001
Engineering Drawing Terminology.....	DWG-1002
Engineering Drawing Views.....	DWG-1003
Engineering Drawing Lines .....	DWG-1004
Dimensions and Tolerances .....	DWG-1005



MICRO CREDENTIAL

SKILLS COURSE

## MEASUREMENT

NUMBER

### Precision Measurement I

Introduction to Precision Instruments .....	MEA-2001
Rules .....	MEA-2002
Calipers.....	MEA-2003
Micrometers.....	MEA-2004





## LEAN MANUFACTURING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

### Introduction to Lean Manufacturing

The History of Lean Manufacturing .....LEA-1002

### Workplace Organization

Workplace Organization.....LEA-1003

S1: Sort.....LEA-1004

S2: Straighten .....LEA-1005

S3: Shine .....LEA-1006

S4: Standardize .....LEA-1007

S5: Sustain.....LEA-1008



## CNC MACHINING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

### Introduction to Machining

Introduction to Machining .....CNC-1001

Machine Tools .....CNC-1002

CNC Controllers.....CNC-1003

Machining Personnel .....CNC-1004

Facility Layout .....CNC-1005



## AUTOMATION

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

### Introduction to Industrial Automation

Introduction to Automation .....AUT-1001

Automated Process .....AUT-1002

Automated System.....AUT-1003



## CAREER BUILDING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

### Searching for a Job

Kicking Off Your Job Search.....CAR-1001

Finding Jobs to Apply For .....CAR-1002

Networking.....CAR-1003

### Resumes and Job Applications

Completing an Employment Application.....CAR-1004

Creating Your Resume.....CAR-1005

Crafting a Cover Letter.....CAR-1006





MICRO CREDENTIAL

SKILLS COURSE

CAREER BUILDING

NUMBER

Interviewing	Understanding the Interview Process .....	CAR-1007
	Making a Positive Impression .....	CAR-1008
	Responding to Interview Questions .....	CAR-1009
	Addressing Special Interview Concerns .....	CAR-1010
	After the Interview.....	CAR-1011

Keeping a Job	Surviving Your First Day on the Job .....	CAR-1012
	Turning a Job into a Career.....	CAR-1013





## APPRENTICE TOOL MAKER

### MAKE THE TOOLS USED BY MAKERS

This program was developed with input from industry partners to ensure that aerospace tool makers attain mastery in the art of creating aerospace tooling.

Apprentice tool makers analyze specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, cutting tools, jigs, fixtures, and gauges.

Students considering this program should work with an Employer Partner to secure an apprenticeship prior to enrolling.

### INCOME OPPORTUNITIES

Salaries for Tool Makers ranges from \$31,200 to \$74,230. \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

### HIRING INDUSTRIES

Air transport  
Aircraft parts manufacturing  
Guided missiles, space vehicles, and parts  
Satellite communications  
Search, detection, and navigation guidance  
Space research and technology

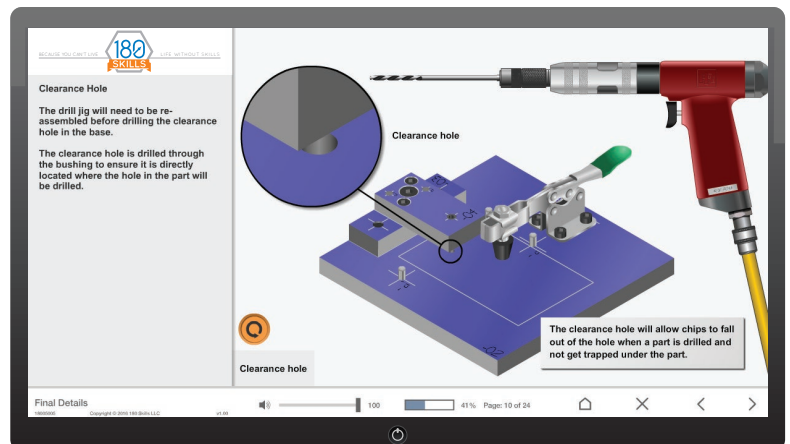
### CAREER PROGRAM SUMMARY

Micro-credentials 40

Skills Courses 150

Time to complete 2.5 months\*

\* Completing three modules per day



O\*NET job code: 51-4111.00

INTraining code: 7692





## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning .....	STU-1004



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations.....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers .....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System .....	MTH-1009



## GEOMETRY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Geometry</b>	Introduction to Geometry.....	GEO-1001
	Basic Building Blocks of Geometry.....	GEO-1002
	Angles .....	GEO-1003
	Lines .....	GEO-1004
	Polygons .....	GEO-1005
	Triangles.....	GEO-1006
<b>Intermediate Geometry</b>	Quadrilaterals.....	GEO-1007
	Circles.....	GEO-1008
	Three-dimensional Shapes.....	GEO-1009
	Coordinate Geometry.....	GEO-1010
	Transformation Geometry.....	GEO-1011





<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011
<b>Hazardous Material Safety</b>	Hazardous Materials.....	SAF-1012
	HazCom.....	SAF-1013
	Hazardous Waste.....	SAF-1014
	Hazard Material Storage.....	SAF-1015
<b>Workplace Safety</b>	Work Area Safety.....	SAF-1016
	Permit-Related Safety.....	SAF-1017
	Fall Prevention.....	SAF-1018
	Ladder Safety.....	SAF-1019
<b>Electrical and Fire Safety</b>	Electrical Safety.....	SAF-1020
	Lockout/Tagout.....	SAF-1021
	Fire Safety.....	SAF-1022
	Fire Extinguishers.....	SAF-1023
<b>Material Handling Safety</b>	Material Handling Basics.....	SAF-1024
	Powered Industrial Trucks.....	SAF-1025
	Crane and Rigging Safety.....	SAF-1026
<b>Tool and Machine Safety</b>	Hand Tool Safety.....	SAF-1027
	Power Tool Safety.....	SAF-1028
	Sheet Metal and Compressed Gas Safety.....	SAF-1029
	Machine Safety.....	SAF-1030
	Safety Devices.....	SAF-1031





## ENGINEERING DRAWINGS

### Blueprint Reading Fundamentals

Introduction to Blueprints.....	DWG-1001
Engineering Drawing Terminology.....	DWG-1002
Engineering Drawing Views.....	DWG-1003
Engineering Drawing Lines .....	DWG-1004
Dimensions and Tolerances .....	DWG-1005

### Advanced Blueprint Reading

Geometric Dimensions and Tolerances .....	DWG-2001
Assemblies and Fits .....	DWG-2002
Threads and Fasteners .....	DWG-2003

### Geometric Dimensioning and Tolerancing

Introduction to GD&T.....	DWG-3001
GD&T Terms and Symbols .....	DWG-3002
Rules of GD&T .....	DWG-3003
Geometric Tolerances.....	DWG-3004
Datums .....	DWG-3005
Form Tolerances.....	DWG-3006
Profile Tolerances.....	DWG-3007
Orientation Tolerances .....	DWG-3008
Runout Tolerances .....	DWG-3009
Location Tolerances .....	DWG-3010



## MEASUREMENT

### Precision Measurement I

Introduction to Precision Instruments .....	MEA-2001
Rules .....	MEA-2002
Calipers.....	MEA-2003
Micrometers.....	MEA-2004

### Precision Measurement II

Small Hole Gauges.....	MEA-2005
Dial Indicators .....	MEA-2006
Bore Gauges .....	MEA-2007
Height Gauges .....	MEA-2008
Go/NoGo Gauges .....	MEA-2009
Test Indicators.....	MEA-2010

### Attribute Gauges

Go/NoGo Thread Gauges.....	MEA-2011
Attribute Gauges .....	MEA-2012
Thickness and Radius Gauges.....	MEA-2013
Squares and Protractors .....	MEA-2014
Surface Roughness Comparators.....	MEA-2015





MICRO CREDENTIAL

SKILLS COURSE

## MEASUREMENT

NUMBER

### Precision Measurement III

Adjustable Parallels.....	MEA-2016
Surface Plates.....	MEA-2017
Optical Comparators.....	MEA-2018
Optical Center Finders.....	MEA-2019



MICRO CREDENTIAL

SKILLS COURSE

## FASTENERS

NUMBER

### Fasteners

Bolts, Screws, and Washers .....	FAS-2003
Threaded Inserts .....	FAS-2004



MICRO CREDENTIAL

SKILLS COURSE

## POWER TOOLS

NUMBER

### Hand Power Tools

Pistol Grip Drills .....	POW-2001
Drilling Techniques.....	POW-2002
Winslow Drills.....	POW-2003
Compression Riveters .....	POW-2004
Rivet Installation Tools.....	POW-2005

### Stationary Power Tools

Introduction to Stationary Power Tools .....	POW-2006
Disc and Belt Sanders .....	POW-2007
Drill Press.....	POW-2008
Band Saw .....	POW-2009
Arbor Press .....	POW-2010
Bench Grinder.....	POW-2011
Table Saw .....	POW-2012
Operating a Table Saw .....	POW-2013



MICRO CREDENTIAL

SKILLS COURSE

## HAND TOOLS

NUMBER

### Hand Tools

Files, Hand Reamers, and Lapping Tools.....	HAN-2001
Hammers, Punches, and Chisels.....	HAN-2002
Pliers and Ratchets.....	HAN-2003
Scribes, Optical Center Finders, and Drill Blocks .....	HAN-2004





MICRO CREDENTIAL

SKILLS COURSE

CUTTING TOOLS

NUMBER

<b>Drill Bits</b>	Drill Bits .....	CUT-2001
<b>Drill Guides and Drill Stops</b>	Drill Guides and Drill Stops .....	CUT-2002
<b>Countersinking Tools</b>	Countersinking Tools .....	CUT-2003
<b>Threads, Taps and Dies</b>	Threads .....	CUT-2004
	Taps .....	CUT-2005
	Hand Tapping .....	CUT-2006
	Threading Dies .....	CUT-2007



MICRO CREDENTIAL

SKILLS COURSE

AEROSPACE MANUFACTURING

NUMBER

<b>Basic Drilling and Riveting</b>	Marking Fastener Locations for Drilling Project .....	AER-4001
	Setting Up the Drill Motor .....	AER-4002
	Drilling Pilot Holes and Enlarging Holes .....	AER-4003
	Deburring .....	AER-4004
<b>Countersinking and Riveting Project</b>	Setting the Countersink Tool (project) .....	AER-4014



MICRO CREDENTIAL

SKILLS COURSE

TOOL MAKING

NUMBER

<b>Tooling Capstone Project</b>	Need for Tools .....	TOL-3001
	The Process .....	TOL-3002
	Permanent Assemblies .....	TOL-3003
	Critical Features .....	TOL-3004
	Final Details .....	TOL-3005





MICRO CREDENTIAL

SKILLS COURSE

## COMMUNICATION

NUMBER

### Communicating with Others

Introduction to Communication.....	COM-1001
Effective Communication.....	COM-1002
Verbal Communication.....	COM-1003
Written Communication.....	COM-1004
Nonverbal Communication.....	COM-1005
Listening Skills.....	COM-1006
Workplace Communication.....	COM-1007

### Technical Writing

Introduction to Technical Writing .....	COM-2004
Successful Documentation.....	COM-2005



MICRO CREDENTIAL

SKILLS COURSE

## CAREER BUILDING

NUMBER

### Searching for a Job

Kicking Off Your Job Search.....	CAR-1001
Finding Jobs to Apply For .....	CAR-1002
Networking.....	CAR-1003

### Resumes and Job Applications

Completing an Employment Application.....	CAR-1004
Creating Your Resume.....	CAR-1005
Crafting a Cover Letter.....	CAR-1006

### Interviewing

Understanding the Interview Process .....	CAR-1007
Making a Positive Impression .....	CAR-1008
Responding to Interview Questions .....	CAR-1009
Addressing Special Interview Concerns .....	CAR-1010
After the Interview.....	CAR-1011

### Keeping a Job

Surviving Your First Day on the Job .....	CAR-1012
Turning a Job into a Career.....	CAR-1013





## CNC LATHE PRODUCTION TECHNICIAN

### MAKE THE WORLD TURN

Computer numerical control (CNC) lathe production technicians transform raw materials into finished products used in commercial, automotive, medical, and aerospace products. CNC lathe production technicians produce parts that range from simple bolts of steel to titanium bone screws for orthopedic implants.

CNC lathe production technicians work from blueprints, or computer-aided design (CAD), and computer-aided manufacturing (CAM) files. They set up and operate CNC machine tools, monitor the feed rate and speed of machines, and measure, examine, and test completed products for defects.

### INCOME OPPORTUNITIES

Salaries for CNC Machining Center Production Technicians ranges from \$25,000 to \$57,750.\*

\*Source: U.S. Bureau of Labor Statistics, May 2016

### HIRING INDUSTRIES

Automotive  
Aerospace  
Consumer products  
Electrical equipment  
Marine  
Military  
Medical devices

### CAREER PROGRAM SUMMARY

**Micro-credentials** 36

**Skills Courses** 122

**Time to complete** 2.5 months\*

\* Completing three modules per day



O\*NET job code: 51-4011.00

INTraining code: 7673



# CNC LATHE PRODUCTION TECHNICIAN



## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning .....	STU-1004



## CNC MACHINING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Machining</b>	Introduction to Machining .....	CNC-1001
	Machine Tools .....	CNC-1002
	CNC Controllers.....	CNC-1003
	Machining Personnel .....	CNC-1004
	Facility Layout .....	CNC-1005



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations .....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers .....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System.....	MTH-1009







MICRO CREDENTIAL

SKILLS COURSE

## GEOMETRY

NUMBER

<b>Geometry</b>	Introduction to Geometry.....	GEO-1001
	Basic Building Blocks of Geometry.....	GEO-1002
	Angles.....	GEO-1003
	Lines.....	GEO-1004
	Polygons.....	GEO-1005
	Triangles.....	GEO-1006
<b>Intermediate Geometry</b>	Quadrilaterals.....	GEO-1007
	Circles.....	GEO-1008
	Three-dimensional Shapes.....	GEO-1009
	Coordinate Geometry.....	GEO-1010
	Transformation Geometry.....	GEO-1011



MICRO CREDENTIAL

SKILLS COURSE

## HEALTH & SAFETY

NUMBER

<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011





MICRO CREDENTIAL

SKILLS COURSE

## HEALTH &amp; SAFETY

NUMBER

**Hazardous Material Safety**

Hazardous Materials.....	SAF-1012
HazCom .....	SAF-1013
Hazardous Waste.....	SAF-1014
Hazard Material Storage.....	SAF-1015

**Workplace Safety**

Work Area Safety.....	SAF-1016
Fall Prevention .....	SAF-1018

**Electrical and Fire Safety**

Electrical Safety .....	SAF-1020
Lockout/Tagout.....	SAF-1021

**Tool and Machine Safety**

Hand Tool Safety.....	SAF-1027
Power Tool Safety.....	SAF-1028
Machine Safety .....	SAF-1030



MICRO CREDENTIAL

SKILLS COURSE

## ENGINEERING DRAWINGS

NUMBER

**Blueprint Reading Fundamentals**

Introduction to Blueprints.....	DWG-1001
Engineering Drawing Terminology.....	DWG-1002
Engineering Drawing Views.....	DWG-1003
Engineering Drawing Lines .....	DWG-1004
Dimensions and Tolerances .....	DWG-1005

**Advanced Blueprint Reading**

Geometric Dimensions and Tolerances .....	DWG-2001
Assemblies and Fits .....	DWG-2002
Threads and Fasteners .....	DWG-2003



MICRO CREDENTIAL

SKILLS COURSE

## MEASUREMENT

NUMBER

**Precision Measurement I**

Introduction to Precision Instruments.....	MEA-2001
Rules .....	MEA-2002
Calipers.....	MEA-2003
Micrometers .....	MEA-2004

**Precision Measurement II**

Small Hole Gauges.....	MEA-2005
Dial Indicators .....	MEA-2006
Bore Gauges .....	MEA-2007
Height Gauges .....	MEA-2008
Go/NoGo Gauges .....	MEA-2009
Test Indicators.....	MEA-2010



# CNC LATHE PRODUCTION TECHNICIAN



## MEASUREMENT

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

### Attribute Gauges

Go/NoGo Thread Gauges.....	MEA-2011
Attribute Gauges .....	MEA-2012
Thickness and Radius Gauges.....	MEA-2013
Squares and Protractors .....	MEA-2014
Surface Roughness Comparators.....	MEA-2015

### Precision Measurement III

Adjustable Parallels.....	MEA-2016
Surface Plates.....	MEA-2017
Optical Comparators.....	MEA-2018



## MATERIALS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

### Metals and Materials

Introduction to Metals .....	MAT-2001
Ferrous Metals .....	MAT-2002
Nonferrous Metals .....	MAT-2003
Heat Treatment of Metals .....	MAT-2004



## CNC MACHINING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

### CNC Horizontal Lathe

Components of a CNC Lathe.....	CNC-2001
Movements of a CNC Lathe.....	CNC-2002
Workholding Devices and Tooling for a CNC Lathe.....	CNC-2003
The CNC Controller for a CNC Lathe .....	CNC-2004
Auxiliary Systems for a CNC Lathe.....	CNC-2005

### CNC Horizontal Lathe Applications

Maintenance Tasks for a CNC Lathe .....	CNC-4001
Power on the CNC Lathe.....	CNC-4002
Move the Axes by Rotating the Jog Handle .....	CNC-4003
on a CNC Lathe	
Home the Axes on a CNC Lathe.....	CNC-4004
Select a Part Program from Memory on a CNC Lathe.....	CNC-4005
Start the Part Program Safely on a CNC Lathe .....	CNC-4006
Interrupt Automatic Operation on a CNC Lathe .....	CNC-4007
Adjust a Tool Wear Offset on a CNC Lathe .....	CNC-4008
Power Off the CNC Lathe .....	CNC-4009





CUTTING TOOLS

<b>Lubricants and Cutting Fluids</b>	Cutting Fluids.....	CUT-2008
<b>Cutting Tools for Metalworking</b>	Cutting Tool Materials.....	CUT-2009
	Indexable Tool Holders.....	CUT-2010
	Inserts.....	CUT-2011
	Solid Cutting Tools .....	CUT-2012
<b>Threads, Taps and Dies</b>	Threads.....	CUT-2004
	Taps.....	CUT-2005
	Hand Tapping.....	CUT-2006



CNC MACHINING

<b>CNC Lathe Programs</b>	CNC Programming Procedure for a CNC Lathe .....	CNC-4010
	CNC Program Structure for a CNC Lathe .....	CNC-4011
	CNC Addresses for a CNC Lathe .....	CNC-4012
	CNC Lathe Commands .....	CNC-4013
	Organizing a CNC Program for a CNC Lathe .....	CNC-4014
<b>CNC Machine Lubricants</b>	CNC Machine Lubricants .....	CNC-2011



**Searching for a Job**

Kicking Off Your Job Search.....	CAR-1001
Finding Jobs to Apply For .....	CAR-1002
Networking.....	CAR-1003

**Resumes and Job Applications**

Completing an Employment Application.....	CAR-1004
Creating Your Resume.....	CAR-1005
Crafting a Cover Letter.....	CAR-1006

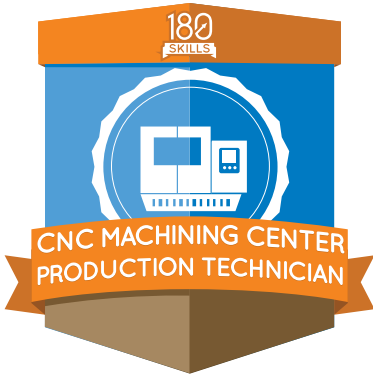
**Interviewing**

Understanding the Interview Process .....	CAR-1007
Making a Positive Impression .....	CAR-1008
Responding to Interview Questions .....	CAR-1009
Addressing Special Interview Concerns .....	CAR-1010
After the Interview.....	CAR-1011

**Keeping a Job**

Surviving Your First Day on the Job .....	CAR-1012
Turning a Job into a Career.....	CAR-1013





# CNC MACHINING CENTER PRODUCTION TECHNICIAN

## MACHINE THE WORLD

Computer numerical control (CNC) machining center production technicians transform raw materials into finished parts used in commercial, automotive, medical, and aerospace products. CNC machining center production technicians produce parts that range from simple bolts of steel to titanium bone screws for orthopedic implants.

CNC machining center production technicians work from blueprints, or computer-aided design (CAD), and computer-aided manufacturing (CAM) files. They set up and operate CNC machine tools, monitor the feed rate and speed of machines, and measure, examine, and test completed products for defects.

## INCOME OPPORTUNITIES

Salaries for CNC Machining Center Production Technicians ranges from \$25,000 to \$57,750. \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

## HIRING INDUSTRIES

Automotive  
Aerospace  
Consumer products  
Electrical equipment  
Marine  
Military  
Medical devices

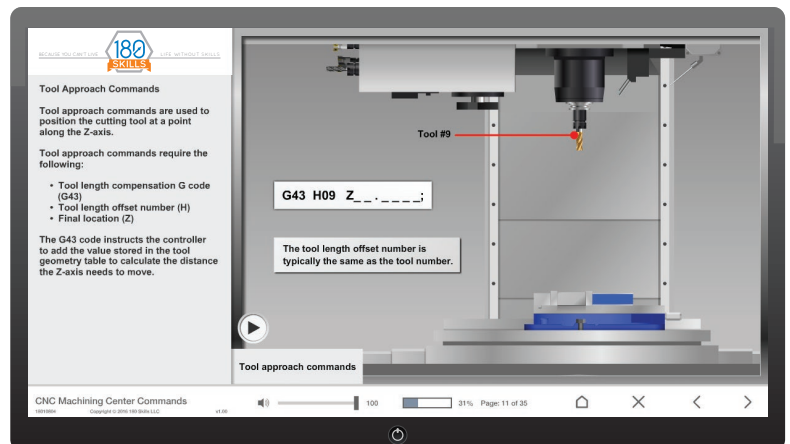
## CAREER PROGRAM SUMMARY

**Micro-credentials** 36

**Skills Courses** 122

**Time to complete** 2.5 months\*

\* Completing three modules per day



O\*NET job code: 51-4011.00

INTraining code: 7682



# CNC MACHINING CENTER PRODUCTION TECHNICIAN



## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning .....	STU-1004



## CNC MACHINING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Machining</b>	Introduction to Machining .....	CNC-1001
	Machine Tools .....	CNC-1002
	CNC Controllers.....	CNC-1003
	Machining Personnel .....	CNC-1004
	Facility Layout .....	CNC-1005



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations .....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers .....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System.....	MTH-1009





MICRO CREDENTIAL

SKILLS COURSE

## GEOMETRY

NUMBER

<b>Geometry</b>	Introduction to Geometry.....	GEO-1001
	Basic Building Blocks of Geometry.....	GEO-1002
	Angles.....	GEO-1003
	Lines.....	GEO-1004
	Polygons.....	GEO-1005
	Triangles.....	GEO-1006
<b>Intermediate Geometry</b>	Quadrilaterals.....	GEO-1007
	Circles.....	GEO-1008
	Three-dimensional Shapes.....	GEO-1009
	Coordinate Geometry.....	GEO-1010
	Transformation Geometry.....	GEO-1011



MICRO CREDENTIAL

SKILLS COURSE

## HEALTH & SAFETY

NUMBER

<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011





## HEALTH &amp; SAFETY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Hazardous Material Safety**

Hazardous Materials.....	SAF-1012
HazCom .....	SAF-1013
Hazardous Waste.....	SAF-1014
Hazard Material Storage.....	SAF-1015

**Workplace Safety**

Work Area Safety.....	SAF-1016
Fall Prevention .....	SAF-1018

**Electrical and Fire Safety**

Electrical Safety .....	SAF-1020
Lockout/Tagout.....	SAF-1021

**Tool and Machine Safety**

Hand Tool Safety.....	SAF-1027
Power Tool Safety.....	SAF-1028
Machine Safety .....	SAF-1030



## ENGINEERING DRAWINGS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Blueprint Reading Fundamentals**

Introduction to Blueprints.....	DWG-1001
Engineering Drawing Terminology.....	DWG-1002
Engineering Drawing Views.....	DWG-1003
Engineering Drawing Lines .....	DWG-1004
Dimensions and Tolerances .....	DWG-1005

**Advanced Blueprint Reading**

Geometric Dimensions and Tolerances .....	DWG-2001
Assemblies and Fits .....	DWG-2002
Threads and Fasteners .....	DWG-2003



## MEASUREMENT

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Precision Measurement I**

Introduction to Precision Instruments.....	MEA-2001
Rules .....	MEA-2002
Calipers.....	MEA-2003
Micrometers.....	MEA-2004

**Precision Measurement II**

Small Hole Gauges.....	MEA-2005
Dial Indicators .....	MEA-2006
Bore Gauges .....	MEA-2007
Height Gauges .....	MEA-2008
Go/NoGo Gauges .....	MEA-2009
Test Indicators.....	MEA-2010





## MEASUREMENT

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Attribute Gauges**

Go/NoGo Thread Gauges.....	MEA-2011
Attribute Gauges .....	MEA-2012
Thickness and Radius Gauges.....	MEA-2013
Squares and Protractors .....	MEA-2014
Surface Roughness Comparators.....	MEA-2015

**Precision Measurement III**

Adjustable Parallels.....	MEA-2016
Surface Plates.....	MEA-2017
Optical Comparators.....	MEA-2018



## MATERIALS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Metals and Materials**

Introduction to Metals .....	MAT-2001
Ferrous Metals .....	MAT-2002
Nonferrous Metals .....	MAT-2003
Heat Treatment of Metals .....	MAT-2004



## CNC MACHINING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**CNC Vertical Machining Center**

Components of a CNC Machining Center.....	CNC-2006
CNC Machining Center Movements .....	CNC-2007
Workpiece and Tool Holding Devices .....	CNC-2008
for a CNC Machining Center	
The CNC Controller for a CNC Machining Center.....	CNC-2009
Auxiliary Systems for a CNC Machining Center.....	CNC-2010

**CNC Vertical Machining Center Applications**

Maintenance Tasks for a CNC Machining Center.....	CNC-4015
Power on the CNC Machining Center.....	CNC-4016
Move the Axes by Rotating the Jog Handle .....	CNC-4017
on a CNC Machining Center	
Home the Axes on a CNC Machining Center.....	CNC-4018
Select a Part Program from Memory on a CNC .....	CNC-4019
Machining Center	
Start the Part Program Safely on a CNC Machining Center.....	CNC-4020
Interrupt Automatic Operation on a CNC Machining Center.....	CNC-4021
Adjust a Tool Wear Offset on a CNC Machining Center .....	CNC-4022
Power Off the CNC Machining Center .....	CNC-4023





MICRO CREDENTIAL

SKILLS COURSE

## CUTTING TOOLS

NUMBER

**Lubricants and Cutting Fluids**

Cutting Fluids.....CUT-2008

**Cutting Tools for Metalworking**

Cutting Tool Materials.....CUT-2009

Indexable Tool Holders.....CUT-2010

Inserts.....CUT-2011

Solid Cutting Tools .....CUT-2012

**Threads, Taps and Dies**

Threads.....CUT-2004

Taps.....CUT-2005

Hand Tapping.....CUT-2006



MICRO CREDENTIAL

SKILLS COURSE

## CNC MACHINING

NUMBER

**CNC Machining Center Programs**

CNC Programming Procedure for a CNC Machining Center .....CNC-4024

CNC Program Structure for a CNC Machining Center .....CNC-4025

CNC Addresses for a CNC Machining Center .....CNC-4026

CNC Machining Center Commands .....CNC-4027

Organizing a CNC Program for a CNC Machining Center .....CNC-4028

**CNC Machine Lubricants**

CNC Machine Lubricants .....CNC-2011



**Searching for a Job**

Kicking Off Your Job Search.....	CAR-1001
Finding Jobs to Apply For .....	CAR-1002
Networking.....	CAR-1003

**Resumes and Job Applications**

Completing an Employment Application.....	CAR-1004
Creating Your Resume.....	CAR-1005
Crafting a Cover Letter.....	CAR-1006

**Interviewing**

Understanding the Interview Process .....	CAR-1007
Making a Positive Impression .....	CAR-1008
Responding to Interview Questions .....	CAR-1009
Addressing Special Interview Concerns .....	CAR-1010
After the Interview.....	CAR-1011

**Keeping a Job**

Surviving Your First Day on the Job .....	CAR-1012
Turning a Job into a Career.....	CAR-1013





## COMPOSITES MANUFACTURING & REPAIR TECHNICIAN

### MAKE THE WORLD LIGHTER AND STRONGER

The use of composite materials in manufacturing is expanding quickly. Composites are now used in automotive, aerospace, medical devices and sports equipment. The benefits of light weight and strength make the applications of composite materials endless.

Composite manufacturing and repair technicians manufacture products using layers of carbon fiber, fiberglass, or other composite fabrics. Composite manufacturing requires attention to detail and good manual dexterity.

### INCOME OPPORTUNITIES

Salaries for Composites Manufacturing and Repair Technicians ranges from \$21,030 to \$47,670. \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

### HIRING INDUSTRIES

Automotive  
Aerospace  
Consumer products  
Construction  
Marine  
Military  
Medical devices

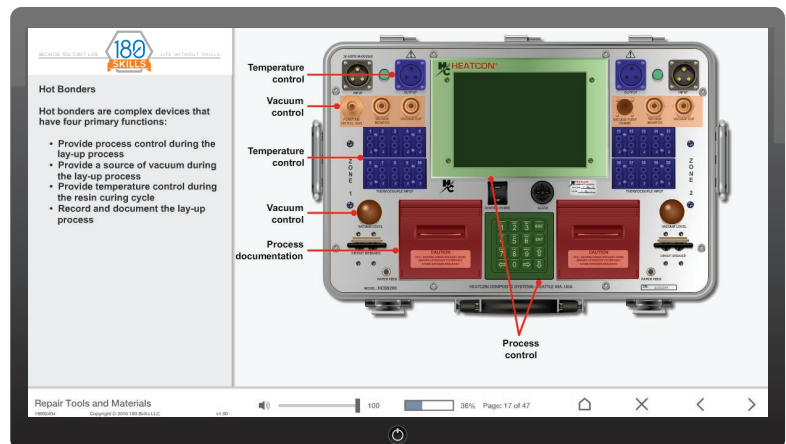
### CAREER PROGRAM SUMMARY

**Micro-credentials** 26

**Skills Courses** 112

**Time to complete** 2.5 months\*

\* Completing three modules per day



O\*NET job code: 51-2091

INTraining code: 7688





## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS.....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning.....	STU-1004



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math.....	MTH-1001
	Arithmetic Operations.....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions.....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers.....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line.....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates.....	MTH-1008
	The Metric System.....	MTH-1009



## HEALTH &amp; SAFETY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011





## HEALTH &amp; SAFETY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Hazardous Material Safety**

Hazardous Materials.....	SAF-1012
HazCom .....	SAF-1013
Hazardous Waste.....	SAF-1014
Hazard Material Storage.....	SAF-1015

**Workplace Safety**

Work Area Safety.....	SAF-1016
Fall Prevention .....	SAF-1018

**Electrical and Fire Safety**

Electrical Safety .....	SAF-1020
Lockout/Tagout.....	SAF-1021

**Tool and Machine Safety**

Hand Tool Safety .....	SAF-1027
Power Tool Safety .....	SAF-1028
Machine Safety .....	SAF-1030



## ENGINEERING DRAWINGS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Blueprint Reading Fundamentals**

Introduction to Blueprints.....	DWG-1001
Engineering Drawing Terminology.....	DWG-1002
Engineering Drawing Views.....	DWG-1003
Engineering Drawing Lines .....	DWG-1004
Dimensions and Tolerances .....	DWG-1005



## MEASUREMENT

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Precision Measurement I**

Introduction to Precision Instruments .....	MEA-2001
Rules .....	MEA-2002
Calipers.....	MEA-2003
Micrometers.....	MEA-2004





MICRO CREDENTIAL

SKILLS COURSE

## POWER TOOLS

NUMBER

**Stationary Power Tools**

Introduction to Stationary Power Tools .....	POW-2006
Disc and Belt Sanders .....	POW-2007
Drill Press .....	POW-2008
Band Saw .....	POW-2009
Arbor Press .....	POW-2010
Bench Grinder.....	POW-2011
Table Saw .....	POW-2012
Operating a Table Saw .....	POW-2013



MICRO CREDENTIAL

SKILLS COURSE

## COMPOSITES

NUMBER

**Introduction to Composites**

Background and History of Composites .....	CMP-1001
Composite Industries and Products .....	CMP-1002
Advantages and Disadvantages of Composites .....	CMP-1003
Safety and Hazards of Composites .....	CMP-1004

**Composites Manufacturing  
Facilities**

Facility Layout .....	CMP-1005
Non-controlled Contamination Areas.....	CMP-1006
Lay-up Area .....	CMP-1007
Curing Area.....	CMP-1008

**Materials Used in Composites  
Manufacturing**

Fiber Based Composites .....	CMP-2001
Fibers, Tapes and Fabrics .....	CMP-2002
Glass and Carbon Fibers .....	CMP-2003
Matrix Types and Properties .....	CMP-2004
Curing Process .....	CMP-2005
Honeycomb Core Materials .....	CMP-2006
Material Compatibility .....	CMP-2007
Galvanic Reactivity.....	CMP-2008
Core Potting Compounds.....	CMP-2009

**Composite Material Storage**

Fiber Material Storage .....	CMP-2010
Controlled Contamination Areas .....	CMP-2011





### Tools Used In Composite Manufacturing

Local Exhaust Ventilation .....	CMP-2012
Forming Tools.....	CMP-2013
Coefficient of Thermal Expansion .....	CMP-2014
Forming Tool Inspection .....	CMP-2015
Forming Tool Cleaning .....	CMP-2016
Forming Tool Storage.....	CMP-2017
Rollers and Sweeps.....	CMP-2018
Overhead Laser System.....	CMP-2019

### Composite Material Kitting

Kitting with a sheeter.....	CMP-3001
Kitting by Hand .....	CMP-3002
Kitting with Automated Machines .....	CMP-3003

### Composite Part Layup and Bagging

Ply Balancing .....	CMP-3004
Material splicing .....	CMP-3005
Wrinkles and Gaps.....	CMP-3006
Pockets and Voids.....	CMP-3007
Radius Filler Fabrication by Hand .....	CMP-3008
Advanced Bagging .....	CMP-3009
Bagging and Lay-up Equipment .....	CMP-3010
Preparation for the Lay-up Process.....	CMP-3011
Cure Cycle Controllers -Temperature Controls .....	CMP-3012
Thermocouple Science .....	CMP-3013

### Composite Layup Projects

Unidirectional 4 Ply Lay-up.....	CMP-4001
Carbon 8 Ply Lay-up with Core .....	CMP-4002
Fiberglass 6 Ply Wet Lay-up .....	CMP-4003

### Inspecting Composite Parts

Introduction to Inspection of Composites.....	CMP-3014
Visual Inspection for Composites.....	CMP-3015
Ultrasonic Inspection for Composites.....	CMP-3016
Tap Inspection for Composites.....	CMP-3017



**Searching for a Job**

Kicking Off Your Job Search.....	CAR-1001
Finding Jobs to Apply For .....	CAR-1002
Networking.....	CAR-1003

**Resumes and Job Applications**

Completing an Employment Application.....	CAR-1004
Creating Your Resume.....	CAR-1005
Crafting a Cover Letter.....	CAR-1006

**Interviewing**

Understanding the Interview Process .....	CAR-1007
Making a Positive Impression .....	CAR-1008
Responding to Interview Questions .....	CAR-1009
Addressing Special Interview Concerns .....	CAR-1010
After the Interview.....	CAR-1011

**Keeping a Job**

Surviving Your First Day on the Job .....	CAR-1012
Turning a Job into a Career.....	CAR-1013





## DRAFTING & CAD TECHNICIAN

### DRAW THE WORLD

Drafting and CAD technicians use software to convert the designs of engineers and architects into technical drawings and plans. Workers specialize in architectural, civil, electrical, or mechanical drafting and use technical drawings to help design everything from microchips to skyscrapers.

As a drafting and CAD technician, you can launch a rewarding career in several industries, where job demand is high.

This program requires additional external training in CAD software.

### INCOME OPPORTUNITIES

Salaries for Drafting & CAD Technicians ranges from \$33,020 to \$85,920 . \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

### HIRING INDUSTRIES

Architecture  
Automotive  
Aerospace  
Civil infrastructure  
Consumer products  
Construction  
Electrical equipment  
Marine  
Military

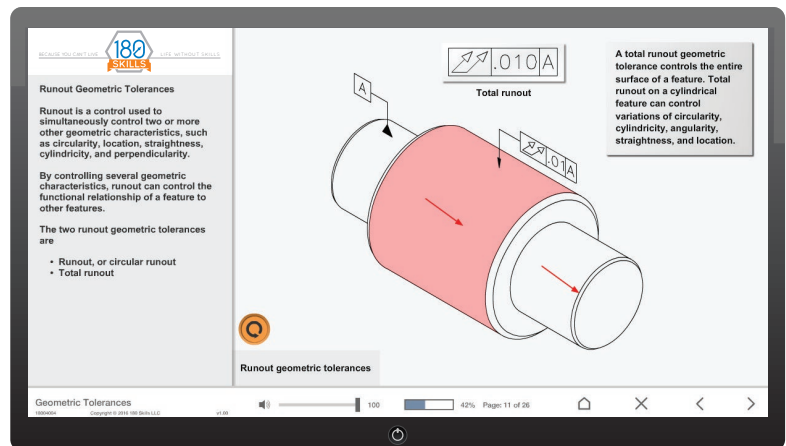
### CAREER PROGRAM SUMMARY

**Micro-credentials** 24

**Skills Courses** 98

**Time to complete** 2.0 months\*

\* Completing three modules per day



O\*NET job code: 17-3013.00

INTraining code: 7553





STUDY SKILLS

MICRO CREDENTIAL SKILLS COURSE NUMBER

180 Skills Orientation	Greatest Day Ever.....	STU-1001
Using a Learning Management System	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
Learning Online	Tips for Succeeding in Online Learning .....	STU-1004



ENGINEERING DRAWINGS

MICRO CREDENTIAL SKILLS COURSE NUMBER

Blueprint Reading Fundamentals	Introduction to Blueprints.....	DWG-1001
	Engineering Drawing Terminology.....	DWG-1002
	Engineering Drawing Views.....	DWG-1003
	Engineering Drawing Lines .....	DWG-1004
	Dimensions and Tolerances .....	DWG-1005



MATHEMATICS

MICRO CREDENTIAL SKILLS COURSE NUMBER

Basic Math	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations .....	MTH-1002
Fractions and Decimals	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers .....	MTH-1006
Intermediate Math	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System.....	MTH-1009





GEOMETRY

MICRO CREDENTIAL SKILLS COURSE NUMBER

Geometry	Introduction to Geometry.....	GEO-1001
	Basic Building Blocks of Geometry.....	GEO-1002
	Angles.....	GEO-1003
	Lines.....	GEO-1004
	Polygons.....	GEO-1005
	Triangles.....	GEO-1006
Intermediate Geometry	Quadrilaterals.....	GEO-1007
	Circles.....	GEO-1008
	Three-dimensional Shapes.....	GEO-1009
	Coordinate Geometry.....	GEO-1010
	Transformation Geometry.....	GEO-1011



HEALTH & SAFETY

MICRO CREDENTIAL SKILLS COURSE NUMBER

Introduction to Safety	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
Personal Protective Equipment Safety	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011





MICRO CREDENTIAL

SKILLS COURSE

## HEALTH &amp; SAFETY

NUMBER

**Hazardous Material Safety**

Hazardous Materials.....	SAF-1012
HazCom .....	SAF-1013
Hazardous Waste.....	SAF-1014
Hazard Material Storage.....	SAF-1015

**Workplace Safety**

Work Area Safety.....	SAF-1016
Fall Prevention .....	SAF-1018



MICRO CREDENTIAL

SKILLS COURSE

## QUALITY

NUMBER

**Quality Systems**

Introduction to Quality.....	QUA-1001
ISO 9000 .....	QUA-1002
Standards Organizations.....	QUA-1003
Quality Organizations.....	QUA-1004
Basic Quality Roles and Responsibilities.....	QUA-1005

**Quality Management**

Quality Concepts .....	QUA-1006
The Cost of Quality.....	QUA-1007
Managing Quality.....	QUA-1008
Quality Documents .....	QUA-1009
Corrective and Preventive Action .....	QUA-1010

**Introduction to Statistical  
Process Control**

Introduction to SPC .....	QUA-1011
Probability and Variation.....	QUA-1012
The Control Chart.....	QUA-1013

**Advanced Statistical  
Process Control**

Control Chart Analysis .....	QUA-2001
Process Capability.....	QUA-2002
Problem Solving Tools .....	QUA-2003
Problem Solving .....	QUA-2004





MICRO CREDENTIAL

SKILLS COURSE

## ENGINEERING DRAWINGS

NUMBER

**Advanced Blueprint Reading**

Geometric Dimensions and Tolerances .....	DWG-2001
Assemblies and Fits .....	DWG-2002
Threads and Fasteners .....	DWG-2003

**Geometric Dimensioning  
and Tolerancing**

Introduction to GD&T .....	DWG-3001
GD&T Terms and Symbols .....	DWG-3002
Rules of GD&T .....	DWG-3003
Geometric Tolerances .....	DWG-3004
Datums .....	DWG-3005
Form Tolerances .....	DWG-3006
Profile Tolerances .....	DWG-3007
Orientation Tolerances .....	DWG-3008
Runout Tolerances .....	DWG-3009
Location Tolerances .....	DWG-3010



MICRO CREDENTIAL

SKILLS COURSE

## LEAN MANUFACTURING

NUMBER

**Introduction to Lean  
Manufacturing**

The History of Lean Manufacturing .....	LEA-1002
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**Workplace Organization**

Workplace Organization .....	LEA-1003
S1: Sort .....	LEA-1004
S2: Straighten .....	LEA-1005
S3: Shine .....	LEA-1006
S4: Standardize .....	LEA-1007
S5: Sustain .....	LEA-1008



MICRO CREDENTIAL

SKILLS COURSE

## COMMUNICATION

NUMBER

**Technical Writing**

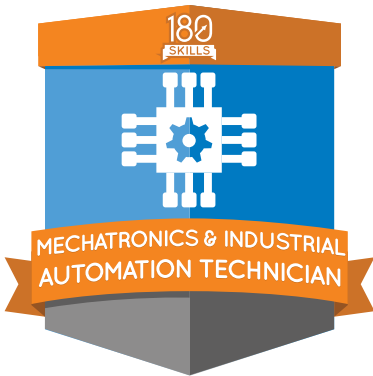
Introduction to Technical Writing .....	COM-2004
Successful Documentation .....	COM-2005





<b>Searching for a Job</b>	Kicking Off Your Job Search.....	CAR-1001
	Finding Jobs to Apply For .....	CAR-1002
	Networking.....	CAR-1003
<b>Resumes and Job Applications</b>	Completing an Employment Application.....	CAR-1004
	Creating Your Resume.....	CAR-1005
	Crafting a Cover Letter.....	CAR-1006
<b>Interviewing</b>	Understanding the Interview Process .....	CAR-1007
	Making a Positive Impression .....	CAR-1008
	Responding to Interview Questions .....	CAR-1009
	Addressing Special Interview Concerns .....	CAR-1010
	After the Interview.....	CAR-1011
<b>Keeping a Job</b>	Surviving Your First Day on the Job .....	CAR-1012
	Turning a Job into a Career.....	CAR-1013





# MECHATRONICS & INDUSTRIAL AUTOMATION TECHNICIAN

## MAINTAIN THE WORLD

Mechatronics is the convergence of mechanical, electronic, control, and software engineering. Also known as electro-mechanical maintenance technicians, mechatronics and industrial automation technicians combine knowledge of mechanical technology with knowledge of electrical circuits. They install, troubleshoot, repair, and upgrade electronic and computer-controlled mechanical systems, such as robotic assembly machines.

Mechatronics and industrial automation technicians work closely with electrical and mechanical engineers. They work primarily in manufacturing, engineering services, and research and development.

## INCOME OPPORTUNITIES

Salaries for Mechatronics & Industrial Automation Technicians ranges from \$31,930 to \$80,160 . \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

## HIRING INDUSTRIES

Automotive  
Aerospace  
Building maintenance  
Civil infrastructure  
Consumer products  
Construction  
Electrical equipment  
Logistics and distribution  
Manufacturing  
Materials processing

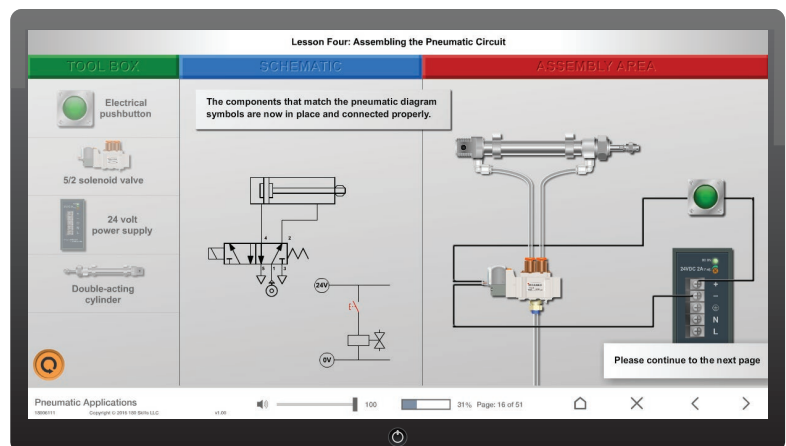
## CAREER PROGRAM SUMMARY

**Micro-credentials** 32

**Skills Courses** 129

**Time to complete** 2.5 months\*

\* Completing three modules per day



O\*NET job code: 49-2094.00

INTraining code: 7687





## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning .....	STU-1004



## AUTOMATION

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Industrial Automation</b>	Introduction to Automation .....	AUT-1001
	Automated Process .....	AUT-1002
	Automated System.....	AUT-1003



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations.....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers .....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System .....	MTH-1009



## HEALTH &amp; SAFETY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Safety</b>	Introduction to OSHA .....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003




**Personal Protective  
Equipment Safety**

Personal Protective Equipment.....	SAF-1004
Eye and Face Protection.....	SAF-1005
Head Protection.....	SAF-1006
Foot and Leg Protection.....	SAF-1007
Hand and Arm Protection.....	SAF-1008
Body Protection.....	SAF-1009
Hearing Protection.....	SAF-1010
Respiratory Protection.....	SAF-1011

**Hazardous Material Safety**

Hazardous Materials.....	SAF-1012
HazCom.....	SAF-1013
Hazardous Waste.....	SAF-1014
Hazard Material Storage.....	SAF-1015

**Workplace Safety**

Work Area Safety.....	SAF-1016
Permit-Related Safety.....	SAF-1017
Fall Prevention.....	SAF-1018
Ladder Safety.....	SAF-1019

**Electrical and Fire Safety**

Electrical Safety.....	SAF-1020
Lockout/Tagout.....	SAF-1021
Fire Safety.....	SAF-1022
Fire Extinguishers.....	SAF-1023

**Tool and Machine Safety**

Hand Tool Safety.....	SAF-1027
Power Tool Safety.....	SAF-1028
Sheet Metal and Compressed Gas Safety.....	SAF-1029
Machine Safety.....	SAF-1030
Safety Devices.....	SAF-1031





MICRO CREDENTIAL

SKILLS COURSE

## PNEUMATICS

NUMBER

**Introduction to Pneumatics**

Introduction to Pneumatics .....	PNE-1001
Pneumatic Systems .....	PNE-1002
The Properties of Gases .....	PNE-1003
Air Compression and Distribution - Part One .....	PNE-1004
Air Compression and Distribution - Part Two .....	PNE-1005

**Components of a Pneumatic System**

Compressed Air Treatment .....	PNE-2001
Pneumatic Actuators .....	PNE-2002
Directional Control Valves .....	PNE-2003
Vacuum Technology .....	PNE-2004
Measuring Pneumatic Variables .....	PNE-2005

**Pneumatic Applications**

Pneumatic Applications .....	PNE-3001
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MICRO CREDENTIAL

SKILLS COURSE

## ELECTRICAL

NUMBER

**Introduction to Electricity**

Production of Electricity .....	ELE-1001
Transmission and Distribution of Electricity .....	ELE-1002
Uses of Electricity .....	ELE-1003
Atomic Structure .....	ELE-1004
Electrical Circuits .....	ELE-1005
Electrical Current .....	ELE-1006
Voltage .....	ELE-1007
Electrical Power .....	ELE-1008
Resistance .....	ELE-1009
Ohm's Law .....	ELE-1010
Watt's Law .....	ELE-1011

**Electrical Measurement Conversion**

Electrical Measurement and Unit Conversion .....	ELE-2019
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**DC Electricity**

Direct Current .....	ELE-1012
Batteries .....	ELE-1013
Circuit Analysis .....	ELE-1014

**AC Electricity**

Electromagnetism .....	ELE-1015
AC Waveform Generation .....	ELE-1016
Electromagnetic Devices .....	ELE-1017
Transformers .....	ELE-1018
Capacitors .....	ELE-1019





MICRO CREDENTIAL

SKILLS COURSE

## ELECTRICAL

NUMBER

<b>Solid State Electricity</b>	Semiconductors.....	ELE-1020
	Solid State Devices .....	ELE-1021
<b>Introduction to Wiring</b>	Wires, Connectors, and Circuit Protection .....	ELE-2001
	Connecting Transformers.....	ELE-2002
<b>Introduction to Electric Motors</b>	DC Motors.....	ELE-2003
	AC Single-Phase Motors.....	ELE-2004
	Three-Phase AC Motors .....	ELE-2005
<b>Electrical Connectors</b>	Electrical Connectors and Fasteners.....	ELE-2006
<b>Sensor Technology</b>	Introduction to Sensors Technology .....	ELE-2012
	Sensor Technology.....	ELE-2013
	Proximity Sensors .....	ELE-2014
	Position, Speed, and Acceleration Sensors.....	ELE-2015
	Industrial Process Sensors .....	ELE-2016
	Advanced Sensors.....	ELE-2017



MICRO CREDENTIAL

SKILLS COURSE

## HYDRAULICS

NUMBER

<b>Introduction to Hydraulics</b>	Introduction to Hydraulics.....	HYD-1001
	Hydraulic Theory.....	HYD-1002
	Hydraulic Fluids .....	HYD-1003
	Hydraulic Systems.....	HYD-1004
<b>Components of a Hydraulic System</b>	Hydraulic Actuators .....	HYD-2001
	Classification of Hydraulic Valves.....	HYD-2002
	Hydraulic Piping and Instrumentation.....	HYD-2003
	Hydroelectric Symbology and Circuits.....	HYD-2004





MICRO CREDENTIAL      SKILLS COURSE

PLC  
NUMBER

<b>Programmable Logic Controllers</b>	Introduction to Programmable Controllers.....	PLC-1001
	Introduction to Digital Electronics.....	PLC-1002
	Types and Functions of Programmable Controllers.....	PLC-2001
	General Structure of PLC .....	PLC-2002
	Physical Integration of the PLC .....	PLC-2003
	Internal Structure of the CPU .....	PLC-2004
	Basic Concepts of PLC Programming .....	PLC-2005
	Common PLC Applications.....	PLC-2006



MICRO CREDENTIAL      SKILLS COURSE

AUTOMATION  
NUMBER

<b>Process Controls</b>	Introduction to Process Controls.....	AUT-2001
	Process Control Systems .....	AUT-2002
	Set Point/Comparator .....	AUT-2003
	Controller (PID Control) .....	AUT-2004
	Multivariate Processes.....	AUT-2005



MICRO CREDENTIAL      SKILLS COURSE

ROBOTICS  
NUMBER

<b>Robotics</b>	Introduction to Robotics.....	ROB-1001
	Robot Safety.....	ROB-1002
	Robot Axes.....	ROB-2001
	Robot Manipulator.....	ROB-2002
	Controller and End Effectors.....	ROB-2003
	Robot Programs .....	ROB-2004
	Industrial Robot Applications.....	ROB-2005





Searching for a Job	Kicking Off Your Job Search.....	CAR-1001
	Finding Jobs to Apply For .....	CAR-1002
	Networking.....	CAR-1003
Resumes and Job Applications	Completing an Employment Application.....	CAR-1004
	Creating Your Resume.....	CAR-1005
	Crafting a Cover Letter.....	CAR-1006
Interviewing	Understanding the Interview Process .....	CAR-1007
	Making a Positive Impression .....	CAR-1008
	Responding to Interview Questions .....	CAR-1009
	Addressing Special Interview Concerns .....	CAR-1010
	After the Interview.....	CAR-1011
Keeping a Job	Surviving Your First Day on the Job .....	CAR-1012
	Turning a Job into a Career.....	CAR-1013





## QUALITY ASSURANCE TECHNICIAN

### MAKE THE WORLD EXCELLENT

When products like cell phones, computers or automobiles leave the factory, it's the quality assurance technician who makes sure they work. Also known as inspectors or testers, quality assurance technicians work on a wide range of challenging projects across multiple industries.

Critical to the success of any product development team, they make a difference. Quality assurance technicians reduce the cost of production, decrease maintenance expenses, and increase customer safety and satisfaction.

### INCOME OPPORTUNITIES

Salaries for Quality Assurance Technicians ranges from \$22,530 to \$63,590 . \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

### HIRING INDUSTRIES

Automotive  
Aerospace  
Building maintenance  
Civil infrastructure  
Consumer products  
Construction  
Electrical equipment  
Logistics and distribution  
Manufacturing  
Materials processing

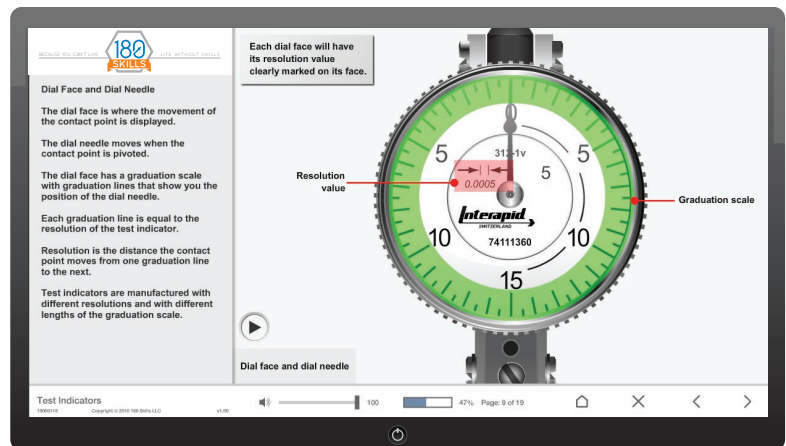
### CAREER PROGRAM SUMMARY

**Micro-credentials** 31

**Skills Courses** 131

**Time to complete** 2.5 months\*

\* Completing three modules per day



O\*NET job code: 51-9061.00

INTraining code: 7693



# QUALITY ASSURANCE TECHNICIAN



## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning .....	STU-1004



## QUALITY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Quality Systems</b>	Introduction to Quality.....	QUA-1001
	ISO 9000 .....	QUA-1002
	Standards Organizations.....	QUA-1003
	Quality Organizations .....	QUA-1004
	Basic Quality Roles and Responsibilities.....	QUA-1005



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations.....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers .....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System .....	MTH-1009







## GEOMETRY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Geometry</b>	Introduction to Geometry.....	GEO-1001
	Basic Building Blocks of Geometry.....	GEO-1002
	Angles.....	GEO-1003
	Lines.....	GEO-1004
	Polygons.....	GEO-1005
	Triangles.....	GEO-1006
<b>Intermediate Geometry</b>	Quadrilaterals.....	GEO-1007
	Circles.....	GEO-1008
	Three-dimensional Shapes.....	GEO-1009
	Coordinate Geometry.....	GEO-1010
	Transformation Geometry.....	GEO-1011



## HEALTH & SAFETY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011
<b>Hazardous Material Safety</b>	Hazardous Materials.....	SAF-1012
	HazCom.....	SAF-1013
	Hazardous Waste.....	SAF-1014
	Hazard Material Storage.....	SAF-1015
<b>Workplace Safety</b>	Work Area Safety.....	SAF-1016
	Fall Prevention.....	SAF-1018



# QUALITY ASSURANCE TECHNICIAN



MICRO CREDENTIAL

SKILLS COURSE

## QUALITY

NUMBER

### Quality Management

Quality Concepts .....	QUA-1006
The Cost of Quality.....	QUA-1007
Managing Quality.....	QUA-1008
Quality Documents .....	QUA-1009
Corrective and Preventive Action.....	QUA-1010

### Introduction to Statistical Process Control

Introduction to SPC .....	QUA-1011
Probability and Variation.....	QUA-1012
The Control Chart.....	QUA-1013

### Advanced Statistical Process Control

Control Chart Analysis .....	QUA-2001
Process Capability.....	QUA-2002
Problem Solving Tools .....	QUA-2003
Problem Solving .....	QUA-2004



MICRO CREDENTIAL

SKILLS COURSE

## ENGINEERING DRAWINGS

NUMBER

### Blueprint Reading Fundamentals

Introduction to Blueprints.....	DWG-1001
Engineering Drawing Terminology.....	DWG-1002
Engineering Drawing Views.....	DWG-1003
Engineering Drawing Lines .....	DWG-1004
Dimensions and Tolerances .....	DWG-1005

### Advanced Blueprint Reading

Geometric Dimensions and Tolerances .....	DWG-2001
Assemblies and Fits .....	DWG-2002
Threads and Fasteners .....	DWG-2003

### Geometric Dimensioning and Tolerancing

Introduction to GD&T.....	DWG-3001
GD&T Terms and Symbols .....	DWG-3002
Rules of GD&T .....	DWG-3003
Geometric Tolerances.....	DWG-3004
Datums .....	DWG-3005
Form Tolerances .....	DWG-3006
Profile Tolerances.....	DWG-3007
Orientation Tolerances .....	DWG-3008
Runout Tolerances .....	DWG-3009
Location Tolerances .....	DWG-3010







<b>Precision Measurement I</b>	Introduction to Precision Instruments .....	MEA-2001
	Rules .....	MEA-2002
	Calipers.....	MEA-2003
	Micrometers.....	MEA-2004
<b>Precision Measurement II</b>	Small Hole Gauges.....	MEA-2005
	Dial Indicators .....	MEA-2006
	Bore Gauges .....	MEA-2007
	Height Gauges .....	MEA-2008
	Go/NoGo Gauges .....	MEA-2009
	Test Indicators.....	MEA-2010
<b>Attribute Gauges</b>	Go/NoGo Thread Gauges.....	MEA-2011
	Attribute Gauges .....	MEA-2012
	Thickness and Radius Gauges.....	MEA-2013
	Squares and Protractors .....	MEA-2014
	Surface Roughness Comparators.....	MEA-2015
<b>Precision Measurement III</b>	Adjustable Parallels.....	MEA-2016
	Surface Plates.....	MEA-2017
	Optical Comparators.....	MEA-2018



<b>Technical Writing</b>	Introduction to Technical Writing .....	COM-2004
	Successful Documentation.....	COM-2005
<b>Communicating with Others</b>	Introduction to Communication.....	COM-1001
	Effective Communication .....	COM-1002
	Verbal Communication.....	COM-1003
	Written Communication.....	COM-1004
	Nonverbal Communication.....	COM-1005
	Listening Skills .....	COM-1006
	Workplace Communication.....	COM-1007
<b>Dealing With Conflict</b>	Understanding Conflict .....	COM-2001
	Communication Skills .....	COM-2002
	Managing Conflict .....	COM-2003





## TEAM BUILDING

	MICRO CREDENTIAL	SKILLS COURSE	NUMBER
<b>Working on a Team</b>		Working in a Group .....	TEA-1001
		Group Communication .....	TEA-1002
		Effective Collaboration .....	TEA-1003
		Life Stages of a Team .....	TEA-1004
		Meeting .....	TEA-1005
<b>Team Dynamics</b>		Diversity .....	TEA-1006
		Creativity .....	TEA-1007
		Problem Solving .....	TEA-1008
		Decision Making .....	TEA-1009
		Conflict Management .....	TEA-1010
		Leadership .....	TEA-1011
		Virtual Groups .....	TEA-1012



## COMMUNICATION

	MICRO CREDENTIAL	SKILLS COURSE	NUMBER
<b>Dealing With Conflict</b>		Understanding Conflict .....	COM-2001
		Communication Skills .....	COM-2002
		Managing Conflict .....	COM-2003



## CAREER BUILDING

	MICRO CREDENTIAL	SKILLS COURSE	NUMBER
<b>Searching for a Job</b>		Kicking Off Your Job Search .....	CAR-1001
		Finding Jobs to Apply For .....	CAR-1002
		Networking .....	CAR-1003
<b>Resumes and Job Applications</b>		Completing an Employment Application .....	CAR-1004
		Creating Your Resume .....	CAR-1005
		Crafting a Cover Letter .....	CAR-1006
<b>Interviewing</b>		Understanding the Interview Process .....	CAR-1007
		Making a Positive Impression .....	CAR-1008
		Responding to Interview Questions .....	CAR-1009
		Addressing Special Interview Concerns .....	CAR-1010
		After the Interview .....	CAR-1011
<b>Keeping a Job</b>		Surviving Your First Day on the Job .....	CAR-1012
		Turning a Job into a Career .....	CAR-1013





## SAFETY TECHNICIAN

### HELP KEEP OTHERS HEALTHY AND SAFE

Safety technicians collect data on the safety and health conditions of the workplace. Safety technicians work with occupational health and safety specialists in conducting tests and measuring hazards to help prevent harm to workers, property, the environment, and the general public.

Safety technicians work in a variety of settings, such as offices, manufacturing facilities, and mines. Their jobs often involve considerable fieldwork and travel.

### INCOME OPPORTUNITIES

Salaries for Occupational Health and Safety Technicians ranges from \$23,190 to \$79,990. \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

### HIRING INDUSTRIES

Automotive  
Aerospace  
Civil infrastructure  
Consumer products  
Construction  
Electrical equipment  
Marine  
Military  
Materials processing  
Medical devices

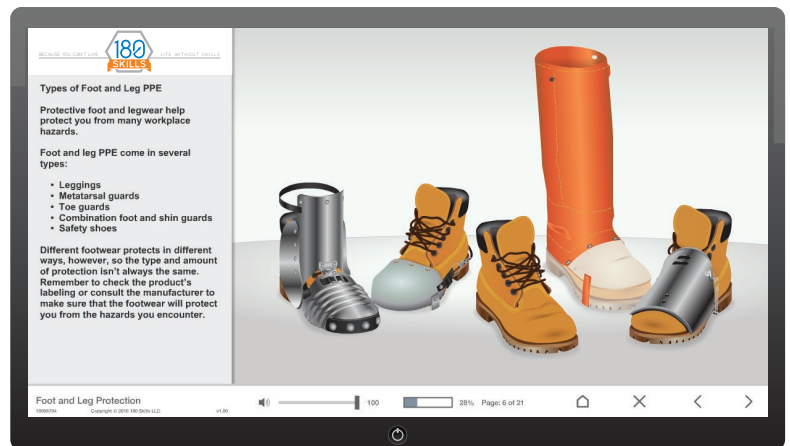
### CAREER PROGRAM SUMMARY

**Micro-credentials** 26

**Skills Courses** 111

**Time to complete** 2.0 months\*

\* Completing three modules per day



O\*NET job code: 29-9012.00

INTraining code: 7668





## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**180 Skills Orientation** Greatest Day Ever.....STU-1001

**Using a Learning Management System** How to Take a Course.....STU-1002  
How to Navigate the LMS.....STU-1003

**Learning Online** Tips for Succeeding in Online Learning.....STU-1004



## HEALTH &amp; SAFETY

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Introduction to Safety** Introduction to OSHA.....SAF-1001  
Making Work a Safer Place.....SAF-1002  
Help! What to Do in an Emergency.....SAF-1003



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

**Basic Math** Introduction to Basic Math.....MTH-1001  
Arithmetic Operations.....MTH-1002

**Fractions and Decimals** Introduction to Fractions.....MTH-1004  
Working with Fractions.....MTH-1005  
Decimal Numbers.....MTH-1006

**Intermediate Math** Numbers and the Number Line.....MTH-1003  
Positive and Negative Numbers.....MTH-1007  
Cartesian Coordinates.....MTH-1008  
The Metric System.....MTH-1009





<b>Geometry</b>	Introduction to Geometry.....	GEO-1001
	Basic Building Blocks of Geometry.....	GEO-1002
	Angles.....	GEO-1003
	Lines.....	GEO-1004
	Polygons.....	GEO-1005
	Triangles.....	GEO-1006
<b>Intermediate Geometry</b>	Quadrilaterals.....	GEO-1007
	Circles.....	GEO-1008
	Three-dimensional Shapes.....	GEO-1009
	Coordinate Geometry.....	GEO-1010
	Transformation Geometry.....	GEO-1011



<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011
<b>Hazardous Material Safety</b>	Hazardous Materials.....	SAF-1012
	HazCom.....	SAF-1013
	Hazardous Waste.....	SAF-1014
	Hazard Material Storage.....	SAF-1015
<b>Workplace Safety</b>	Work Area Safety.....	SAF-1016
	Permit-Related Safety.....	SAF-1017
	Fall Prevention.....	SAF-1018
	Ladder Safety.....	SAF-1019
<b>Electrical and Fire Safety</b>	Electrical Safety.....	SAF-1020
	Lockout/Tagout.....	SAF-1021
	Fire Safety.....	SAF-1022
	Fire Extinguishers.....	SAF-1023





MICRO CREDENTIAL

SKILLS COURSE

## HEALTH &amp; SAFETY

NUMBER

**Material Handling Safety**

Material Handling Basics .....	SAF-1024
Powered Industrial Trucks.....	SAF-1025
Crane and Rigging Safety.....	SAF-1026

**Tool and Machine Safety**

Hand Tool Safety.....	SAF-1027
Power Tool Safety.....	SAF-1028
Sheet Metal and Compressed Gas Safety .....	SAF-1029
Machine Safety.....	SAF-1030
Safety Devices.....	SAF-1031



MICRO CREDENTIAL

SKILLS COURSE

## CAREER BUILDING

NUMBER

**Manufacturing as a Career**

Manufacturing - A Future Worth Exploring.....	CAR-2001
Manufacturing - Components of Production .....	CAR-2002
Manufacturing - Credentials and Competencies .....	CAR-2003
Manufacturing - Career Planning and Resources.....	CAR-2004



MICRO CREDENTIAL

SKILLS COURSE

## MANUFACTURING

NUMBER

**Introduction to Manufacturing**

What is Advanced Manufacturing? .....	MFG-1001
Manufacturing History and Technology .....	MFG-1002
From Ideas to Products .....	MFG-1003
From Design to Manufacturing .....	MFG-1004
Safety, Quality and the Environment in Manufacturing .....	MFG-1005
Measuring Success in Manufacturing.....	MFG-1006
Careers in Manufacturing.....	MFG-1007



MICRO CREDENTIAL

SKILLS COURSE

## LOGISTICS

NUMBER

**Introduction to Logistics**

What is Logistics? .....	LOG-1001
Logistics Technology.....	LOG-1002
Inventory.....	LOG-1003
Distribution and Transportation .....	LOG-1004
Safety, Quality and the Environment in Logistics .....	LOG-1005
Winning in Logistics.....	LOG-1006
Careers in Logistics.....	LOG-1007

**Manufacturing & Logistics Game**

The Game of Manufacturing and Logistics .....	MFG-1008
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MICRO CREDENTIAL

SKILLS COURSE

## COMMUNICATION

NUMBER

**Communicating with Others**

Introduction to Communication .....	COM-1001
Effective Communication .....	COM-1002
Verbal Communication .....	COM-1003
Written Communication .....	COM-1004
Nonverbal Communication .....	COM-1005
Listening Skills .....	COM-1006
Workplace Communication .....	COM-1007



MICRO CREDENTIAL

SKILLS COURSE

## TEAM BUILDING

NUMBER

**Working on a Team**

Working in a Group .....	TEA-1001
Group Communication .....	TEA-1002
Effective Collaboration .....	TEA-1003
Life Stages of a Team .....	TEA-1004
Meeting .....	TEA-1005

**Team Dynamics**

Diversity .....	TEA-1006
Creativity .....	TEA-1007
Problem Solving .....	TEA-1008
Decision Making .....	TEA-1009
Conflict Management .....	TEA-1010
Leadership .....	TEA-1011
Virtual Groups .....	TEA-1012



MICRO CREDENTIAL

SKILLS COURSE

## COMMUNICATION

NUMBER

**Dealing With Conflict**

Understanding Conflict .....	COM-2001
Communication Skills .....	COM-2002
Managing Conflict .....	COM-2003

**Technical Writing**

Introduction to Technical Writing .....	COM-2004
Successful Documentation .....	COM-2005



**Searching for a Job**

Kicking Off Your Job Search.....	CAR-1001
Finding Jobs to Apply For .....	CAR-1002
Networking.....	CAR-1003

**Resumes and Job Applications**

Completing an Employment Application.....	CAR-1004
Creating Your Resume.....	CAR-1005
Crafting a Cover Letter.....	CAR-1006

**Interviewing**

Understanding the Interview Process .....	CAR-1007
Making a Positive Impression .....	CAR-1008
Responding to Interview Questions .....	CAR-1009
Addressing Special Interview Concerns .....	CAR-1010
After the Interview.....	CAR-1011

**Keeping a Job**

Surviving Your First Day on the Job .....	CAR-1012
Turning a Job into a Career.....	CAR-1013





## AEROSPACE MANUFACTURING CAREER PROGRAMS





## AEROSPACE ELECTRICAL ASSEMBLY TECHNICIAN

### ELECTRIFY THE WORLD'S AIRCRAFT

Today's aircraft are highly complex machines with hundreds of electronic components and miles of wiring. Aerospace electrical assembly technicians ensure the electronic systems on modern aircraft operate at peak performance.

They prepare wiring layouts, select and install a wide range of electrical components, perform scheduled maintenance, and complete inspections. Repairing, diagnosing and assembling the electronic components, they play a crucial role in ensuring worry-free flight.

### INCOME OPPORTUNITIES

Salaries for Electrical Assembly Technicians ranges from \$29,320 to \$50,770. \*

\*Source: U.S. Bureau of Labor Statistics, 2016

### HIRING INDUSTRIES

Air Transport  
Aircraft & Parts Manufacturing  
Guided Missiles, Space Vehicles, and Parts  
Satellite Communications  
Search, Detection, and Navigation Guidance  
Space Research and Technology

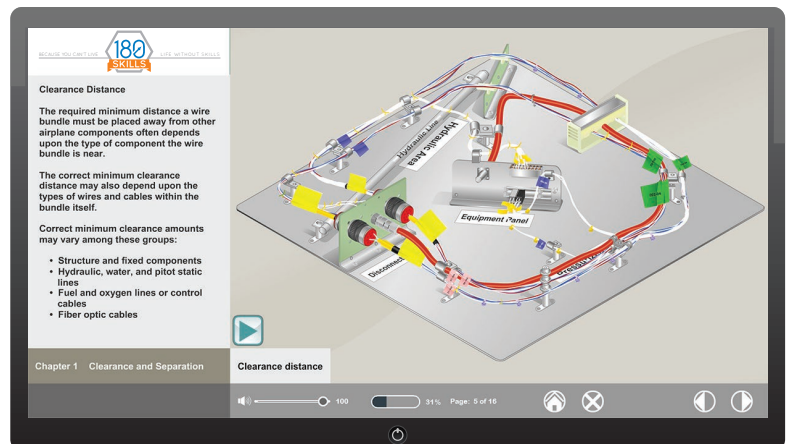
### CAREER PROGRAM SUMMARY

**Micro-credentials** 41

**Skills Courses** 161

**Time to complete** 3.5 months\*

\* Completing three modules per day



O\*NET job code: 49-2096

INTraining code: 7689



# AEROSPACE ELECTRICAL ASSEMBLY TECHNICIAN



## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS .....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning .....	STU-1004



## AEROSPACE MANUFACTURING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Aircraft Familiarization</b>	The History of Aviation.....	AER-1001
	Primary Assemblies of an Aircraft .....	AER-1002
	Principles of Flight .....	AER-1003
	Airplane Control.....	AER-1004
	Aircraft Configuration .....	AER-1005
	Aircraft Materials .....	AER-1006
	Aircraft Construction .....	AER-1007
	Aircraft Corrosion .....	AER-1008
	Aircraft Regulations .....	AER-1009



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations .....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers .....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System .....	MTH-1009





MICRO CREDENTIAL

SKILLS COURSE

## HEALTH &amp; SAFETY

NUMBER

<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
	Respiratory Protection.....	SAF-1011
<b>Hazardous Material Safety</b>	Hazardous Materials.....	SAF-1012
	HazCom.....	SAF-1013
	Hazardous Waste.....	SAF-1014
	Hazard Material Storage.....	SAF-1015
<b>Workplace Safety</b>	Work Area Safety.....	SAF-1016
	Fall Prevention.....	SAF-1018
<b>Electrical and Fire Safety</b>	Electrical Safety.....	SAF-1020
	Lockout/Tagout.....	SAF-1021
<b>Tool and Machine Safety</b>	Hand Tool Safety.....	SAF-1027
	Power Tool Safety.....	SAF-1028



MICRO CREDENTIAL

SKILLS COURSE

## ENGINEERING DRAWINGS

NUMBER

<b>Blueprints and Picture Sheets for Aerospace</b>	Aerospace Introduction to Blueprints.....	DWG-1006
	Blueprint Terminology.....	DWG-1007
	Blueprint Views.....	DWG-1008
	Blueprint Lines.....	DWG-1009
	Blueprint Dimensions and Tolerances.....	DWG-1010
	Blueprint Symbols.....	DWG-1011





MICRO CREDENTIAL

SKILLS COURSE

## MEASUREMENT

NUMBER

## Precision Measurement I

Introduction to Precision Instruments .....	MEA-2001
Rules .....	MEA-2002
Calipers.....	MEA-2003
Micrometers.....	MEA-2004

## Fastener Inspection Gauges

Grip Gauges .....	MEA-2020
Countersink Gauges.....	MEA-2021
Fastener Height Gauges .....	MEA-2022
Rivet Inspection Gauges .....	MEA-2023
Fastener Inspection Gauges .....	MEA-2024
Gap Inspection Gauges.....	MEA-2025



MICRO CREDENTIAL

SKILLS COURSE

## FASTENERS

NUMBER

## Fasteners

Temporary Fasteners.....	FAS-2001
Rivets.....	FAS-2002
Bolts, Screws, and Washers .....	FAS-2003
Threaded Inserts .....	FAS-2004
Hi-Loks.....	FAS-2005
Lockbolts.....	FAS-2006
Nut Plates.....	FAS-2007
Blind Rivets .....	FAS-2008
Identifying Fasteners .....	FAS-2009
Fasteners and Fits .....	FAS-2010
Securing and Lockwiring Fasteners .....	FAS-2011
Torque Tools .....	FAS-2012



MICRO CREDENTIAL

SKILLS COURSE

## POWER TOOLS

NUMBER

## Hand Power Tools

Pistol Grip Drills .....	POW-2001
Drilling Techniques.....	POW-2002
Winslow Drills.....	POW-2003
Compression Riveters .....	POW-2004
Rivet Installation Tools.....	POW-2005

## Stationary Power Tools

Introduction to Stationary Power Tools .....	POW-2006
Disc and Belt Sanders .....	POW-2007
Drill Press.....	POW-2008
Band Saw .....	POW-2009
Arbor Press .....	POW-2010
Bench Grinder.....	POW-2011





MICRO CREDENTIAL

SKILLS COURSE

## CUTTING TOOLS

NUMBER

**Drill Bits** Drill Bits .....CUT-2001

**Drill Guides and Drill Stops** Drill Guides and Drill Stops .....CUT-2002

**Countersinking Tools** Countersinking Tools .....CUT-2003



MICRO CREDENTIAL

SKILLS COURSE

## AEROSPACE MANUFACTURING

NUMBER

**Basic Drilling and Riveting** Marking Fastener Locations for Drilling Project .....AER-4001

Setting Up the Drill Motor.....AER-4002

Drilling Pilot Holes and Enlarging Holes .....AER-4003

Deburring.....AER-4004

Driving Protruding Head Rivets .....AER-4005

**Countersinking and Riveting Project** Setting the Countersink Tool (project) .....AER-4014

**Aerospace Sealing and Safety** Introduction to Sealing .....AER-2001

Chemical Safety.....AER-2002

Preparing the Surface .....AER-2003

Selecting the Right Sealant.....AER-2004

Applying the Sealant .....AER-2005

**Sealant Applicant Processes** Sealing Basics.....AER-4043

**Mechanical Project** Fay and Prepack Sealing .....AER-4044

Fillet and Injection Sealing .....AER-4045

Cap Sealing .....AER-4046

**Aerospace Electrical Bond and Ground** Electricity and the Airplane .....AER-2006



# AEROSPACE ELECTRICAL ASSEMBLY TECHNICIAN



MICRO CREDENTIAL

SKILLS COURSE

## ELECTRICAL

NUMBER

### Electrical Measurement Conversion

Electrical Measurement and Unit Conversion.....ELE-2019

### Electrical Resistance Test Equipment

Resistance Test Equipment .....ELE-2020

The Fluke® Multimeter.....ELE-2021

The Biddle® Ohmmeter.....ELE-2022

The Avtron® Ohmmeter.....ELE-2023

The Hewlett Packard® Milliohmmeter.....ELE-2024

The BCD M1® Ohmmeter .....ELE-2025



MICRO CREDENTIAL

SKILLS COURSE

## AEROSPACE MANUFACTURING

NUMBER

### Aerospace Electrical Bond and Ground Project

Electrical Bond and Ground Introduction .....AER-4047

Pre-installed Ground Studs.....AER-4048

Electrical Fay Surface Bonds .....AER-4049

Direct Ground Stud.....AER-4050

Fillet Sealing a Ground Stud .....AER-4051

Fay Sealing a Direct Ground Stud .....AER-4052



MICRO CREDENTIAL

SKILLS COURSE

## ENGINEERING DRAWINGS

NUMBER

### Aerospace Wire Installation Drawings

Engineering Drawing Review .....DWG-2004

Wire Bundle Installation Paperwork.....DWG-2005

Electrical Production Illustrations.....DWG-2006



MICRO CREDENTIAL

SKILLS COURSE

## AEROSPACE MANUFACTURING

NUMBER

### Aerospace Wire Bundle Basics

Wiring in Airplanes .....AER-2007

Wire and Cable Basics .....AER-2008

Wire, Cable, and Wire Bundle Markings .....AER-2009

Circular Connectors and Contacts .....AER-2010

Installing a Connector.....AER-2011

MTC Connectors.....AER-2012

Tying Wire Bundles .....AER-2013







<b>Electrical Hand Tools</b>	Hand Tools for Electrical Wiring.....	ELE-2018
<b>Electrical Connectors</b>	Electrical Connectors and Fasteners.....	ELE-2006
<b>Crimping Terminals and Splices</b>	Terminals and Splices.....	ELE-4001
	Crimping .....	ELE-4002
	Crimping a Terminal.....	ELE-4003
	Crimping a Pre-insulated Splice.....	ELE-4004
<b>Assembly of Coaxial Connectors</b>	Coaxial Cable .....	ELE-4005
	Coaxial Connectors .....	ELE-4006
	Coaxial Connector Tools .....	ELE-4007
	Coaxial Connector Assembly.....	ELE-4008
<b>Fiber Optics</b>	Fiber Optics and Light .....	ELE-2007
	Manufacturing Optical Fiber .....	ELE-2008
	Fiber Optic Cable.....	ELE-2009
	Handling Fiber Optic Cable.....	ELE-2010
	Quality and Safety .....	ELE-2011



<b>Aerospace Wire Bundle</b>	Clearance and Separation.....	AER-4053
<b>Installation Project</b>	Minimum Bend Radius .....	AER-4054
	Clamping Wire Bundles - Part One.....	AER-4055
	Tying Wire Bundles for the Wire Bundle .....	AER-4056
	Installation Project	
	Project Installation Plan .....	AER-4057
	Project and Drawing Review .....	AER-4058
	Pre-routing Wire Bundles.....	AER-4059
	Clamping Wire Bundles - Part Two.....	AER-4060
	Torque and Inspection.....	AER-4061



**Searching for a Job**

Kicking Off Your Job Search.....	CAR-1001
Finding Jobs to Apply For .....	CAR-1002
Networking.....	CAR-1003

**Resumes and Job Applications**

Completing an Employment Application.....	CAR-1004
Creating Your Resume.....	CAR-1005
Crafting a Cover Letter.....	CAR-1006

**Interviewing**

Understanding the Interview Process .....	CAR-1007
Making a Positive Impression .....	CAR-1008
Responding to Interview Questions .....	CAR-1009
Addressing Special Interview Concerns .....	CAR-1010
After the Interview.....	CAR-1011

**Keeping a Job**

Surviving Your First Day on the Job .....	CAR-1012
Turning a Job into a Career.....	CAR-1013





## AEROSPACE QUALITY TECHNICIAN

### MAKE THE SKIES SAFER

This program was developed with input from industry partners to ensure that aerospace quality assurance technicians have a deep knowledge and mastery of aircraft manufacturing processes.

Aerospace quality technicians reduce development costs, decrease maintenance expenses, and increase customer safety and satisfaction.

### INCOME OPPORTUNITIES

Salaries for Aerospace Quality Technicians ranges from \$ 29,280 to \$77,010. \*

\*Source: U.S. Bureau of Labor Statistics, May 2016

### CAREER PROGRAM SUMMARY

**Micro-credentials** 43

**Skills Courses** 186

**Time to complete** 3.5 months\*

\* Completing three modules per day

### HIRING INDUSTRIES

Air transport

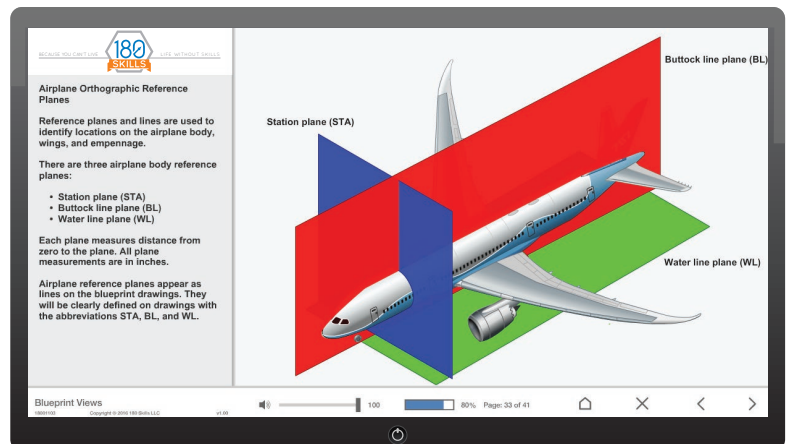
Aircraft parts manufacturing

Guided missiles, space vehicles, and parts

Satellite communications

Search, detection, and navigation guidance

Space research and technology



O\*NET job code: 19-4099.01

INTraining code: 7690





## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS.....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning.....	STU-1004



## AEROSPACE MANUFACTURING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Aircraft Familiarization</b>	The History of Aviation.....	AER-1001
	Primary Assemblies of an Aircraft .....	AER-1002
	Principles of Flight .....	AER-1003
	Airplane Control.....	AER-1004
	Aircraft Configuration .....	AER-1005
	Aircraft Materials .....	AER-1006
	Aircraft Construction .....	AER-1007
	Aircraft Corrosion.....	AER-1008
	Aircraft Regulations .....	AER-1009



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations.....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers.....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System.....	MTH-1009





<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
<b>Hazardous Material Safety</b>	Respiratory Protection.....	SAF-1011
	Hazardous Materials.....	SAF-1012
	HazCom.....	SAF-1013
	Hazardous Waste.....	SAF-1014
<b>Workplace Safety</b>	Hazard Material Storage.....	SAF-1015
	Work Area Safety.....	SAF-1016
<b>Electrical and Fire Safety</b>	Fall Prevention.....	SAF-1018
	Electrical Safety.....	SAF-1020
<b>Tool and Machine Safety</b>	Lockout/Tagout.....	SAF-1021
	Hand Tool Safety.....	SAF-1027
	Power Tool Safety.....	SAF-1028



<b>Quality Systems</b>	Introduction to Quality.....	QUA-1001
	ISO 9000.....	QUA-1002
	Standards Organizations.....	QUA-1003
	Quality Organizations.....	QUA-1004
	Basic Quality Roles and Responsibilities.....	QUA-1005
<b>Introduction to Statistical Process Control</b>	Introduction to SPC.....	QUA-1011
	Probability and Variation.....	QUA-1012
	The Control Chart.....	QUA-1013
<b>Advanced Statistical Process Control</b>	Control Chart Analysis.....	QUA-2001
	Process Capability.....	QUA-2002
	Problem Solving Tools.....	QUA-2003
	Problem Solving.....	QUA-2004





## ENGINEERING DRAWINGS

**Blueprints and Picture Sheets  
for Aerospace**

Aerospace Introduction to Blueprints .....	DWG-1006
Blueprint Terminology .....	DWG-1007
Blueprint Views .....	DWG-1008
Blueprint Lines .....	DWG-1009
Blueprint Dimensions and Tolerances .....	DWG-1010
Blueprint Symbols .....	DWG-1011

**Geometric Dimensioning  
and Tolerancing**

Introduction to GD&T .....	DWG-3001
GD&T Terms and Symbols .....	DWG-3002
Rules of GD&T .....	DWG-3003
Geometric Tolerances .....	DWG-3004
Datums .....	DWG-3005



## MEASUREMENT

**Precision Measurement I**

Introduction to Precision Instruments .....	MEA-2001
Rules .....	MEA-2002
Calipers .....	MEA-2003
Micrometers .....	MEA-2004

**Precision Measurement II**

Small Hole Gauges .....	MEA-2005
Dial Indicators .....	MEA-2006
Bore Gauges .....	MEA-2007
Height Gauges .....	MEA-2008
Go/NoGo Gauges .....	MEA-2009
Test Indicators .....	MEA-2010

**Fastener Inspection Gauges**

Grip Gauges .....	MEA-2020
Countersink Gauges .....	MEA-2021
Fastener Height Gauges .....	MEA-2022
Rivet Inspection Gauges .....	MEA-2023
Fastener Inspection Gauges .....	MEA-2024
Gap Inspection Gauges .....	MEA-2025





MICRO CREDENTIAL

SKILLS COURSE

## FASTENERS

NUMBER

<b>Fasteners</b>	Temporary Fasteners.....	FAS-2001
	Rivets.....	FAS-2002
	Bolts, Screws, and Washers .....	FAS-2003
	Threaded Inserts.....	FAS-2004
	Hi-Loks.....	FAS-2005
	Lockbolts.....	FAS-2006
	Nut Plates.....	FAS-2007
	Blind Rivets .....	FAS-2008
	Identifying Fasteners.....	FAS-2009
	Fasteners and Fits.....	FAS-2010
	Securing and Lockwiring Fasteners.....	FAS-2011
	Torque Tools .....	FAS-2012



MICRO CREDENTIAL

SKILLS COURSE

## AEROSPACE MANUFACTURING

NUMBER

<b>Aircraft Systems</b>	Flight Control Systems.....	AER-3001
	Mechanical Systems.....	AER-3002
	Landing Gear Systems.....	AER-3003
	Aerospace Hydraulic Systems .....	AER-3004
	Aerospace Pneumatic Systems.....	AER-3005
	Electrical Systems .....	AER-3006
	Propulsion Systems.....	AER-3007
	Fuel Systems .....	AER-3008
	Avionics Systems.....	AER-3009
	Anti-Icing and De-Icing Systems.....	AER-3010
	Environmental Systems .....	AER-3011
	Window and Door Systems .....	AER-3012
	Commercial Aircraft Structures .....	AER-3013



MICRO CREDENTIAL

SKILLS COURSE

## POWER TOOLS

NUMBER

<b>Hand Power Tools</b>	Pistol Grip Drills .....	POW-2001
	Drilling Techniques.....	POW-2002
	Winslow Drills.....	POW-2003
	Compression Riveters.....	POW-2004
	Rivet Installation Tools.....	POW-2005





**Drill Bits** Drill Bits .....CUT-2001

**Drill Guides and Drill Stops** Drill Guides and Drill Stops .....CUT-2002

**Countersinking Tools** Countersinking Tools .....CUT-2003



**Basic Drilling and Riveting** Marking Fastener Locations for Drilling Project .....AER-4001  
 Setting Up the Drill Motor.....AER-4002  
 Drilling Pilot Holes and Enlarging Holes .....AER-4003  
 Deburring.....AER-4004  
 Driving Protruding Head Rivets .....AER-4005

**Installing Advanced Fasteners Project** Assembly Preparation for Advanced Fasteners Project .....AER-4006  
 Installing Nut Plates .....AER-4007  
 Compression Riveting.....AER-4008  
 Installing Bolts .....AER-4009  
 Securing Bolts with Lockwire .....AER-4010

**Countersinking and Riveting Project** Marking Fastener Locations for Countersinking .....AER-4011  
 and Flush Riveting Project  
 Setting Up the Assembly and Drill .....AER-4012  
 Drilling, Enlarging, and Deburring Holes.....AER-4013  
 Setting the Countersink Tool (project) .....AER-4014  
 Countersinking (project).....AER-4015  
 Flush Riveting.....AER-4016

**90 Degree Drilling Project** Assembly Preparation for 90 Degree Drilling Project .....AER-4017  
 Installing 5/16 Inch Hi-Loks.....AER-4018  
 Installing 3/16 Inch Hi-Loks .....AER-4019  
 Installing Protruding Head Rivets.....AER-4020  
 Removing Rivets in the 90 Degree Drilling Project .....AER-4021  
 Removing 5/16 Inch Hi-Loks.....AER-4022

**Aerospace Electrical Bond and Ground** Electricity and the Airplane .....AER-2006





MICRO CREDENTIAL

SKILLS COURSE

## ELECTRICAL

NUMBER

**Electrical Measurement  
Conversion**

Electrical Measurement and Unit Conversion.....ELE-2019

**Electrical Resistance  
Test Equipment**

Resistance Test Equipment .....ELE-2020

The Fluke® Multimeter.....ELE-2021

The Biddle® Ohmmeter.....ELE-2022

The Avtron® Ohmmeter.....ELE-2023

The Hewlett Packard® Milliohmmeter.....ELE-2024

The BCD M1® Ohmmeter .....ELE-2025



MICRO CREDENTIAL

SKILLS COURSE

## AEROSPACE MANUFACTURING

NUMBER

**Aerospace Electrical Bond  
and Ground Project**

Electrical Bond and Ground Introduction .....AER-4047

Pre-installed Ground Studs.....AER-4048

Electrical Fay Surface Bonds .....AER-4049

Direct Ground Stud.....AER-4050

Fillet Sealing a Ground Stud.....AER-4051

Fay Sealing a Direct Ground Stud.....AER-4052

**Aerospace Sealing and Safety**

Introduction to Sealing .....AER-2001

Chemical Safety.....AER-2002

Preparing the Surface .....AER-2003

Selecting the Right Sealant.....AER-2004

Applying the Sealant .....AER-2005



MICRO CREDENTIAL

SKILLS COURSE

## ENGINEERING DRAWINGS

NUMBER

**Aerospace Wire Installation  
Drawings**

Engineering Drawing Review .....DWG-2004

Wire Bundle Installation Paperwork.....DWG-2005

Electrical Production Illustrations.....DWG-2006





MICRO CREDENTIAL

SKILLS COURSE

NUMBER

## AEROSPACE MANUFACTURING

### Aerospace Wire Bundle Basics

Wiring in Airplanes .....	AER-2007
Wire and Cable Basics .....	AER-2008
Wire, Cable, and Wire Bundle Markings .....	AER-2009
Circular Connectors and Contacts .....	AER-2010
Installing a Connector .....	AER-2011
MTC Connectors.....	AER-2012
Tying Wire Bundles .....	AER-2013



MICRO CREDENTIAL

SKILLS COURSE

NUMBER

## COMMUNICATION

### Technical Writing

Introduction to Technical Writing .....	COM-2004
Successful Documentation.....	COM-2005

### Dealing With Conflict

Understanding Conflict .....	COM-2001
Communication Skills .....	COM-2002
Managing Conflict .....	COM-2003



MICRO CREDENTIAL

SKILLS COURSE

NUMBER

## CAREER BUILDING

### Searching for a Job

Kicking Off Your Job Search.....	CAR-1001
Finding Jobs to Apply For .....	CAR-1002
Networking.....	CAR-1003

### Resumes and Job Applications

Completing an Employment Application.....	CAR-1004
Creating Your Resume .....	CAR-1005
Crafting a Cover Letter.....	CAR-1006

### Interviewing

Understanding the Interview Process .....	CAR-1007
Making a Positive Impression .....	CAR-1008
Responding to Interview Questions .....	CAR-1009
Addressing Special Interview Concerns .....	CAR-1010
After the Interview.....	CAR-1011

### Keeping a Job

Surviving Your First Day on the Job .....	CAR-1012
Turning a Job into a Career.....	CAR-1013







# AEROSPACE STRUCTURES TECHNICIAN

## MAKE THE WORLD'S AIRCRAFT

This program was developed with input from industry partners to ensure that aerospace structures technicians have a deep knowledge and mastery of aircraft structures manufacturing processes.

Aerospace structures technicians assemble, fit, fasten, and install parts of airplanes, space vehicles, or missiles, such as tails, wings, fuselages, bulkheads, stabilizers, landing gear, rigging, control equipment, and heating and ventilating systems.

## INCOME OPPORTUNITIES

Salaries for Aerospace Structures Technicians ranges from \$32,460 to \$78,150\*\*

\*Source: U.S. Bureau of Labor Statistics, 2016

## HIRING INDUSTRIES

Air transport  
Aircraft parts manufacturing  
Guided missiles, space vehicles, and parts  
Satellite communications  
Search, detection, and navigation guidance  
Space research and technology

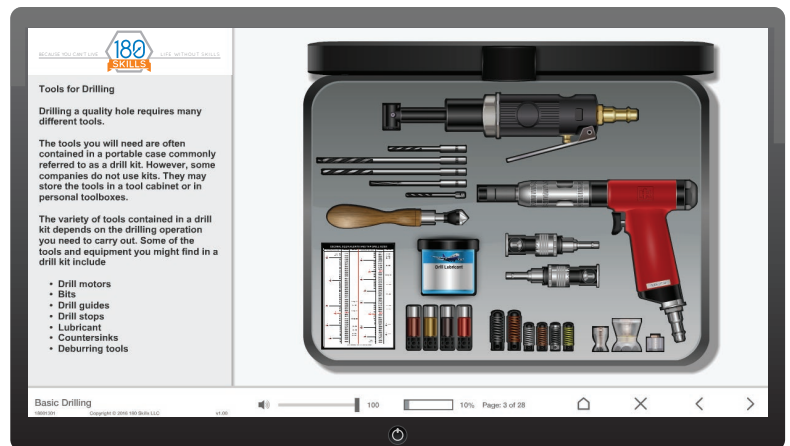
## CAREER PROGRAM SUMMARY

**Micro-credentials** 40

**Skills Courses** 171

**Time to complete** 3.5 months\*

\* Completing three modules per day



O\*NET job code: 51-2011.00

INTraining code: 7691



# AEROSPACE STRUCTURES TECHNICIAN



## STUDY SKILLS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>180 Skills Orientation</b>	Greatest Day Ever.....	STU-1001
<b>Using a Learning Management System</b>	How to Take a Course.....	STU-1002
	How to Navigate the LMS.....	STU-1003
<b>Learning Online</b>	Tips for Succeeding in Online Learning.....	STU-1004



## AEROSPACE MANUFACTURING

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Aircraft Familiarization</b>	The History of Aviation.....	AER-1001
	Primary Assemblies of an Aircraft .....	AER-1002
	Principles of Flight .....	AER-1003
	Airplane Control.....	AER-1004
	Aircraft Configuration .....	AER-1005
	Aircraft Materials .....	AER-1006
	Aircraft Construction .....	AER-1007
	Aircraft Corrosion.....	AER-1008
	Aircraft Regulations .....	AER-1009



## MATHEMATICS

MICRO CREDENTIAL

SKILLS COURSE

NUMBER

<b>Basic Math</b>	Introduction to Basic Math .....	MTH-1001
	Arithmetic Operations.....	MTH-1002
<b>Fractions and Decimals</b>	Introduction to Fractions .....	MTH-1004
	Working with Fractions.....	MTH-1005
	Decimal Numbers.....	MTH-1006
<b>Intermediate Math</b>	Numbers and the Number Line .....	MTH-1003
	Positive and Negative Numbers.....	MTH-1007
	Cartesian Coordinates .....	MTH-1008
	The Metric System.....	MTH-1009





<b>Introduction to Safety</b>	Introduction to OSHA.....	SAF-1001
	Making Work a Safer Place.....	SAF-1002
	Help! What to Do in an Emergency.....	SAF-1003
<b>Personal Protective Equipment Safety</b>	Personal Protective Equipment.....	SAF-1004
	Eye and Face Protection.....	SAF-1005
	Head Protection.....	SAF-1006
	Foot and Leg Protection.....	SAF-1007
	Hand and Arm Protection.....	SAF-1008
	Body Protection.....	SAF-1009
	Hearing Protection.....	SAF-1010
<b>Hazardous Material Safety</b>	Respiratory Protection.....	SAF-1011
	Hazardous Materials.....	SAF-1012
	HazCom.....	SAF-1013
	Hazardous Waste.....	SAF-1014
<b>Workplace Safety</b>	Hazard Material Storage.....	SAF-1015
	Work Area Safety.....	SAF-1016
<b>Electrical and Fire Safety</b>	Fall Prevention.....	SAF-1018
	Electrical Safety.....	SAF-1020
<b>Tool and Machine Safety</b>	Lockout/Tagout.....	SAF-1021
	Hand Tool Safety.....	SAF-1027
	Power Tool Safety.....	SAF-1028



<b>Blueprints and Picture Sheets for Aerospace</b>	Aerospace Introduction to Blueprints.....	DWG-1006
	Blueprint Terminology.....	DWG-1007
	Blueprint Views.....	DWG-1008
	Blueprint Lines.....	DWG-1009
	Blueprint Dimensions and Tolerances.....	DWG-1010
	Blueprint Symbols.....	DWG-1011





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