

Career Clusters & Pathways

Thinking ahead and preparing for careers is helpful if you are headed to the workplace or college. Some careers that are not common today may be needed tomorrow. And all careers require flexibility, knowledge, and skills.



Agriculture, Food & Natural Resources

- Agribusiness Systems
- Animal Systems
- Environmental Service Systems
- Food Products & Processing Systems
- Natural Resources Systems
- Plant Systems
- Power, Structural & Technical Systems



Government & Public Administration

- Foreign Service
- Governance
- National Security
- Planning
- Public Management & Administration
- Regulation
- Revenue & Taxation



Manufacturing

- Health, Safety & Environmental Assurance
- Logistics & Inventory Control
- Maintenance, Installation & Repair
- Manufacturing Production Process Development
- Production
- Quality Assurance



Architecture & Construction

- Construction
- Design/Pre-Construction
- Maintenance/Operations



Health Science

- Biotechnology Research & Development
- Diagnostic Services
- Health Informatics
- Support Services
- Therapeutic Services



Marketing

- Marketing Communications
- Marketing Management
- Marketing Research
- Merchandising
- Professional Sales



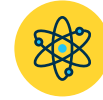
Arts, A/V Technology & Communication

- A/V Technology & Film
- Journalism & Broadcasting
- Performing Arts
- Printing Technology
- Telecommunications
- Visual Arts



Hospitality & Tourism

- Lodging
- Recreation, Amusements & Attractions
- Restaurants & Food/Beverage Services
- Travel & Tourism



Science, Technology, Engineering & Mathematics

- Engineering & Technology
- Science & Mathematics



Business, Management & Administration

- Administrative Support
- Business Information Management
- General Management
- Human Resources Management
- Operations Management



Human Services

- Consumer Services
- Counseling & Mental Health Services
- Early Childhood Development & Services
- Family & Community Services
- Personal Care Services



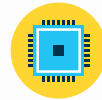
Transportation, Distribution & Logistics

- Facility & Mobile Equipment Maintenance
- Health, Safety & Environmental Management
- Logistics Planning & Management Services
- Sales & Service
- Transportation Operations
- Transportation Systems/Infrastructure Planning, Management & Regulation
- Warehousing & Distribution Center Operations



Education & Training

- Administration & Administrative Support
- Professional Support Services
- Teaching/Training



Information Technology

- Information Support & Services
- Network Systems
- Programming & Software Development
- Web & Digital Communications



Finance

- Accounting
- Banking Services
- Business Finance
- Insurance
- Securities & Investments



Law, Public Safety, Corrections & Security

- Correction Services
- Emergency & Fire Management Services
- Law Enforcement Services
- Legal Services
- Security & Protective Services

Source: National Career Clusters Framework

NS4ed™ Pathway2Careers™ 2018 Trademark NS4ed, LLC





Manufacturing



NATIONAL CAREER CLUSTERS PATHWAY:

■ Production

Regional Career Opportunities (Listed by Highest Projected Demand)

JOB ZONE 1

High School Diploma or Less

JOB ZONE 2

High School Diploma

JOB ZONE 3

Certificate or Associate's Degree

JOB ZONE 4

Bachelor's Degree

JOB ZONE 5

Master's or Doctorate Degree

FOR JOB ZONES 1-3, APPRENTICESHIP OR ON-THE-JOB TRAINING MAY ALSO SATISFY EMPLOYMENT REQUIREMENTS.

Sewing Machine Operators

Annual Openings 175
Median Wage.....\$24,867

Team Assemblers

Annual Openings 1,175
Median Wage.....\$32,350**

Welders, Cutters, Solderers & Brazers

Annual Openings 145
Median Wage.....\$39,798

Few regional occupations in this pathway require education at this degree level.

Few regional occupations in this pathway require education at this degree level.

Grinding and Polishing Workers, Hand

Annual Openings 10
Median Wage.....\$32,217

First-Line Supervisors of Production & Operating Workers

Annual Openings 330
Median Wage.....\$56,899

Machinists

Annual Openings 135
Median Wage.....\$43,071

Painting, Coating, and Decorating Workers

Annual Openings 5
Median Wage.....\$32,364

Helpers – Production Workers

Annual Openings 280
Median Wage.....\$30,834

Computer-Controlled Machine Tool Operators

Annual Openings 75
Median Wage.....\$41,200**

Few regional occupations in this pathway require education at this degree level.

Production Workers, All Other

Annual Openings 115
Median Wage.....\$42,458

Tool & Die Makers

Annual Openings 50
Median Wage.....\$44,740

Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Annual Openings 100
Median Wage.....\$36,822

Computer Numerically Controlled Machine Tool Programmers

Annual Openings 15
Median Wage.....\$56,450**

★ Top five high-value occupations in these pathways for the East Tennessee Region. Occupations with the highest annual openings that are stable or growing with median wages above \$35,000 are considered high-value.

** National data was used due to limitations in regional and state data.

Data Source: TSBA District Data Dashboard | NS4ed™ Pathway2Careers™ 2018 Trademark NS4ed, LLC

Explore careers at tsbadatadashboard.com





Manufacturing



NATIONAL CAREER CLUSTERS PATHWAY:

■ Production

Regional High School Requirements and Programs (Grades 9-12)

English Language Arts	Math	Science	Social Studies	Foreign Language	Physical Education	Fine Arts	Elective Focus
English I	Algebra I	Biology	World History and Geography	Foreign Language I	Lifetime Wellness	Fine Arts Selection	Minimum of Three Courses See career programs and electives below.
English II	Geometry	Chemistry	U.S. History	Foreign Language II	Physical Education (.5)	----	
English III	Algebra II	Physics	Economics / Government	----	----	----	
English IV	Higher Level Math	----	Personal Finance (.5)	----	----	----	

Career Programs	Career Program Courses and Related Courses	Additional Electives	Regional Postsecondary Schools				
<input type="checkbox"/> Welding See other Manufacturing pathways for additional career programs and opportunities. Note: Programs and courses may vary by high school.	<input type="checkbox"/> Career Exploration <input type="checkbox"/> Principles of Manufacturing <input type="checkbox"/> Introduction to Mechatronics and Robotic Systems <input type="checkbox"/> Welding I & II <input type="checkbox"/> Mechatronics I - IV <input type="checkbox"/> Digital Electronics	<input type="checkbox"/> Robotics & Automated Systems <input type="checkbox"/> Practicum or Apprenticeship Math <input type="checkbox"/> _____ <input type="checkbox"/> _____ Science <input type="checkbox"/> _____ <input type="checkbox"/> _____	<table border="1"> <thead> <tr> <th>Certificates and Associate's Degrees</th> <th>Bachelor's and Advanced Degrees</th> </tr> </thead> <tbody> <tr> <td> <input checked="" type="checkbox"/> Pellissippi State Community College <input checked="" type="checkbox"/> Tennessee College of Applied Technology <input checked="" type="checkbox"/> Roane State Community College </td> <td> <input checked="" type="checkbox"/> Maryville College <input checked="" type="checkbox"/> University of Tennessee <input checked="" type="checkbox"/> Lincoln Memorial University </td> </tr> </tbody> </table>	Certificates and Associate's Degrees	Bachelor's and Advanced Degrees	<input checked="" type="checkbox"/> Pellissippi State Community College <input checked="" type="checkbox"/> Tennessee College of Applied Technology <input checked="" type="checkbox"/> Roane State Community College	<input checked="" type="checkbox"/> Maryville College <input checked="" type="checkbox"/> University of Tennessee <input checked="" type="checkbox"/> Lincoln Memorial University
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Postsecondary Programs/Majors for Occupations in this Pathway

	Certificate or AA	Welding Technology	Machine Tool Technology	Computer-Aided Manufacturing	Electronics Technology	***
Bachelor's Degree	***	***	***	***	***	***
Advanced Degree	***	***	***	***	***	***

*** Limited program offerings at regional postsecondary schools.
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Manufacturing



NATIONAL CAREER CLUSTERS PATHWAY:

- Maintenance, Installation & Repair

Regional Career Opportunities (Listed by Highest Projected Demand)

JOB ZONE 1 High School Diploma or Less

JOB ZONE 2 High School Diploma

JOB ZONE 3 Certificate or Associate's Degree

JOB ZONE 4 Bachelor's Degree

JOB ZONE 5 Master's or Doctorate Degree

FOR JOB ZONES 1-3, APPRENTICESHIP OR ON-THE-JOB TRAINING MAY ALSO SATISFY EMPLOYMENT REQUIREMENTS.

Few regional occupations in this pathway require education at this degree level.

Installation, Maintenance & Repair Workers ★

Annual Openings 110
Median Wage.....\$37,941

Outdoor Power Equipment & Other Small Engine Mechanics

Annual Openings 25
Median Wage.....\$32,381

Coin, Vending & Amusement Machine Servicers & Repairers

Annual Openings 15
Median Wage.....\$37,104

Home Appliance Repairers

Annual Openings 15
Median Wage.....\$38,352

Locksmith & Safe Repairers

Annual Openings 5
Median Wage.....\$23,988

Maintenance and Repair Workers ★

Annual Openings 675
Median Wage.....\$35,236

Industrial Machinery Mechanics ★

Annual Openings 270
Median Wage.....\$49,889

First-Line Supervisors of Mechanics, Installers & Repairers ★

Annual Openings 210
Median Wage.....\$60,164

Maintenance Workers, Machinery ★

Annual Openings 140
Median Wage.....\$43,984

Security & Fire Alarm Systems Installers

Annual Openings 60
Median Wage.....\$47,801

Few regional occupations in this pathway require education at this degree level.

Few regional occupations in this pathway require education at this degree level.

★ Top five high-value occupations in these pathways for the East Tennessee Region. Occupations with the highest annual openings that are stable or growing with median wages above \$35,000 are considered high-value.

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Manufacturing



NATIONAL CAREER CLUSTERS PATHWAY:

- Maintenance, Installation & Repair

Regional High School Requirements and Programs (Grades 9-12)

English Language Arts	Math	Science	Social Studies	Foreign Language	Physical Education	Fine Arts	Elective Focus
English I	Algebra I	Biology	World History and Geography	Foreign Language I	Lifetime Wellness	Fine Arts Selection	Minimum of Three Courses See career programs and electives below.
English II	Geometry	Chemistry	U.S. History	Foreign Language II	Physical Education (.5)	----	
English III	Algebra II	Physics	Economics / Government	----	----	----	
English IV	Higher Level Math	----	Personal Finance (.5)	----	----	----	

Career Programs	Career Program Courses and Related Courses	Additional Electives	Regional Postsecondary Schools				
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Postsecondary Programs/Majors for Occupations in this Pathway

	Certificate or AA	Industrial Maintenance	Industrial Electricity	***	***	***
Bachelor's Degree	***	***	***	***	***	***
Advanced Degree	***	***	***	***	***	***

*** Limited program offerings at regional postsecondary schools.
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Manufacturing



NATIONAL CAREER CLUSTERS PATHWAYS:

- Manufacturing Production Process Development
- Quality Assurance

Regional Career Opportunities (Listed by Highest Projected Demand)

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JOB ZONE 2 High School Diploma

JOB ZONE 3 Certificate or Associate's Degree

JOB ZONE 4 Bachelor's Degree

JOB ZONE 5 Master's or Doctorate Degree

FOR JOB ZONES 1-3, APPRENTICESHIP OR ON-THE-JOB TRAINING MAY ALSO SATISFY EMPLOYMENT REQUIREMENTS.

Few regional occupations in this pathway require education at this degree level.

Inspectors, Testers, Sorters & Weighers ★

Annual Openings 260
Median Wage.....\$36,165

Production, Planning & Expediting Clerks ★

Annual Openings 155
Median Wage.....\$42,526

Purchasing Agents ★

Annual Openings 55
Median Wage.....\$64,380**

Few regional occupations in this pathway require education at this degree level.

Weighers, Measurers, Checkers, & Samplers, Recordkeeping

Annual Openings 20
Median Wage.....\$34,490

Industrial Engineering Technicians ★

Annual Openings 115
Median Wage.....\$48,333

Few regional occupations in this pathway require education at this degree level.

Few regional occupations in this pathway require education at this degree level.

Electrical & Electronic Engineering Technicians ★

Annual Openings 50
Median Wage.....\$51,307

Chemical Technicians

Annual Openings 30
Median Wage.....\$47,062

Mechanical Drafters

Annual Openings 25
Median Wage.....\$59,478

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Postsecondary Programs/Majors for Occupations in this Pathway

	Certificate or AA	Electrical Engineering Technology	Engineering Technology	Chemical Engineering Technology	Mechanical Engineering Technology	Industrial Automation
Bachelor's Degree	***	***	***	***	***	***
Advanced Degree	Advanced Manufacturing Graduate Certificate	***	***	***	***	***

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