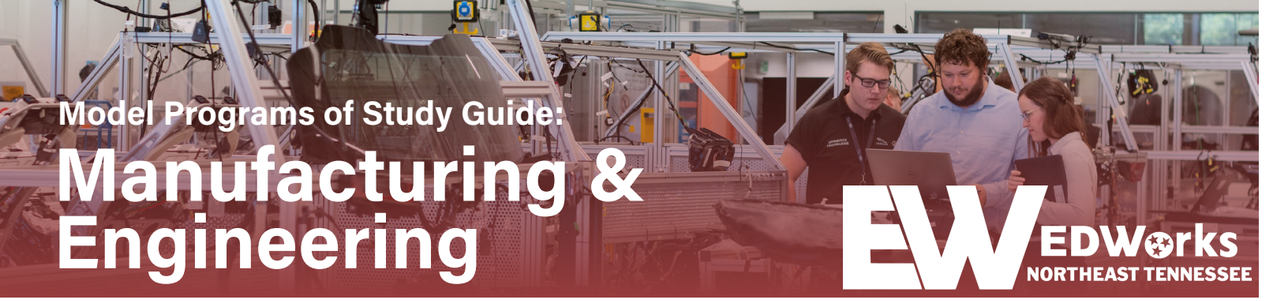


Model Programs of Study Guide: Manufacturing & Engineering

EDWorks NORTHEAST TENNESSEE

	ORIENTATION / INTRODUCTION Grades 9–10	SKILL DEVELOPMENT Grades 10–12	CAPSTONE / ADVANCED Grades 12	POSTSECONDARY COURSES ⊕ Recommended 1st Year
CAREER FOCUSED COURSES *Advanced Manufacturing & Engineering Pathway* *Advanced Manufacturing Focus* *Engineering Focus*	Introduction to Technology & Engineering	Foundations of Production & Manufacturing Processes [1] Principles of Engineering » & Additional Engineering »	Advanced Production & Manufacturing Processes [2] & / or Basic Welding Computer Integrated MFG » & Additional Engineering »	CNC Programming Manufacturing Materials and Processes Industrial Electricity CAD / CAM Technology
WORK-BASED LEARNING	Career Exploration (2) Team-Based Challenge	Team-Based Challenge Career Development Experience or Youth Apprenticeship		Team-Based Challenge Career Development Experience or Apprenticeship
SCIENCE	Science Sequence	Science Sequence	Physics »	General Physics General Chemistry
SOCIAL SCIENCE	Social Science Sequence	Social Science Sequence	Social Science »	Social Science
MATH	Algebra Geometry	Geometry Algebra 2 Pre-Calculus	Transitional Math: Technical Transitional Math: STEM Pre-Calculus College Algebra Calculus »	Technical Math College Algebra / Trigonometry Calculus
ENGLISH	English Sequence	English Sequence	Transitional English English Composition »	English Composition Oral Communication

Courses and Work-Based Learning Address the PWR Act Recommended Technical and Essential Employability Competencies

» *AP or Dual Credit*

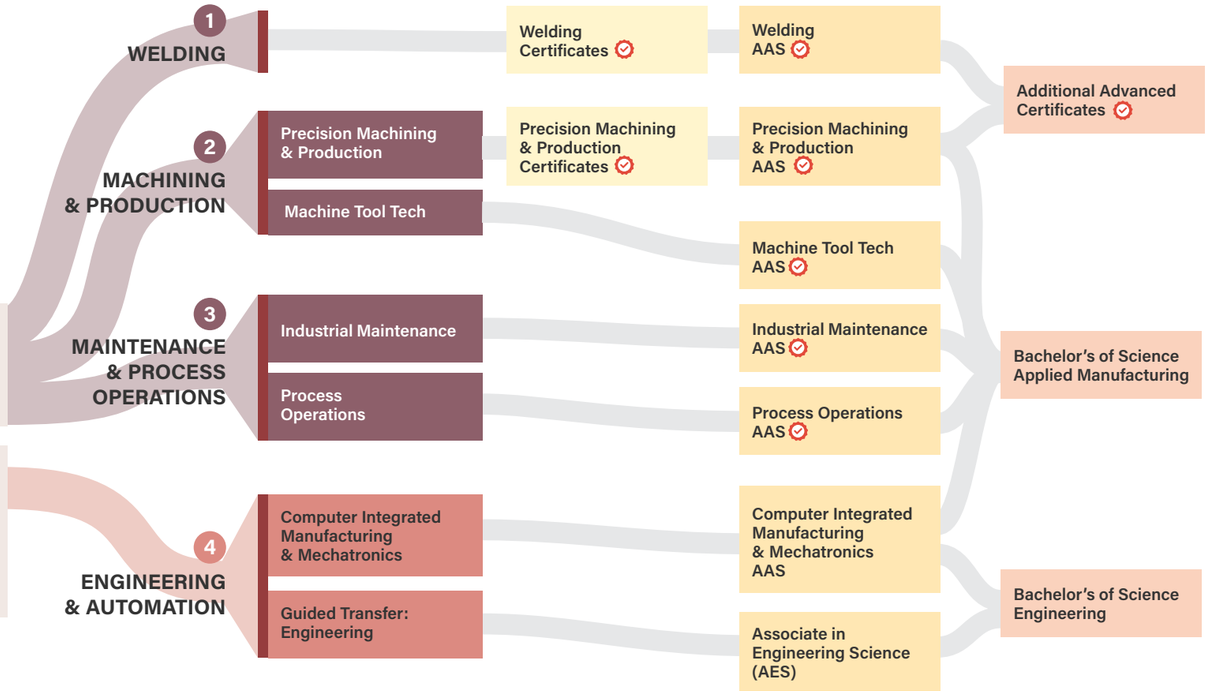
Dual Enrollment

Course or Program Prepares for Industry Credential

College and Career Pathway Endorsement Earned

⊕ *If courses in this column were accomplished through early college credit, students should take the next required course in the sequence or, if none, additional AAS or Major Courses*

POSTSECONDARY OPTIONS



SELECTED OCCUPATIONS, WAGES, & JOB GROWTH

	Program	Typical Job	Near or Above Living Wage Threshold for 1 Adult + 1 Child [3]	Median Hourly Wage [4]	Growth in TN: Annual Job Openings [4]	Growth in TN: % Change Over 10 years [4]	Stackable?
1	**Welding**	Welders, Cutters, Welder Fitters	N	$	#	%	Not Typically Stackable
2	**Machine Tool Technology**	Tool and Die Makers	Y	$	#	%	Typically Stacks to Related Bachelor's Program at **Select TN** Universities
2	**Precision Machining**	Machinists	N	$	#	%	Typically Stacks to Further Certificates or an AAS
2	**Precision Machining**	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	Y	$	#	%	
3	**Industrial Maintenance**	Industrial Machinery Mechanics	Y	$	#	%	Typically Stacks to Related Bachelor's Program at **Select TN** Universities
3	**Process Technology**	Chemical Equipment Operators and Tenders, Biofuels Processing Technician	Y	$	#	%	
4	**Computer Integrated Manufacturing & Mechatronics**	Manufacturing Engineering Technologists, Electromechanical Engineering Technologists, Robotics Technicians	Y	$	#	%	
4	**Guided Transfer: Engineering**	Engineers in Various Branches: Mechanical, Civil, Electrical, Chemical, Mechatronics, Industrial	Y	$	#	%	Typically Stacks to Related Bachelor's Program at **Most TN** Universities

1. For machining-focused programs, equivalent to ISBE CTE Courses — Beginning Machining and Machine Shop Technology 1
2. For machining-focused programs, equivalent to ISBE CTE Course — Machine Shop Technology II
3. Living wage calculations are based on MIT's Living Calculator (livingwage.mit.edu), where the "Living Wage" for 1 Adult + 1 Child is $?/hour for the state of **Tennessee**. "Near" defined as 85% of the statewide living wage, which is $22.33/hour
4. U.S. Department of Labor, CareerOnestop (careeronestop.org/explorecareers)