

Advanced Manufacturing and Engineering Career Pathway  
**Advanced Manufacturing** Career Major Program Outline

Course	Grade	Teacher Certification	Credits	Content
Foundational Courses				
CTE Foundations: Advanced Manufacturing and Engineering	9	Manufacturing	1 CTE	Pathway and Career Major Exposure Safety Tools and Materials Plans, Prints, and Schematics Basic Workflow Career Research Literacy and Mathematics Development Basic Metalwork and Manufacturing
Introduction to Integrated Technology	10	Technology 2x Auto Tech Manufacturing	2 CTE	Research/Critical Analysis Historical Reference Design, Technical Drawing, and Schematics Linkages and Applied Academics Projects and basic skills development in Robotics, Optics, Manufacturing, and Automotive Technology Measurement using various measurement instruments and tools. Basic safe operation of machine tools such as Lathes, Mills, Pedestal Grinders Application of basic processes on Lathes, Mills, pedestal grinders.
Career Major Courses: Advanced Manufacturing				
Manufacturing I	11	Manufacturing	2 CTE	Layout of part for processing. Creating manufacturing process lists. Independent and collaborative (w/ colleagues) operation of machine tools. Intermediate understanding of machining processes. Basic understanding and use of Computer based manufacturing-CAD/CAM. CNC, Additive manufacturing.
Manufacturing II	11/12	Manufacturing	2 CTE	Continued growth using manual machines and manufacturing processes. Design own projects. Reverse engineer designs for manufacturing. Advanced use of CAD/CAM software. Algebra, Geometry and Trigonometry Setup and operate Computer Numerical Control (CNC) equipment. Write and troubleshoot CNC programs for use on CNC machines. Demonstrate understanding of metals and materials used in manufacturing.