

Advanced Manufacturing

Advanced Manufacturing stands at the forefront of Tennessee's economic expansion, driving innovation, efficiency, and productivity across the state. By integrating cutting-edge technologies such as automation, robotics, and additive manufacturing, this sector is revolutionizing production processes and enabling the creation of highly customized products. As a cornerstone of Tennessee's economy, Advanced Manufacturing continues to thrive, with workforce demand showing no signs of slowing.

Employment in this sector has steadily increased, reflecting a growing need for skilled workers. To meet this demand, Tennessee's educational system has developed a robust pipeline of programs designed to equip students with the skills necessary for postsecondary, workforce, career and technical education (CTE), and military readiness. The Advanced Manufacturing career cluster includes several Programs of Study, including Advanced Science, Technology, Engineering, and Mathematics (STEM) Applications, Engineering, Industrial Maintenance Technology, Machining Technology, Mechatronics, Robotics & Technology, and Welding. These programs reinforce Tennessee's commitment to aligning education with industry needs, ensuring that students are prepared for careers in high-demand fields.

With a strong focus on workforce development, Tennessee continues to expand academic programs that support Advanced Manufacturing and related STEM fields. Educational institutions across the state provide training that prepares students for careers in design, engineering, production, and maintenance. The number of students enrolling and advancing in these programs continues to grow, demonstrating the success of statewide efforts to strengthen career pathways.

As the industry evolves, Tennessee remains committed to fostering a workforce that is not only prepared to meet the challenges of modern manufacturing but also poised to drive future innovations. Through strategic education and workforce alignment, the state is ensuring that Advanced Manufacturing remains a pillar of economic strength and technological advancement for years to come.

Welding

- Year 1: [Principles of Manufacturing](#)
- Year 2: [Welding I](#)
- Year 3: [Welding II](#)
- Year 4: [Manufacturing Practicum](#)
- Year 4: [Work-Based Learning: Career Practicum](#)