

# MACHINE TOOL TECHNOLOGY - ADVANCED TECHNICAL CERTIFICATE (ATC)

Explore More About This Program: <https://cwi.edu/program/machine-tool-technology>

## Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate knowledge and application of safe work habits in all phases of machine shop operation.
- Demonstrate knowledge and application of advanced setup, operation, and maintenance of manual milling machines.
- Demonstrate knowledge and application of advanced manual engine lathe set-up techniques and operations, as well as precision surface grinding and measuring techniques.
- Perform and utilize advanced setup techniques, tool and hardware selection, and process planning for manufacturing, as well as jig and fixture design for production machining.
- Apply advanced interpretation of machine shop specific detail and assembly drawings emphasizing machining operations and materials; apply the Machinery's Handbook in interpreting blueprint specifications and associated machining processes.
- Program and operate computer numerical control (CNC) machining and turning centers. Emphasis on manually writing (G&M compatible) programs, debugging programs, setups and fixturing, tooling selection, and offset calculations.
- Operate basic computer-aided drafting and design systems using keyboarding, system operation, and applying computer graphics to machine standards. Operate interactive computer graphics system to prepare drawings on a CRT.
- Write computer numerical control (CNC) machine tool programs using computer-assisted techniques to generate G-Code and M-Function programs. Apply tooling concepts, machining methods, definition of part geometry, writing of tool motion statements, use of the computer to process program inputs, analysis, and debugging of computer outputs to develop a functional program.
- Apply, explain, and use geometric dimensioning and tolerancing (GD&T) methods as interpreted in ASME Y14.5M. Read and use geometric tolerancing symbolism and terms.
- Work professionally and productively with others through collaboration and teamwork in a shop or lab environment.