

MECHANICAL ENGINEERING TECHNOLOGY

- Mechanical Engineering Technology CAD/CAM-CNC Certificate (coursecatalog.tvcc.edu/pathways/service-production-industry/mechanical-engineering-technology/mechanical-engineering-technology-cad-cam-cnc-certificate/)
- Mechanical Engineering Technology Machining Certificate (coursecatalog.tvcc.edu/pathways/service-production-industry/mechanical-engineering-technology/mechanical-engineering-technology-machining-certificate/)

MCHN-1320. Precision Tools and Measurement. (3 Credits)

(3-2-4) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. An introduction to the modern science of dimensional metrology. Emphasis on identification, selection and application of various types of precision instruments associated with the machining trade. Practice of basic layout and piece part measurements while using standard measuring tools. Lab fee.

MCHN-1326. Introduction to Computer Aided Manufacturing. (3 Credits)

(3-2-4) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. A study of computer-aided manufacturing (CAM) systems. Software is used to develop applications for manufacturing. Emphasis on tool geometry, tool selection and the tool library. Lab fee.

MCHN-1338. Basic Machine Shop I. (3 Credits)

(3-2-4) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. An introductory course that assists the student in understanding the machinist occupation in industry. The student begins by using basic machine tools such as the lathe, milling machine, drill press, power saw and bench grinder. Machine terminology, theory, math, part layout and bench work using common measuring tools is included. Emphasis is placed on shop safety, housekeeping and preventive maintenance. Lab fee.

MCHN-1380. Machine Tool Technology/Machinist. (3 Credits)

(3-1-20) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Career-related activities encountered in the student's area of specialization through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component.

MCHN-1480. Coop Education, Machine Tool Technology/Machinist. (4 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer and student. Under the supervision of the college and the employer, the student combines classroom learning with work experience. Includes a lecture component. Lab fee.

MCHN-2335. Advanced CNC Machining. (3 Credits)

(3-2-4) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Advanced CNC operation with an emphasis on programming and operations of machining and turning centers. Lab fee.

MCHN-2341. Advanced Machining I. (3 Credits)

(3-2-4) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Advanced lathe and milling operations. Emphasis on advanced cutting operations of the lathe and milling machines, including the use of special tooling, bench assembly and materials identification. Lab fee.

MCHN-2344. Computerized Numerical Control Programming. (3 Credits)

(3-2-4) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. An introduction to G and M codes (RS274-D) necessary to program Computer Numerically Controlled (CNC) machines. Lab fee.

INMT-1343. Computer Aided Design/Computer Aided Manufacturing. (3 Credits)

(3-2-4) This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Computer-assisted applications in integrating engineering graphics and manufacturing. Emphasis on the conversion of a working drawing using computer aided design/ computer aided manufacturing (CAD/CAM) software and related input and output devised translating into machine codes. Lab fee.

INMT-1317. Industrial Automation. (3 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Applications of industrial automation systems including identification of system requirements, equipment integration, motors, controllers, and sensors. Coverage of set-up, maintenance, and testing of the automated system. Lab fee.

ELMT-1305. Basic Fluid Power. (3 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Basic fluid power course covering pneumatic and hydraulic systems, fluid power symbols, operating theory, components, and basic electrical and manual controls. Lab fee.

ELPT-1341. Motor Control. (3 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Operating principles of solid-state and conventional controls along with their practical applications. Includes braking, jogging, plugging, safety interlocks, wiring, and schematic diagram interpretations. Lab fee.

ELMT-2333. Industrial Electronics. (3 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Basic fluid power course covering pneumatic anDevices, circuits, and systems primarily used in automated manufacturing and/or process control including computer controls and interfacing between mechanical, electrical, electronic, and computer equipment. Includes presentation of programming schemes. Lab fee.

ELMT-2339. Advanced Programmable Logic Controllers. (3 Credits)

This course is taken for academic credit. Students will earn an A, B, C, D, F, or W. Advanced applications of programmable logic controllers as used in industrial environments including concepts of programming, industrial applications, troubleshooting ladder logic, and interfacing to equipment. Lab fee.

What Mechanical Engineering Technicians Do (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-2>)

Mechanical engineering technicians help mechanical engineers (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm>) design, develop, test, and manufacture mechanical devices, including tools, engines, and machines. They may make sketches and rough layouts, record and analyze data, make calculations and estimates, and report their findings.

Duties

Mechanical engineering technicians typically do the following:

- Evaluate design drawings for new or changed tools by measuring dimensions on the drawings and comparing them with the original specifications
- Prepare layouts and drawings of parts to be made and of the process for putting the parts together, often using three-dimensional design software
- Discuss changes with coworkers—for example, in the design of a part and in the way it will be made and assembled
- Review instructions and blueprints for projects in order to ensure that test specifications and procedures are followed and objectives are met
- Plan, produce, and assemble new or changed mechanical parts for products, such as industrial machinery or equipment
- Set up and conduct tests of complete units and their components, and record results
- Compare test results with design specifications and with test objectives and make recommendations for changes in products or in test methods
- Estimate labor costs, equipment life, and plant space

Some mechanical engineering technicians test and inspect machines and equipment or work with engineers to eliminate production problems. For example, they may assist in testing products by setting up instrumentation for vehicle crash tests.

SUMMARY (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm>)

- Mechanical engineering technicians
- 2018 Median Pay: \$56,250 per year, \$27,04 per hour
- Typical Entry-Level Education: Associate's degree
- Work Experience in a Related Occupation: None
- On-the-job Training: None
- Number of Jobs, 2018: 42,600

- Job Outlook, 2018-28: 3% (Slower than average)
- Employment Change, 2018-28: 1,100

Work Environment (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-3>)

Mechanical engineering technicians assist with manufacturing processes in factories or with development phases in research and development labs before manufacturing takes place.

How to Become a Mechanical Engineering Technician (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-4>)

Most employers prefer to hire candidates with an associate's degree or other postsecondary training in mechanical engineering technology. Prospective engineering technicians should take as many science and math courses as possible while in high school.

Pay (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-5>)

The median annual wage for mechanical engineering technicians was \$56,250 in May 2018.

Job Outlook (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-6>)

Employment of mechanical engineering technicians is projected to grow 3 percent from 2018 to 2028, slower than the average for all occupations. There should be opportunities for those who can master new software and technology in addition to traditional manual skills.

State & Area Data (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-7>)

Explore resources for employment and wages by state and area for mechanical engineering technicians.

Similar Occupations (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-8>)

Compare the job duties, education, job growth, and pay of mechanical engineering technicians with similar occupations.

More Information, Including Links to O*NET (<https://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm#tab-9>)

Learn more about mechanical engineering technicians by visiting additional resources, including O*NET, a source on key characteristics of workers and occupations.

Suggested citation:

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Mechanical Engineering Technicians, on the Internet at <https://www.bls.gov/ooh/>

architecture-and-engineering/mechanical-engineering-technicians.htm (visited *March 11, 2020*).

TVCC has partnered with Career Coach (<https://tvcc.emsicc.com/?radius=®ion=10%20Mile%20Radius%20from%20Athens%2C%20TX>) for students to discover majors and in-demand careers and education based on your interests!

- Career Assessment Profiler
- Interactive Career Catalog
- Browse TVCC's Pathways

Some careers in this field will require a bachelor's degree.

- TVCC's AA degrees are fully transferable to public universities in Texas. See an academic advisor or TVCC's university transfer webpage (<https://www.tvcc.edu/Advisement/Category.aspx?z=72>) for more information on this transfer opportunity.
- Many of TVCC's AAS degrees lead to an online Bachelor of Applied Arts and Sciences (BAAS) degree with participating universities. See an academic advisor or the BAAS transfer website (<https://www.ntxccc.org/pathways/>) for more information on this transfer opportunity.