

# Lakeland

COMMUNITY COLLEGE

PROGRAM GUIDE

**Applied Studies Division**

## Mechanical Engineering Technology

- Associate of Applied Science Degree in Mechanical Engineering Technology
- Associate of Applied Science Degree in Mechanical Engineering Computer Aided Design Concentration
- AutoCad Operator Certificate
- CAD Design Certificate
- Engineering Technology Foundations Certificate
- Mechanical and Manufacturing Technology Certificate

 **Opportunity**  
starts **HERE**

[lakelandcc.edu](http://lakelandcc.edu)



# Mechanical Engineering Technology



Lakeland's Associate Degree Program in the Mechanical Engineering Technologies prepares students to design and analyze mechanical elements to allow for immediate employment as a technician.

Mechanical engineering is used in mechanical processes such as: bike locks; aircraft carriers; children's toys; hybrid car engines; wheelchairs; sailboats; and medical devices. People in the mechanical engineering profession work in nearly every area of technology from aerospace and automotive to computers and manufacturing.

## Career Opportunities

Employment of mechanical engineering technicians is projected to grow five percent from 2016-2026, as fast as the national average. Median national pay is \$56,250 per year. Mechanical engineering technicians work in a variety of industries. Job opportunities will differ by industry. Prospects may be best for those who stay informed regarding the most recent advances in technology.

Source: [bls.gov/ooh](http://bls.gov/ooh).

## Lakeland's Program

Lakeland's Mechanical Engineering Technology program is accredited by the Accreditation Board for Engineering and Technology (ABET) which is the recognized organization that sets the standard for programs in applied science, computing, engineering and engineering technology. Programs with ABET accreditation, allow students and employers to be confident knowing that a program meets the quality standards that produce graduates prepared to enter a global workforce.

Students in Lakeland's program learn to tap into their creativity, use current technology, and apply principles of mathematics and science to solve problems encountered in mechanical engineering technologies. In the classroom, students will perform and evaluate lab experiments, interpret and report results and make recommendations for improvements.



## Computer Aided Design (CAD) Concentration

Students may choose to further focus their mechanical engineering studies to emphasize CAD for layout, design and creating drawings in mechanical and industrial application. This degree concentration is approved by the Alliance for Working Together ([thinkmfg.org](http://thinkmfg.org)) to meet employment needs throughout Northeast Ohio.

## Certificates

Earning certificates are short-range goals for students who plan to pursue the mechanical engineering technology degree. Upon completing the two certificates below, students may enroll for the third and fourth semesters to complete either the Mechanical Engineering Technology Associate of Applied Science degree or the CAD concentration degree or the manufacturing degree.

- Engineering Technology Foundations Certificate
- Mechanical and Manufacturing Technology Specialist Certificate

## The Lakeland Advantage

- Expert classroom instruction and hands-on training using state-of-the-art equipment and the latest industry-standard software.
- Paid cooperative education field experience, and visits to area organizations and project sites to gain first-hand knowledge of the industry.
- Industry-recognized program with accreditation through ABET.
- Students will save on tuition when they transfer Lakeland credits to area bachelor's degree engineering programs.

## For more information













1.800.589.8520 • [lakelandcc.edu](http://lakelandcc.edu)

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## Computer Aided Design Concentration (9444)


### Associate of Applied Science Degree

This concentration emphasizes using CAD (computer aided design) for layout, design, and creating drawings in mechanical and industrial applications. This degree is approved by the AWT (Alliance for Working Together <http://thinkmfg.com/>) to meet employment needs throughout the Alliance in Northeast Ohio.

Course	Title	Credit Hours
<b>First Semester</b>		
CADT 1100	Introduction to AutoCAD 	3
CIMN 1110	Machining Processes 	3
ENGL 1110 or ENGL 1111	English Composition I (A) <sup>2</sup> or English Composition I (B)	3
ENGR 1000	Introduction to Engineering Technology	2
FYEX 1000	First Year Experience	1
MATH 1080	Introduction to Technical Mathematics	4
Credit Hours		16
<b>Second Semester</b>		
CADT 1500	Advanced AutoCAD 	3
CIMN 1160	Applied Electricity 	2
CIMN 1210	Materials Processing 	3
MATH 1180	Technical Mathematics I	4
MECT 1150	Technical Communications	3
MECT 1600	Geometric Dimensioning and Tolerancing 	2
Credit Hours		17
<b>Third Semester</b>		
CADT 2100	Introduction to SolidWorks 	3
CIMN 2240	Jig and Fixture Design 	3
COMM 1000 or COMM 1100	Effective Public Speaking or Effective Interpersonal Communications	3
MECT 2250	Mechanism Design 	3
PHYS 1100	Applied Physics Mechanics	3
Select course(s) from the Social and Behavioral Sciences Electives list		3
Credit Hours		18
<b>Fourth Semester</b>		
CADT 2500	Advanced SolidWorks 	3
CIMN 2875	Design and Manufacturing Capstone 	3
PHYS 1200	Applied Physics Heat and Thermodynamics	3
QENT 1200	Quality Concepts and Techniques 	2
Select course(s) from the Arts and Humanities Electives list		3
Credit Hours		14
Total Credit Hours		65

<sup>1</sup> Students may substitute either COMM 1000 Effective Public Speaking or COMM 1100 Effective Interpersonal Communications. One of these 3 credit courses may be required for students transferring to a four-year college.

<sup>2</sup> English course selection is based on placement test results (ENGL 1111 English Composition I (B) is 4 credits; only 3 credits apply to the degree).

 This course is designated as a technical course in the program. Students must earn a "C" grade or higher in the course to fulfill the college's graduation requirements policy.













## Electives

Course	Title	Credit Hours
<b>Arts and Humanities</b>		
ARTS 1120	Art Appreciation	3
ARTS 2220	Survey of Art I	3
ARTS 2230	Survey of Art II	3
ENGL 2250	Survey of American Literature I	3
ENGL 2260	Survey of American Literature II	3
ENGL 2280	Survey of British Literature I	3
ENGL 2290	Survey of British Literature II	3
HUMX 1100	Introduction to Humanities	3
HUMX 1200	The American Experience in the Arts	3
MUSC 1200	Music Appreciation	3
MUSC 1215	World Music	3
MUSC 1800	Popular Music: Rock, Jazz, Country, and Hip-Hop	3
MUSC 2200	Music History and Literature I	3
MUSC 2250	Music History and Literature II	3
PHIL 1500	Introduction to Philosophy	3
PHIL 2000	Comparative Religion	3
PHOT 1000	History of Photography	3
<b>Social and Behavioral Sciences</b>		
ANTH 1160	Introduction to Cultural Anthropology	3
ECON 1150	Basic Economics	3
ECON 2500	Principles of Macroeconomics	3
ECON 2600	Principles of Microeconomics	3
GEOG 1500	Introduction to Geography	3
GEOG 1600	World Regional Geography	3
GEOG 2500	World Cultural Geography	3
HIST 1150	Western Civilization I: Antiquity Through the Reformation	3
HIST 1250	Western Civilization II: Age of Revolution Through the Present	3
HIST 2150	U.S. History: Colonization Through Reconstruction	3
HIST 2250	U.S. History: Reconstruction to the Present	3
POLS 1300	U.S. National Government	3
POLS 2500	Modern Political Ideologies	3
PSYC 1500	Introduction to Psychology	3
SOCY 1150	Principles of Sociology	3

## Mechanical Engineering Technology (9440)


### Associate of Applied Science Degree

This concentration emphasizes the design and analysis of mechanical elements.

Course	Title	Credit Hours
<b>First Semester</b>		
CADT 1100	Introduction to AutoCAD 	3
CIMN 1110	Machining Processes 	3
ENGL 1110 or ENGL 1111	English Composition I (A) <sup>1</sup> or English Composition I (B)	3
ENGR 1000	Introduction to Engineering Technology	2
FYEX 1000	First Year Experience	1
MATH 1180	Technical Mathematics I	4
	Credit Hours	16
<b>Second Semester</b>		
ENGL 1121	English Composition II-Technical Focus	3
MATH 1280	Technical Mathematics II	4
MECT 1600	Geometric Dimensioning and Tolerancing 	2
MECT 2110	Engineering Mechanics I 	3
MECT 2370	Materials Technology 	3
PHYS 1100	Applied Physics Mechanics	3
	Credit Hours	18
<b>Third Semester</b>		
CADT 2100	Introduction to SolidWorks 	3
COMM 1050 or COMM 1150	Fundamentals of Public Speaking <sup>2</sup> or Fundamentals of Interpersonal Communications	2
MECT 2210	Engineering Mechanics II 	3
MECT 2230	Strength of Materials 	3
PHYS 1200	Applied Physics Heat and Thermodynamics	3
Select course(s) from the Arts and Humanities Electives list		3
	Credit Hours	17
<b>Fourth Semester</b>		
CIMN 1160	Applied Electricity 	2
CIMN 2390	Fluid Power Technology 	3
MECT 2700	Mechanical Technology Design Capstone 	4
QENT 1200	Quality Concepts and Techniques 	2
Select course(s) from the Social and Behavioral Sciences Electives list		3
	Credit Hours	14
	Total Credit Hours	65

<sup>1</sup> English course selection is based on placement test results (ENGL 1111 English Composition I (B) is 4 credits, only 3 credits apply to the degree).

<sup>2</sup> Students may substitute either COMM 1000 Effective Public Speaking or COMM 1100 Effective Interpersonal Communications. One of these 3 credit courses may be required for students transferring to a four-year college.

 This course is designated as a technical course in the program. Students must earn a "C" grade or higher in the course to fulfill the college's graduation requirements policy.

## Electives

Course	Title	Credit Hours
<b>Arts and Humanities</b>		
ARTS 1120	Art Appreciation	3
ARTS 2220	Survey of Art I	3
ARTS 2230	Survey of Art II	3
ENGL 2250	Survey of American Literature I	3
ENGL 2260	Survey of American Literature II	3
ENGL 2280	Survey of British Literature I	3
ENGL 2290	Survey of British Literature II	3
HUMX 1100	Introduction to Humanities	3
HUMX 1200	The American Experience in the Arts	3
MUSC 1200	Music Appreciation	3
MUSC 1215	World Music	3
MUSC 1800	Popular Music: Rock, Jazz, Country, and Hip-Hop	3
MUSC 2200	Music History and Literature I	3
MUSC 2250	Music History and Literature II	3
PHIL 1500	Introduction to Philosophy	3
PHIL 2000	Comparative Religion	3
PHOT 1000	History of Photography	3
<b>Social and Behavioral Sciences</b>		
ANTH 1160	Introduction to Cultural Anthropology	3
ECON 1150	Basic Economics	3
ECON 2500	Principles of Macroeconomics	3
ECON 2600	Principles of Microeconomics	3
GEOG 1500	Introduction to Geography	3
GEOG 1600	World Regional Geography	3
GEOG 2500	World Cultural Geography	3
HIST 1150	Western Civilization I: Antiquity Through the Reformation	3
HIST 1250	Western Civilization II: Age of Revolution Through the Present	3
HIST 2150	U.S. History: Colonization Through Reconstruction	3
HIST 2250	U.S. History: Reconstruction to the Present	3
POLS 1300	U.S. National Government	3
POLS 2500	Modern Political Ideologies	3
PSYC 1500	Introduction to Psychology	3
SOCY 1150	Principles of Sociology	3

## AutoCAD Operator Certificate (4443)

Course	Title	Credit Hours
CADT 1100	Introduction to AutoCAD	3
CADT 1500	Advanced AutoCAD	3
ENGR 1000	Introduction to Engineering Technology	2
Total Credit Hours		8



## CAD Design Certificate (4442)

Course	Title	Credit Hours
CADT 1100	Introduction to AutoCAD	3
CADT 1500	Advanced AutoCAD	3
CADT 2100	Introduction to SolidWorks	3
CADT 2500	Advanced SolidWorks	3
ENGR 1000	Introduction to Engineering Technology	2
Total Credit Hours		14

## Engineering Technology Foundations Certificate (4444)

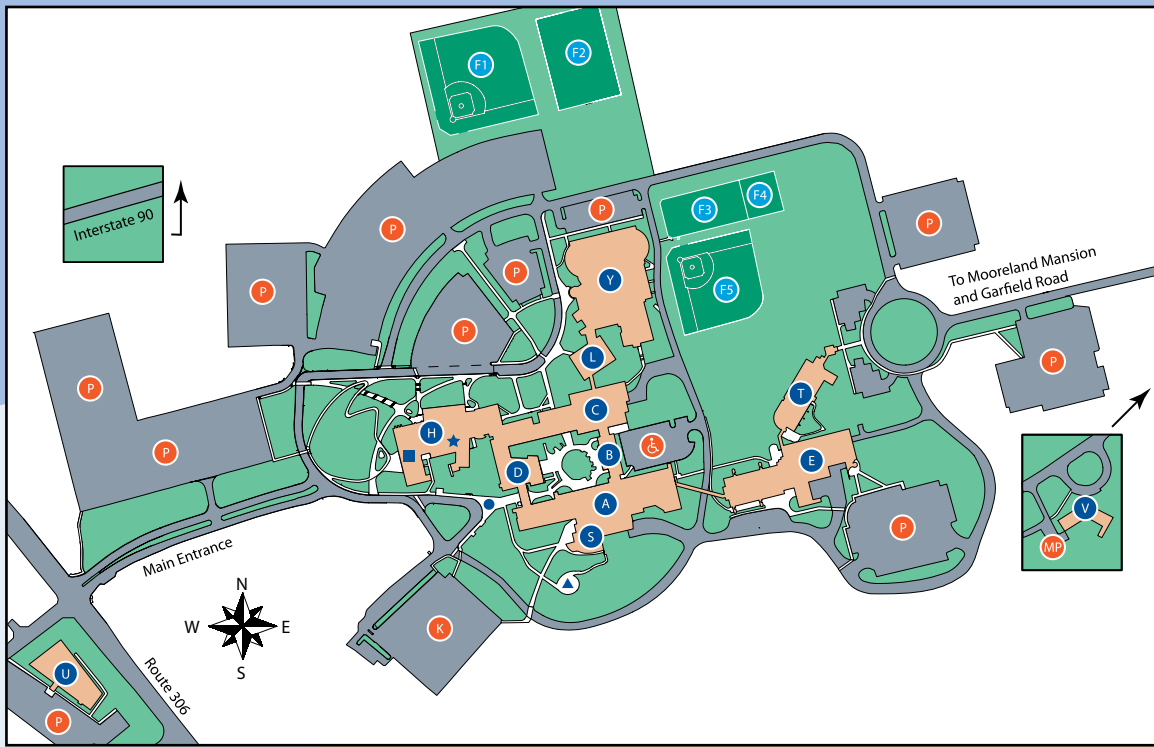
Course	Title	Credit Hours
CADT 1100	Introduction to AutoCAD	3
CIMN 1110	Machining Processes	3
COMM 1000 or COMM 1100	Effective Public Speaking Effective Interpersonal Communications	3
ENGL 1110 or ENGL 1111	English Composition I (A) <sup>1</sup> English Composition I (B)	3
ENGR 1000	Introduction to Engineering Technology	2
MATH 1080	Introduction to Technical Mathematics <sup>2</sup>	4
Total Credit Hours		18

<sup>1</sup> English course selection is based on placement test results (ENGL 1111 English Composition I (B) is 4 credits; only 3 credits apply to the certificate).

<sup>2</sup> Successful completion of MATH 1080 Introduction to Technical Mathematics or placement into MATH 1180 Technical Mathematics I.

## Mechanical and Manufacturing Technology Specialist Certificate (4445)

Course	Title	Credit Hours
Completion of the Engineering Technology Foundations Certificate		18
CADT 2100	Introduction to SolidWorks	3
CIMN 1160	Applied Electricity	2
CIMN 1210	Materials Processing	3
MATH 1180	Technical Mathematics I	4
MECT 1600	Geometric Dimensioning and Tolerancing	2
PHYS 1100	Applied Physics Mechanics	3
Total Credit Hours		35



### CAMPUS MAP

- A** A-Building
- B** B-Building
- C** C-Building
- D** D-Building
- E** E-Building
- F1** Baseball Field
- F2** Soccer Field
- F3** Tennis Courts
- F4** Multi-Purpose Court

- F5** Softball Field
- H** H-Building
- K** Faculty Staff Lot
- L** Teaching Learning Center
- P** Parking
- S** Student Service Center/  
Breakers Dining
- T** T-Building
- U** Holden University Center

- V** Mooreland Mansion
- Y** Athletic & Fitness Center
- Clocktower
- ★ Dental Hygiene Clinic
- ♿ Handicap Parking
- HIVE
- ▲ Mind Ladders

### Quality Education

Professors at Lakeland are experts in their fields with real-world experience. Lakeland prepares you for a high-demand career or for transfer to a four-year college or university. Access to bachelor's and graduate degrees is available on campus from partner institutions through Lakeland's Holden University Center ([lakelandcc.edu/uc](http://lakelandcc.edu/uc)).

### Affordable Tuition

Lakeland's tuition is about one-third the cost of most four-year schools. More than 50 percent of Lakeland students receive some form of financial assistance ([lakelandcc.edu/tuition](http://lakelandcc.edu/tuition)).

### Convenience

Lakeland offers convenient day, evening, weekend and online courses ([lakelandcc.edu/schedule](http://lakelandcc.edu/schedule)).

### Focus on Students

Lakeland offers a variety of student services to help you succeed, such as counseling, tutoring, computer labs, career services, free parking and affordable child care.

## Opportunity starts HERE

**Visit** us on campus or online. Call 440.525.7900, email [recruitmentcenter@lakelandcc.edu](mailto:recruitmentcenter@lakelandcc.edu) or visit [lakelandcc.edu/visit](http://lakelandcc.edu/visit) for a campus tour.

**Apply** online: [lakelandcc.edu/apply](http://lakelandcc.edu/apply)

### Accreditation

Lakeland Community College is accredited through the Higher Learning Commission (HLC) and participates in the Academic Quality Improvement Program (AQIP). The Higher Learning Commission, 230 South LaSalle Street, Suite 7-500, Chicago, IL 60604-1413, phone: 800.621.7440, [hlcommission.org](http://hlcommission.org).

**Lakeland**  
COMMUNITY COLLEGE