



Computer Aided Design A.A.S.

Career Community: Electrical and Manufacturing

Curriculum Code: 1801

Effective: Fall 2024 – Summer 2029

Description

This program prepares individuals to apply technical skills and knowledge of computer software installed on a variety of stationary devices and mobile devices to the CAD design process leading through to output of product manufacturing. Automation design brings together engineering. Graphics design systems across the production cycle and links communication to the industry 4.0 concept. Students receive detailed instruction on building virtual representations of products by employing 3D parametric Solid Modeling found in the automotive, aerospace, medical, nuclear, special machinery, and defense industries. Computer Aided Design software is also applied to staging a product through virtual simulation and analysis of computer numerical control, computer programming of robotic systems, metrology quality control actions. Solid models are used in assemblies and drawings to convey material properties, dimensions and tolerances, execution of engineering change orders through tool production, additive manufacturing, and 3D printing.

Milestone

In addition to the required General Education courses in Math and English, completion of METD 110, METD 150, and METD 220 with a 2.0 or higher is a key component for success in completing this program. Knowledge obtained in these courses is the foundation for learning in other required courses. Students are encouraged to contact their faculty if they need additional assistance with learning the concepts presented in these courses.

Contact Information

For further information, including career options, course substitutions and waivers, etc., contact the Trades Technology Program, West Campus Building, Room M103, telephone number 517-483-5338, email manufacturing@lcc.edu or Student Services West Campus, West Campus Building, Room M106, telephone number 517-267-5452.

General Education - Applied Degrees, Recommended Courses

(For the full list of options, see [General Education](#))

- English Composition or Applied English – *Select one*
ENGL 124, Technical Writing, 3 credits / 3 billing hours
- English Composition (second course)/Communication or Applied Communication – *Select one*
COMM 110, Communication in the Workplace, 3 credits / 3 billing hours
- Humanities and Fine Arts or Social Sciences or Applied Social Sciences – *Select one*
MGMT 234, Diversity in the Workplace, 3 credits / 3 billing hours

- Mathematics or Applied Mathematics – *Select one*
MATH 115, Technical Mathematics, 4 credits / 4 billing hours
- Natural Sciences Lab or Applied Science and Technology Lab
Program of Study Required Courses will meet this requirement

Program of Study Required Courses

Course Code	Course Title	Credit / Billing Hours
METD 110	Mechanical CAD Drafting I	4 / 6
METD 111	Mechanical CAD Drafting II	4 / 6
METD 130	Geometric Dimension/ Tolerance	4 / 6
METD 150	Industrial Blueprint Reading	3 / 3
METD 220	Basic Unigraphics/NX	4 / 6
METD 221	Advanced Unigraphics/NX	4 / 6
METD 240	Basic NX Machining	4 / 5
METD 250	Detailing Assembly Drawings	4 / 6
METM 100	Manufacturing Processes	3 / 4.5
METM 108	Machine Tool Operations	4 / 6
METM 190	Metallurgy and Heat Treatment	4 / 6
METM 195	Quality/Metrology/Inspection	4 / 6
METM 220	Basic Mastercam	4 / 6
METS 115	Intro to Mechanical Systems	4 / 6

Additional Credits

After completing the course and credit requirements as noted on this pathway, students who fall short of the 60-credit minimum required for an Associate Degree may select any course(s) needed to reach 60 credits, except those courses noted in number 7 in the [Institutional Requirements for Associate Degrees](#). Students are encouraged to use Degree Works and meet with an Advisor to ensure all requirements are met and for course recommendations.

Minimum Total Credit Hours

67 credits / 91.5 billing hours

Recommended Course Sequence

Semester I
Gen Ed – Mathematics or Applied Mathematics
METD 110 – Milestone course
METD 150 – Milestone course
METM 100
METM 108

Semester II
Gen Ed – English Composition or Applied English
METD 111
METD 220 – Milestone course
METM 195
METS 115

Semester III
Gen Ed – English Composition (second course)/Communication or Applied Communication
METD 130
METD 221
METD 250
METM 220

Semester IV
Gen Ed – Humanities and Fine Arts or Social Sciences or Applied Social Sciences
METD 240
METM 190

LCC makes every effort to limit revisions to the pathways during their effective timeframe. However, the College reserves the right to update certificate and degree title changes, and make course changes as needed, without prior notice.