Computer Aided Design A.A.S.

Career Community: Electrical and Manufacturing
Curriculum Code: 1801
Effective: Fall 2025 – Summer 2030

Purpose of the Major

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.

Major Required Courses *– A minimum grade of 2.0 is required for General Education courses.*

Course Code	Course Title	Credit / Billing Hours
ACAD 100	First-Year Experience	1 / 1
COMM 110 or	Communication in the Workplace	3 / 3
COMM 120 or	Dynamics of Communication	3 / 3
COMM 130 or	Fundamentals Public Speaking	3 / 3
COMM 200 or	Small Group Communication	3 / 3
COMM 240 or	Interpersonal Communication	3 / 3
COMM 260 or	Nonverbal Communication	3 / 3
ENGL 122 or	Composition II	4 / 4
ENGL 132	Honors Composition II	4 / 4

Course Code	Course Title	Credit / Billing Hours
ELTE 121 or	Electrical Mathematics	5 / 6
MATH 115 or	Technical Mathematics	4 / 4
MATH 119 or	Math – Applications for Living	4 / 4
MATH 120 or	College Algebra	4 / 4
MATH 126	Precalculus	5 / 5
ENGL 121 or	Composition I	4 / 4
ENGL 124 or	Technical Writing	3 / 3
ENGL 127 or	Business Writing	3 / 3
ENGL 131	Honors Composition I	4 / 4
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

Notes:

ACAD 100 may be waived when students meet one of the following College-approved waiver criteria:
- Completion of 12 college-level credits with minimum grades of 2.0 shown on the LCC transcript (including transfer, if applicable), or
- Employment in the field of, or a field related to, the degree being sought

Students wishing to waive ACAD 100 should contact their advisor.

Major Required Courses, Limited Choice – Humanities and Fine Arts or Social Sciences or Applied Social Sciences *- Select one as recommended or select one from LCC General Education Applied Degrees: Humanities and Fine Arts or Social Sciences or Applied Social Sciences. A minimum grade of 2.0 is required for General Education courses.*

Course Code	Course Title	Credit / Billing Hours
GEOG 200	World Regional Geography	4 / 4
MGMT 234	Diversity in the Workplace	3 / 3
SOCL 120	Introduction to Sociology	4 / 4

Note: Students considering future transfer, choose GEOG 200 or SOCL 120.

General Education - Applied Degrees

- English Composition or Applied English
  Major Required Courses will meet this requirement.
- English Composition (second course)/Communication or Applied Communication
  Major Required Courses will meet this requirement.
- Humanities and Fine Arts or Social Sciences or Applied Social Sciences
  Major Required Limited Choice Courses will meet this requirement.
- Mathematics or Applied Mathematics
  Major Required Courses will meet this requirement.
- Natural Sciences Lab or Applied Sciences and Technology Lab
  Major Required Courses will meet this requirement.

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
ACAD 100
ELTE 121 or MATH 115 or MATH 119 or MATH 120 or MATH 126
METD 110 – Milestone course
METD 150 – Milestone course
METM 100
METM 108

Semester II
ENGL 121 or ENGL 124 or ENGL 127 or ENGL 131
METD 111
METD 220 – Milestone course
METM 195
METS 115

Semester III
COMM 110 or COMM 120 or COMM 130 or COMM 200 or COMM 240 or COMM 260 or ENGL 122 or ENGL 132

Semester III
METD 130
METD 221
METD 250
METM 220

Semester IV
METD 240
METM 190
Limited Choice – Humanities and Fine Arts or Social Sciences or Applied Social Sciences

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 titles, and make course changes as needed, without prior notice. The College also reserves the right to discontinue programs when warranted.