LAKESHORE TECHNICAL COLLEGE

COMPUTER-AIDED DESIGN (CAD) TECHNICIAN

Program Number 30-606-3
Technical Diploma • Two Terms

ABOUT THE PROGRAM

Students work on acquiring high-level drafting skills and utilize computer-aided drafting (CAD) software. They learn to construct and revise engineering working drawings to ASME (American Society of Mechanical Engineers) standards.

PROGRAM OUTCOMES

- Prepare detail and assembly drawings for documentation of mechanical parts and machines using CAD (Computer-Aided Design) software using ASME Y14.5M Standard.
- Create CAD geometry, parts and assemblies.

CAREER AND EDUCATION ADVANCEMENT OPPORTUNITIES

LTC credits transfer to over 30 universities. For more information visit gotoltc.edu/future-students/transfer.

ADMISSIONS AND FIRST SEMESTER ENROLLMENT STEPS

- Submit online application.
- Complete the online Student Success Questionnaire.
- Schedule your 1st Time Program Counseling/Registration Session with your assigned program counselor to plan your first semester schedule, review your entire plan of study and discuss the results of the Student Success Questionnaire.

**Submit transcripts and test scores (optional, highly recommended): College transcripts, along with high school transcripts and test scores from within the last five years, used for course registration. Official transcripts needed for transferring college credit(s) and for financial aid purposes.*

FUTURE SEMESTER ENROLLMENT STEPS

- Complete online Student Success Tutorial prior to registering for second semester.

APPROXIMATE COSTS

- $146.20 per credit tuition (WI resident) plus $8.77 per credit student activity fee. Material fee varies depending on course. Other fees vary by program. Visit gotoltc.edu/financial-aid/tuition-and-fees for details.

SPECIAL NOTE

Program can also be completed by attending evenings.

CONTACT

LTC Admissions Advisor
920.693.1162 • Admissions@gotoltc.edu

Catalog No.	Class Title	Credit(s)
	Term 1	
10606100	Mechanical Drafting Standards/Procedures	1
10606101	AutoCAD-2D Computer Aided Design	2
10606108	SolidWorks 1-Parametric Modeling	2
10606102	Product Design & Rapid Prototyping	1
10606104	Manufacturing Processes and Materials	2
10420107	Machining Applications	1
		9
	Term 2	
10606106	Tolerancing and GD&T	3
10606109	SolidWorks 2-Modeling/Details for Designers	2
10606110	SolidWorks 3-Working Drawings for Designers	2
10606111	SolidWorks-Advanced Modeling	2
		9
	TOTAL	**18**

Curriculum and program acceptance requirements are subject to change. Program start dates vary; check with your program counselor for details. The tuition and fees are approximate based on 2023-2024 rates and are subject to change prior to the start of the academic year.

AUTOCAD-2D COMPUTER AIDED DESIGN…provides the learner with the skills to utilize AutoCAD's drawing editor, viewing commands; apply coordinate entry methods, AutoCAD file commands; utilize draw commands, modify commands; create and edit text, prints & plots; apply geometric construction to solve a drawing problem; utilize selection sets, duplicating modify commands, layers & objects properties, blocks; apply principles of orthographic and multi view projection.

MACHINING APPLICATIONS…takes a hands-on approach to the subject of machining processes including milling, turning and drilling. Students will use the machines common to a machine shop to build a functional gearbox during their time in this course. The use of calipers, micrometers and coordinate measuring machines will also be used to verify the work. COREQUISITE: 10606104 Manufacturing Processes and Materials

MANUFACTURING PROCESSES AND MATERIALS...introduces the learner to machining processes including, milling, turning, and drilling. The learner will also learn how to properly use and read dial and digital micrometers; dial, digital and vernier calipers. In addition, the student will also explore metallurgy, computer-age machining and methods in advanced manufacturing technology.

MECHANICAL DRAFTING STANDARDS & PROCEDURES…develops skills in creating engineering sketches through the application of drafting standards and procedures. Principles covered include view selection, orthographic projection, section and auxiliary views, and their utilization in working drawings. The need for engineering sketching is reinforced through a hands-on project requiring measurement, inspection and sketching of orthographic views.

PRODUCT DESIGN AND RAPID PROTOTYPING…introduces students to rapid prototyping methods and the operation of various types of rapid prototyping equipment available in the Mechanical Design and Engineering Technology program's Fab Lab. Research and the use 3D printers including FDM and related material usage, will be explored through hands-on lab activities to develop a working prototype. COREQUISITE: 10606108 SolidWorks 1 - Parametric Modeling

SOLIDWORKS 1-PARAMETRIC MODELING…introduces the students to the concepts and commands of parametric solid modeling. Students create sketches and add relationships to the sketch segments, extrude the sketches to create models, and add features such as fillets, cut extrude, chamfers, holes, draft, shell, lofts and sweeps. Emphasis is placed on the design intent of the parametric solid models.

SOLIDWORKS 2-MODELING/DETAILS FOR DESIGNERS…is the second course in the study of parametric solid modeling using SolidWorks as it applies to the mechanical design field. Students extract 2D documentation from the 3D models and add details to the drawings. Advanced software applications are explored including assembly modeling techniques, configurations, detail drawing generation, surfaces, multibody parts, additional work with sweeps and lofts, and preparation for the CSWA (Certified SolidWorks Associate) exam. PREREQUISITES: 10606100 Mechanical Drafting Standards/Procedures and 10606108 SolidWorks 1 - Parametric Modeling

SOLIDWORKS 3-WORKING DRAWINGS FOR DESIGNERS…focuses on the creation of complete sets of engineering detail and assembly drawings including the accompanying engineering documentation, bill of materials and the application of geometric dimensioning and tolerancing standards. Emphasis is placed on product design analysis, tolerance stack ups and the application of GD&T. COREQUISITE: 10606109 SolidWorks 2-Modeling/Details for Designers

SOLIDWORKS-ADVANCED MODELING…introduces students to advanced modeling and design techniques for part design in sheet metal, weldments, castings and mold design. COREQUISITES: 10606110 SolidWorks 3-Working Drawings for Designers and 10606106 Tolerancing and GD&T

TOLERENCING AND GD&T…provides the learner with the skills to apply and interpret tolerancing standards for both rectangular and geometric tolerancing (ASME 14.5M-2018) on part drawings, including form, profile, orientation, runout, and positional tolerances. Additionally the learning will design mating parts and tolerance stack ups with and without GD&T.