



# Mechanical Computer-Aided Drafting

Program No: 31-606-1

Technical Diploma

Degree Completion Time: Three Terms

In general, an academic year consists of two terms; however, degree completion time may vary based on student scheduling needs and class availability.

2012-2013

| Catalog No.   | Class Title   | Credit(s)    |
|---------------|---|--------------|
| <b>Term 1</b> |   |              |
| 10606101      | Drafting Mechanical I/CAD I                               | 3.00         |
| 10606103      | Drafting Mechanical II/CAD II                             | 3.00         |
| 10606105      | Drafting Mechanical III/CAD III                           | 3.00         |
| 10606160      | Manufacturing Processes & Applications                    | 3.00         |
|               | <b>Total</b>  | <b>12.00</b> |
| <b>Term 2</b> |   |              |
| 10606106      | Geometric Dimensioning and Tolerancing                    | 3.00         |
| 10606107      | Drafting Mechanical IV/CAD IV                             | 3.00         |
| 10606140      | Drafting Parametric Using Solidworks                      | 3.00         |
| 10809196      | Introduction to Sociology OR 10809198 Intro to Psychology | 3.00         |
|               | <b>Total</b>  | <b>12.00</b> |
| <b>Term 3</b> |   |              |
| 10606196      | Drafting Mechanical V/CAD V                               | 3.00         |
| 10801196      | Oral/Interpersonal Communication                          | 3.00         |
|               | <b>Total</b>  | <b>6.00</b>  |
|               | <b>Program Total</b>                                      | <b>30.00</b> |

**Note:** Program start dates vary; check with your counselor for details.

Curriculum and program acceptance requirements are subject to change.

## About the Career

Students work on acquiring high-level drafting skills and utilize computer-aided drafting (CAD) software. They learn to construct and revise engineering working drawings.

## Careers

- CAD Technician
- Design/Layout Drafter
- Drafter

## Admissions Steps

- Application
- Application Fee
- Entrance Assessment Scores
- Transcripts
- Program Advising Session
- Functional Abilities Statement of Understanding Form

## Program Outcomes

You'll learn to:

- Assist engineers in the design process.
- Prepare detail and assembly drawings for documentation of mechanical parts and machines using CAD (Computer-Aided Design) software using ASME Y14.5M-2009 Standard.
- Function effectively on both self-directed and team-oriented projects.
- Ability to grasp spatial relationships.

## Approximate Costs

- \$126 per credit (resident)
- \$182 per credit (out-of-state resident)
- Other fees vary by program (books, supplies, materials, tools, uniforms, health-related exams, etc.)

## Special Note

Program can also be completed by attending evenings.

## Functional Abilities

Functional abilities are the basic duties that a student must be able to perform with or without reasonable accommodations. At the postsecondary level, students must meet these requirements, and they cannot be modified. Please view the Functional Abilities Statement of Understanding on the [www.gotoltc.edu](http://www.gotoltc.edu) website (Future Students, Academics, Areas of Study, Mechanical Design Technology).

## Placement Scores

Accuplacer/ACT scores will be used to develop your educational plan. Please contact your program counselor/advisor at 920-693-1109.

## Transfer agreements are available with the following institutions:

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### **10606101 Drafting Mechanical 1/CAD 1**

...provides the learner with the skills to operate 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 projection.

### **10606103 Drafting Mechanical 2/CAD 2**

...provides the learner with the skills to create two-dimensional section views, create two-dimensional auxiliary views, create prints/plots from paper space and utilize the X-reference command.

*COREQUISITE: 10606101 Drafting Mechanical 1/CAD 1*

### **10606105 Drafting Mechanical 3/CAD 3**

...provides the learner with the skills to create a solid model from a three-dimensional wireframe, create solid primitives, create a solid model from a two-dimensional closed profile, utilize Boolean operations, utilize modify options to existing solid models, create a multiview drawing from a solid model, modify and set dimension attributes, apply dimensioning symbols, and apply ASME Y14.5M-2009 standards for dimensioning and tolerancing.

*COREQUISITE: 10606103 Drafting Mechanical 2/CAD 2*

### **10606106 Geometric Dimensioning and Tolerancing**

...provides the learner with the skills to apply and interpret geometric tolerancing (ASME 14.5M-2009) to part drawings, including form, profile, orientation, runout, and positional tolerances.

### **10606107 Drafting Mechanical 4/CAD 4**

...provides the learner with the skills to create different types of assembly drawings, utilize copy and paste, utilize SAT & STL files, apply tolerances, apply weld symbols, and use fasteners in assemblies.

*COREQUISITE: 10606105 Drafting Mechanical 3/CAD 3*

### **10606140 Drafting Parametrics Using Solidworks**

...provides the learner with the skills to utilize the SolidWorks user interface; create base features, extrusions, revolve, cuts, holes, fillets & chamfers, working planes, ribs, patterns, sweeps, shells, lofts and 2D detail drawings; edit features.

*COREQUISITE: 10606107 Drafting Mechanical IV/CAD IV*

### **10606160 Manufacturing Processes and Applications**

...Introduces the learner to machining processes including, milling, turning, drilling and grinding. The learner will also learn how to properly use and read dial and digital micrometers; dial, digital and vernier calipers; as well as height gages and angle measurement devices. In addition, the student will also explore metallurgy, computer-age machining and methods in advanced manufacturing technology.

### **10606196 Drafting Mechanical 5/CAD 5**

...provides the learner with the skills to apply classes of fits, create bottom-up and top-down assemblies using SolidWorks, specify geometric tolerancing, insert annotation symbols, use standard fasteners and apply reverse engineering.

*PREREQUISITE: 10606140 Drafting Parametric Using Solidworks*