



Technical Drafting Program

Organization	Washburn Institute of Technology
Program Number	15.1302
Instructional Level	Certificate
Instructional Area	Design Technology

Target Population

Grades 11 & 12; Post-secondary.

Description

This program provides related and hands-on experience in the proper use of drafting tools and equipment, preparing drawings and reproductions, and developing skills, knowledge, and techniques for use in a variety of areas in the drafting field. Related theory and technical instruction include the study of applied algebra, geometry, and trigonometry, as well as scientific and physical principles of numerous construction and manufacturing materials and techniques. Students will learn the fundamentals of computer-aided drafting (CAD), emphasizing the use of computer hardware and software in processing, and retrieving drawing and data files..

Entry Requirements

1. WorkKeys Level 5 in Applied Math.
2. WorkKeys Level 4 in Reading for Information
3. One year high school algebra (C grade or better).

Assessment Plan

Assessment is an integral part of the educational process at Washburn Tech and accurate feedback is an important tool in continuously improving the institution's technical programs. Students can expect to participate in assessment activities prior to entry into programs, within specific courses and following program completion for specific fields of study.

Grading Criteria

- A 92% - 100%
- B 84% - 91%
- C 76% - 83%
- D 68% - 75%
- F 67% of below

A student can receive 1 hour make-up by completing a two page typed paper, on an approved subject, double spaced, 12 point font, and with at least 2 sources identified.

Student Learning Outcomes

- A. Communicate effectively.
- B. Integrate technology.
- C. Learn effectively - use academics effectively.
- D. Demonstrate cooperative/teamwork skills.
- E. Apply safety.
- F. Think critically and creatively.
- G. Demonstrate responsible work ethics.

Program Outcomes

- A. Design and draft effectively using accepted industry standards.
- B. Demonstrate understanding of different career fields in the industry, such as architectural drawing, machine drawing and civil design.
- C. Analyze and compare 2D and 3D computer aided drafting software currently used in industry.

Course #	Course Title	Credit Hours	Required
TED100	General Drafting	4	Yes
TED110	Drafting Standards	1	Yes
TED120	Technical Math I	2	Yes
TED125	Technical Math II	3	Yes
TED130	CAD I	5	Yes
TED135	CAD II	3	Yes
TED140	Machine Design	6	Yes
TED200	Architectural Design	5	Yes
TED210	Industrial Design	6	Yes
TED220	Civil Design	6	Yes
TED230	CAD III	5	Yes
TED250	Workplace Skills	2	Yes
TED260	Draft OJT (Optional)	3	No

Program Course Descriptions

TED100 General Drafting (4 credits)

This course introduces the application of fundamental drawing types which includes geometric construction, ortho-graphic views, sections, auxiliary views, and development. Instruction covers care and use of the tools and equipment.

TED110 Drafting Standards (1 credit)

Drafting standards is a course in time keeping, filing, drawing logs, and drawing cross references. Developmental skills in organization, accuracy, neatness, attendance policies, dress codes, and safety in the workplace..

TED120 Technical Math I (2 credits)

This course is a math review of practical skill as related to the drafting workplace where the students utilize fractions, decimals, simple equations, powers and roots, ratios and proportion, plane geometry, right triangles, oblique triangles, computation of areas and volumes, and use of charts and graphs.

TED125 Technical Math II (3 credits)

This course is a math review of practical skill as related to the drafting workplace where the students utilize plane geometry, right triangles, oblique triangles, trigonometric natural and co-functions, solutions of triangles right and oblique, computation of areas and volumes, and use of charts and graphs. Prerequisite - TED120

TED130 CAD I (5 credits)

First course in a three-term sequence introducing AutoCAD software as a drafting tool. Instruction will be given in file handling, basic commands function, drafting techniques, presentation, and plotting. Architectural and mechanical applications will be used in lab exercises to demonstrate AutoCAD commands. Work will be completed with AutoCAD.

TED135 CAD II (3 credits)

Second course in a three-term sequence covering intermediate AutoCAD commands including attribute blocks, external references, object linking/embedding, advanced drawing set-up, and user coordinate systems. Work will be completed with AutoCAD. Recommended prerequisite: TED130.

TED140 Machine Design (6 credits)

This course is an introductory to fundamentals, theory, terminology, and practical construction methods in the machine disciplines. Use of actual working drawing used as reference to industry standards. Students will use a combination of drawing board and CAD in this segment. Practical skills refinement in methods, materials identification and labeling, and drafting techniques and standards used in various types of drawings used in the machine industries. Recommended prerequisite or co-requisites: TED100; TED135.

TED200 Architectural Design (5 credits)

Course introduces fundamental aspects of architectural drafting. Covers drafting of residential and light commercial buildings, sections and elevations, schedules, design lay-outs, details, and working drawings. Recommended prerequisite or co-requisite: TED135

TED210 Industrial Design (6 credits)

Course introduces mechanical drafting utilizing Autodesk's INVENTOR software through parametric 3D-design tools for assembly centered modeling and collaborative engineering. Develops fundamental knowledge in the areas of part and assembly modeling, using adaptive features, utilizing work groups, surfacing basics, data management, and lay-out presentation. Recommended prerequisites or recommended co-requisites: TED140, TED230

TED220 Civil Design (6 credits)

Course introduces civil drafting applications using civil, mapping, and survey products. Drawings will be developed to include plats, related civil infra-structure, public utilities, contours, and roads. Recommended prerequisite or recommended co-requisite: TED135

TED230 CAD III (5 credits)

Third course in a three-term sequence covering advanced AutoCAD commands including advanced plotting, plotter, CAD standards, modeling 3-D wire frame, surfaces, solids, and 3-D presentation. Work will be completed with AutoCAD. Recommended prerequisite: TED135

TED250 Workplace Skills (2credits)

Course utilizes Key Train Software to assist in advancement of knowledge in Applied Math, Reading for Information, and Locating Information WorkKeys assessments that are required prior to exiting the program. Students will also be required to attend seminars provided through the Career Resource Center. Seminar topics include interview techniques, developing and preparing a resume, completing job applications, ethics, and teamwork.

TED260 Technical Drafting OJT (3 credits - optional)

Students that have completed all course objectives and criteria plus having an opportunity for employment related to the drafting field may utilize On-the-Job Training (OJT) with instructor and administrative permission.

ADA Notification Statement and Disability Services:

The Testing/ADA Coordinator office is responsible for assisting in arranging accommodations and for identifying resources at Washburn Tech for persons with disabilities. Qualified students with disabilities **MUST** register and provide documentation with the office to be eligible for services. New requests for accommodations should be submitted two months or more prior to the date services should begin by contacting the Testing/ADA Coordinator's office as soon as a need may arise. Depending on the accommodation request, four to eight weeks lead time may be needed for timely and effective provision of services. Testing/ADA Coordinator coordinates and assists in arranging services it deems appropriate for eligible students on a case-by-case basis.

If you are a student with a disability that may substantially limit your ability to participate in this class and believe you will need accommodations, it is your responsibility to contact:

Special Support Services Coordinator

Phone: 785-228-6356

E-Mail: gloria.christian@washburn.edu

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