

# ENGINEER DESIGN GRAPH (DFTG)

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**DFTG 1305 Introduction to Technical Drawing 3 Credits (2 Lec, 4 Lab)**

This course is an introduction to reading, interpreting, and developing technical drawings, including the principles of drafting and computer-aided design.

Course Type: Technical

**DFTG 1409 Basic Computer-Aided Drafting 4 Credits (3 Lec, 3 Lab)**

This course is an introduction to computer-aided drafting with an emphasis on setup, creating and modifying geometry; storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinate systems, and plot/print to scale.

Course Type: Technical

**DFTG 1417 Architectural Drafting-Residential 4 Credits (3 Lec, 3 Lab)**

This course is preparation of architectural drawings for residential structures with emphasis on light frame construction methods, including architectural drafting procedures, practices, terms and symbols.

Prerequisite(s): DFTG 1305 and DFTG 1409 or Department Chair approval

Course Type: Technical

**DFTG 1430 Civil Drafting I 4 Credits (3 Lec, 3 Lab)**

This course offers training in preparation of civil drawings including drafting methods and principles used in civil engineering.

Prerequisite(s): DFTG 2421 or Department Chair approval

Course Type: Technical

**DFTG 1433 Mechanical Drafting 4 Credits (3 Lec, 3 Lab)**

This course provides a preparation of mechanical drawings including dimensioning and tolerances, sectioning techniques, orthographic projection, and pictorial drawings.

Prerequisite(s): DFTG 1305 and DFTG 1409 or Department Chair approval

Course Type: Technical

**DFTG 1445 Parametric Modeling and Design 4 Credits (3 Lec, 3 Lab)**

This course offers training with a parametric-based design software for 3D design and drafting.

Prerequisite(s): DFTG 1305 and DFTG 1409 or Department Chair approval

Course Type: Technical

**DFTG 2317 Descriptive Geometry 3 Credits (2 Lec, 4 Lab)**

This course focuses on developing graphical solutions to problems involving points, lines, and planes in space.

Prerequisite(s): DFTG 1305

Course Type: Technical

**DFTG 2338 Final Project - Advanced Drafting 3 Credits (2 Lec, 4 Lab)**

This course is an advanced course in which students produce a comprehensive project from conception to conclusion. Eight of these credits must be earned at San Jacinto College.

Prerequisite(s): 16 credit hours of Engineering Design Graphics courses from the following group: ARCE 1415, ARCE 1421, ARCE 1452, DFTG 1417, DFTG 1430, DFTG 1433, DFTG 2402, DFTG 2406, DFTG 2407, DFTG 2408, DFTG 2421, DFTG 2423, DFTG 2428, DFTG 2431, DFTG 2435, DFTG 2445, DFTG 2450, DFTG 2457, DFTG 2458, or Department Chair approval

Course Type: Technical

**DFTG 2386 Internship-Drafting and Design Technology/Technician 3 Credits (0 Lec, 18 Lab)**

This internship is a work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts.

Prerequisite(s): 16 hours of Engineering Design Graphics courses from the following group: ARCE 1415, ARCE 1421, ARCE 1452, DFTG 1417, DFTG 1430, DFTG 1433, DFTG 2402, DFTG 2406, DFTG 2407, DFTG 2408, DFTG 2421, DFTG 2423, DFTG 2428, DFTG 2431, DFTG 2435, DFTG 2445, DFTG 2450, DFTG 2457, DFTG 2458, or Department Chair approval, eight of these credits must be earned at San Jacinto College

Course Type: Technical

**DFTG 2402 Machine Drafting 4 Credits (3 Lec, 3 Lab)**

This course will include a study of production of detail and assembly drawings of machines, threads, gears, utilizing tolerances, limit dimensioning, and surface finishes.

Prerequisite(s): DFTG 1305 and DFTG 1409 or department chair approval

Course Type: Technical

**DFTG 2406 Machine Design 4 Credits (3 Lec, 3 Lab)**

This course covers the theory and practice of design and includes projects in problem solving, including press fit, bolted and welded joints, and transmission components.

Prerequisite(s): DFTG 1445 or department chair approval

Course Type: Technical

**DFTG 2407 Electrical Drafting 4 Credits (3 Lec, 3 Lab)**

This course is a study of area lighting, control systems and power layouts, electrical and safety codes, local factors and distribution requirements.

Prerequisite(s): DFTG 1305 and DFTG 1409 or department chair approval

Course Type: Technical

**DFTG 2408 Instrumentation Drafting 4 Credits (3 Lec, 3 Lab)**

This course will include a study of principles of instrumentation applicable to industrial applications, fundamentals of measurement and control devices, currently used ISA (Instrumentation Society of America) symbology, and basic flow sheet layout and drafting practices.

Prerequisite(s): DFTG 1305 and DFTG 1409 or department chair approval

Course Type: Technical

**DFTG 2421 Topographic Drafting 4 Credits (3 Lec, 3 Lab)**

This course focuses on the plotting of surveyor's field notes, including drawing elevations, contour lines, plan and profiles, and laying out traverses.

Prerequisite(s): DFTG 1305 and DFTG 1409 or department chair approval

Course Type: Technical

**DFTG 2423 Pipe Drafting 4 Credits (3 Lec, 3 Lab)**

This course is a study of pipe, fittings, symbols, specifications and their applications to a piping process system, including the creation of symbols and their usage in flow diagrams, plans, elevations, and isometrics.

Prerequisite(s): DFTG 1305 and DFTG 1409 or department chair approval

Course Type: Technical

**DFTG 2428 Architectural Drafting-Commercial 4 Credits (3 Lec, 3 Lab)**

This course provides a preparation of architectural drawings for commercial structures with emphasis on construction methods, including architectural drafting procedures, practices, governing codes, accessibility requirements, terms and symbols.

Prerequisite(s): DFTG 1305 and DFTG 1409 or Department Chair approval

Course Type: Technical

**DFTG 2431 Advanced Technologies in Architectural Design and Drafting 4 Credits (3 Lec, 3 Lab)**

This course focuses on the use of architectural specific software to execute the elements required in designing standard architectural exhibits utilizing custom features to create walls, windows and specific design requirements for construction in residential/commercial and industrial architecture.

Prerequisite(s): DFTG 1417 or DFTG 2428 or department chair approval

Course Type: Technical

**DFTG 2435 Advanced Technologies in Mechanical Design and Drafting 4 Credits (3 Lec, 3 Lab)**

This course will focus on the use of parametric-based software for mechanical design for advanced modeling and analysis.

Prerequisite(s): DFTG 2406 or department chair approval

Course Type: Technical

**DFTG 2440 Solid Modeling/Design 4 Credits (3 Lec, 3 Lab)**

This is a computer-aided modeling course that includes development of three-dimensional drawings and models from engineering sketches and orthographic drawings and utilization of three-dimensional models in design work.

Prerequisite(s): DFTG 1305 and DFTG 1409 or department chair approval

Course Type: Technical

**DFTG 2445 Advanced Pipe Drafting 4 Credits (3 Lec, 3 Lab)**

This course is a continuation of pipe drafting concepts building on basic principles acquired in pipe drafting.

Prerequisite(s): DFTG 2423 or department chair approval

Course Type: Technical

**DFTG 2450 Geometric Dimensioning and Tolerancing 4 Credits (3 Lec, 3 Lab)**

This course is a study of Geometric dimensioning and tolerancing, according to standards, application of various geometric dimensions and tolerances to production drawings.

Prerequisite(s): DFTG 1433 or department chair approval

Course Type: Technical

**DFTG 2457 Advanced Technologies in Pipe Design and Drafting 4 Credits (3 Lec, 3 Lab)**

This course focuses on advanced design and production techniques using specialized process plant based design software.

Prerequisite(s): DFTG 2423 or department chair approval

Course Type: Technical

**DFTG 2458 Advanced Machine Design 4 Credits (3 Lec, 3 Lab)**

This course covers design process skills for the production of a complete design package, which includes jig and fixture design, extrusion dies, and injection mold design.

Prerequisite(s): DFTG 2406 or department chair approval

Course Type: Technical