DRFT-DRAFTING (DRFT)

DRFT 101. Introduction to Drafting and Design Technologies  
1 Credit  
Professional and student organizations associated with the Drafting and Design Technologies program, degree requirements, employment skills and work habits, and university and college policies and procedures will be explored. Students will be introduced to the current learning management system and career-readiness certification. Restricted to Community Colleges only.

DRFT 105. Technical Drawing for Industry  
3 Credits (2+2P)  
Technical sketching, basic CAD, and interpretation of drawings with visualization, speed and accuracy highly emphasized. Areas of focus include various trades such as machine parts, welding, heating and cooling, and general building sketches/plan interpretation.

DRFT 108. Drafting Concepts/Descriptive Geometry  
2 Credits (1+2P)  
Basic manual drafting skills, sketching, terminology and visualization. Graphical solutions utilizing applied concepts of space, planar, linear and point analyses. Metric and S.I. units introduced.

DRFT 109. Computer Drafting Fundamentals  
3 Credits (2+2P)  
Introduction to computer-aided drafting. Principles and fundamentals of drafting using the latest version of AutoCAD software. Crosslisted with: C E 109 and E T 109

DRFT 112. Drafting Concepts/Computer Drafting Fundamentals I  
4 Credits (2+4P)  
Basic drafting skills, terminology, and visualization. Introduction to principles and fundamentals of computer-aided drafting. Same as E T 106.

Prerequisites: OEC 207, OEC 125 or consent of instructor.

DRFT 113. Drafting Concepts/Computer Drafting Fundamentals II  
4 Credits (2+4P)  
Drafting for mechanical/industrial applications; machine part detailing, assemblies in orthographic, isometric, auxiliary, oblique, and sectional views. Two-dimensional AutoCAD with introduction to 3-D AutoCAD. Same as E T 216. Restricted to: Community Colleges only.

Prerequisite: DRFT 112.

DRFT 114. Introduction to Solid Modeling  
3 Credits (2+2P)  
2D mechanical drafting and 3D mechanical solid modeling utilizing the latest version of AutoCAD software. Industry dimensioning and annotation standards will be emphasized. 2D multi-view working drawings, 3D solid models, and basic 3D model assemblies will be introduced. Restricted to Community Colleges campuses only.

Prerequisite(s): DRFT 109.

DRFT 115. General Construction Safety  
3 Credits  
Overview of general construction safety related to building, highway and road construction, and surveying field work for entry-level individuals. Students will also have the opportunity to earn a 10-hour construction industry OSHA card. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.

DRFT 120. Survey Equipment Fundamentals  
2 Credits  
Introduces the application and the setup to the following surveying equipment: Automatic Level, Total station, and Global Positioning Systems. Field safety knowledge is required. Restricted to Community Colleges only.

DRFT 130. General Building Codes  
3 Credits (2+2P)  
Interpretation of the Building Code, local zoning codes, A.D.A. Standards and the Model Energy Code to study construction and design requirements and perform basic plan checking. Restricted to: Community Colleges only.

DRFT 135. Electronics Drafting I  
3 Credits (2+2P)  
Drafting as it relates to device symbols; wiring, cabling, harness diagrams and assembly drawings; integrated circuits and printed circuit boards; schematic, flow and logic diagrams; industrial controls and electric power fields. Drawings produced using various CAD software packages.

Prerequisites: DRFT 108 and DRFT 109.

DRFT 141. Civil Drafting Fundamentals  
3 Credits (2+2P)  
Introduction to drafting in the field of Civil Engineering. Drawings, projects, and terminologies related to topographic, contour drawings, plan and profiles, and street/highway layout. Crosslisted with: E T 143. Restricted to Community Colleges only.

Prerequisite(s): DRFT 109.

DRFT 143. Civil Drafting Fundamentals  
3 Credits (2+2P)  
Introduction to drafting in the field of Civil Engineering. Drawings, projects, and terminologies related to topographic, contour drawings, plan and profiles, and street/highway layout. Crosslisted with: E T 143. Restricted to Community Colleges only.

Prerequisite(s): DRFT 109.

DRFT 151. Construction Principles and Print Reading  
3 Credits (2+2P)  
Introduction to construction materials, methods, and basic cost estimating and print reading applicable in today's residential, commercial, and public works industry. Instruction by print reading and interpretation, field trips, and actual job-site visits and progress evaluation.

DRFT 153. Survey Drafting Applications  
3 Credits (2+2P)  
Introduction to drafting in the field of survey engineering. Drawings, projects and terminologies related to Point Data, topography, land/ boundary surveys, legal descriptions and plat surveys. Using the current Autodesk software. Crosslisted with: SUR 143. Restricted to: Community Colleges only.

Prerequisite(s): DRFT 109.

DRFT 160. Construction Take-Offs and Estimating  
3 Credits (2+2P)  
Computing and compiling materials and labor estimates from working drawings using various techniques common in general building construction and in accordance with standard specifications and estimating formats. Use of spreadsheets and estimating software introduced.

Prerequisite: DRFT 151.

DRFT 161. Introduction to Construction Management  
3 Credits  
Introduction to the construction industry and construction management; construction documents and contracts; project planning, scheduling and administration; construction site management; and the role of Building Information Modeling (BIM) in construction management. Pre/ Restricted to: Community Colleges only.

Corequisite(s): DRFT 151 or consent of instructor.
DRFT 109. Introduction to Technical Electronics
3 Credits (2+2P)
Introduction to technical applications of computer generated renderings and animations for the architecture and engineering fields. 3D models, photo-realistic renderings, and basic animation movie files will be produced utilizing Autodesk VIZ and Google SketchUp software. May be repeated for a maximum of 6 credits.
Prerequisite: DRFT 109.

DRFT 110. Introduction to Building Information Modeling
3 Credits (2+2P)
Introduction to Building Information Modeling (BIM) in the development of virtual 3D building models, construction documents, renderings and basic animations related to architectural, structural, and mechanical/electrical/plumbing building components. Utilizes the latest BIM technologies in the integration one, parametric BIM. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.
Prerequisite(s)/Corequisite(s): DRFT 109.

DRFT 111. Construction Site Safety Management
3 Credits
Construction safety, compliance, documentation, and reporting requirements for individuals with construction site safety management responsibilities. Students will have the opportunity to earn a 30-hour construction industry OSHA card. Consent of Instructor required. Restricted to Community Colleges campuses only.

DRFT 112. Surveying Fundamentals
3 Credits (2+2P)
Introduction to technical applications of computer generated renderings and animations for the architecture and engineering fields. 3D models, photo-realistic renderings, and basic animation movie files will be produced utilizing Autodesk VIZ and Google SketchUp software. May be repeated for a maximum of 6 credits.
Prerequisite: DRFT 109.

DRFT 113. Advanced Solid Modeling
3 Credits (2+2P)
Advanced 3D mechanical parametric solid modeling and assembly creation utilizing the latest version of Solidworks software. The creation of 2D working drawings from 3D solid models and the creation of 3D models for machining/manufacturing will be emphasized. Geometric Dimensioning and Tolerancing (GD&T), material properties, and industry standard fastening and manufacturing methods will be further explored.
Prerequisite(s)/Corequisite(s): DRFT 114. Restricted to Community Colleges campuses only.

DRFT 114. Intermediate Mechanical Drafting/Solid Modeling
3 Credits (2+2P)
Intermediate 3D mechanical parametric solid modeling and assembly creation utilizing the latest version of Autodesk Inventor software. The creation of 2D working drawings from 3D solid models will be emphasized. Geometric Dimensioning and Tolerancing (GD&T), basic material properties, and industry standard fastening and manufacturing methods will be introduced.
Prerequisite(s)/Corequisite(s): DRFT 114. Restricted to Community Colleges campuses only.

DRFT 115. Introduction to Building Information Modeling
3 Credits (2+2P)
Introduction to Building Information Modeling (BIM) in the development of virtual 3D building models, construction documents, renderings and basic animations related to architectural, structural, and mechanical/electrical/plumbing building components. Utilizes the latest BIM technologies in the integration one, parametric BIM. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.
Prerequisite(s)/Corequisite(s): DRFT 109.

DRFT 116. Geographic Information Systems Technology
3 Credits (2+2P)
The use of digital information for which various digitized data creation methods are captured. Users will capture, store, analyze and manage spatially referenced data in a modeled mapping procedure. Restricted to Community Colleges only.
Prerequisite(s): DRFT 109.

DRFT 118. Advanced Building Drafting
3 Credits (2+2P)
Intermediate 3D mechanical parametric solid modeling and assembly creation utilizing the latest version of Solidworks software. The creation of 2D working drawings from 3D solid models and the creation of 3D models for machining/manufacturing will be emphasized. Geometric Dimensioning and Tolerancing (GD&T), material properties, and industry standard fastening and manufacturing methods will be further explored.
Prerequisite(s)/Corequisite(s): DRFT 114. Restricted to Community Colleges campuses only.

DRFT 119. Finding and Maintaining Employment
2 Credits
Techniques in self-evaluations, resume writing, application completion, job interviewing, and job retention. Exposure to work ethics, employee attitudes, and employer expectations.
DRFT 242. Roadway Development Drafting
3 Credits (2+2P)
Advanced civil/survey technology and drafting related to roadway development. Emphasis is on relevant terminology, codes/standards, and the production of complex working drawings such as topographical/grading, drainage, master utilities, roadway P P/details/etc., according to agency standards. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.
Prerequisite(s): DRFT 143.

DRFT 243. Land Development Drafting
3 Credits (2+2P)
Advanced civil/survey technology and drafting related to land development. Emphasis is on relevant terminology codes/standards, and the production of complex working drawings such as subdivision plats, local utility and drainage plans, construction details roadway P P, etc., according to local development/agency standards.
Prerequisite: DRFT 204.

DRFT 250. Principles of Detailing and Design
3 Credits (2+2P)
Advanced practice in construction documentation in the development and coordination of working drawings & specifications. In particular, will utilize Architectural Graphic Standards, National CAD Standards, and ADA standards to develop detail drawings related to Architectural, Civil, Structural and Building Mechanical systems. Will also be introduced to basic principles, factors, and process of building design such as space planning, site analysis, and basic architectural programming. Restricted to Community Colleges only.
Prerequisite(s): DRFT 180 or DRFT 181.

DRFT 254. Spatial Data Processing
3 Credits (2+2P)
Utilizes the tools and technologies of GIS, processing volumes of geodata identifying a numerical, coded or listed map. Involves the analysis of spatial data from various diverse applications and place in a descriptive mapping process. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.
Prerequisite(s): DRFT 204.

DRFT 255. Independent Study
1-3 Credits (1-3)
Instructor-approved projects in drafting or related topics specific to the student's individual area of interest and relevant to the drafting and graphics technology curriculum. Consent of instructor required. May be repeated for a maximum of 6 credits.

DRFT 265. Advanced Building Information Modeling Applications
3 Credits (2+2P)
Advanced applications of Building Information Modeling (BIM) including the creation of, and practice in collaborative work sets, data and design analyses, energy modeling and analysis, preliminary LEED analysis, construction take-offs & estimation, and construction animation, through use of various BIM and related software. Restricted to Community Colleges only.
Prerequisite(s): DRFT 165.

DRFT 274. GIS Theory and Analysis
3 Credits (2+2P)
Analyzes the hypothesis in which location and spatial data sufficiently quantifies the appropriate statistical methodology. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.
Prerequisite(s): DRFT 254.

DRFT 276. Computer Rendering and Animation I
3 Credits (2+2P)
Introduction to technical applications of computer generated renderings and animations for the architecture and engineering fields. 3D models, photo-realistic renderings, and basic animation movie files will be produced utilizing industry standard modeling and animation software.

DRFT 277. Computer Rendering and Animation II
3 Credits (2+2P)
Continuation of DRFT 276. Covers advanced modeling and animation techniques using 3-D animation software.
Prerequisite: DRFT 276.

DRFT 278. Advanced CAD Applications
3 Credits (2+2P)
Introduction to advanced CAD commands, applications, usage techniques, and user customization. the latest version of the National CAD Standards will also be explored. Restricted to: Community Colleges only.
Prerequisite(s): DRFT 109.

DRFT 288. Portfolio Development
3 Credits (2+2P)
Production of a portfolio consisting of previously produced student work related to the student's individualized degree option. Process shall include the compilation and organization of working and presentation drawings, construction documents, BIM Models, and renderings/animations. Students will learn the basics of design layout and online portfolio documentation. Job search and resume preparation activities will also be required. Production of new material and content may also be required. This course is designed as a last semester course in the Drafting & Design curricula. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.

DRFT 290. Special Topics
1-4 Credits (1-4)
Topics subtitled in the Schedule of Classes. May be repeated for a maximum of 12 credits.

DRFT 291. Cooperative Experience
1-6 Credits (1-6)
Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Student meets with advisor weekly. Graded S/U.
Prerequisite: consent of instructor.

DRFT 295. Professional Development and Leadership DAGA
1 Credit
Students gain experience in leadership, team building, performing community service, and membership and/or leadership in a student organization. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.