Davis Applied Technology College
A UCAT Campus
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Course Descriptions - Architectural and Engineering Design
Catalog Year: 2012

BTEC 1110 Computer Literacy - 90 Hours

This course provides students with a fundamental understanding of computing including knowledge and use of computer hardware, software, and operating systems. The course will cover basic use and common features of applications (word processing, spreadsheet, and database) including internet use and e-mail. This course includes information regarding setting up an ergonomic environment, maintaining healthy work habits and health risks involving eye strain and repetitive stress injuries.

BTEC 1110_ Computer Literacy (Program Based) - 90 Hours

This course provides students with a fundamental understanding of computing including knowledge and use of computer hardware, software, and operating systems. The course will cover basic use and common features of applications (word processing, spreadsheet, and database) including internet use and e-mail. This course includes information regarding setting up an ergonomic environment, maintaining healthy work habits and health risks involving eye strain and repetitive stress injuries.

DRFT 1005 Technical Drafting - 90 Hours

This course includes the basic techniques of mechanical drafting. Students will demonstrate correct sketching and lettering techniques and will utilize CAD as a tool to construct multi-view (orthographic) drawings with accompanying sectional and auxiliary views. In addition, students will demonstrate how to apply the appropriate annotations and dimensions required in the production of residential architectural drawings.

DRFT 1016 Basic Computer Aided Drafting: AutoCAD 2012 - 90 Hours

This course provides students with an introduction to the use of computer aided drafting software and hardware. Instruction will be given on hardware, software, operating systems, coordinate systems, drawing and editing commands and plotting.

DRFT 1025 Architectural Drafting - 90 Hours

This course includes the demonstration of architectural sketching techniques based on established residential architectural drafting principles. Students will apply proper planning techniques in the creation of site, foundation and floor plans. They will also create stair detail and elevation drawings.

DRFT 1035 Pictorial Drafting - 30 Hours

This course includes creating pictorial drawings using isometric, diametric, oblique and perspective drawing techniques. Students will produce the appropriate use of shade and shadow techniques.

DRFT 1070 Applied Technical Math - 90 Hours

During this course students will learn practical problems in mathematics for drafting and CAD. The course will cover topics such as: applied geometry, applied algebra, applied trigonometry, graphs, ratio and proportion, measurement, and other applied math skills relating to design. The student will apply these principles while learning the art of drafting.

DRFT 1076 3D Parametric Solid Modeling: Basic SolidWorks 2011 - 90 Hours

Students in this course will be introduced to 3D solid modeling and parametric design using SolidWorks 2011 software. Topics will include sketching planes, extruding, lofting, sweeps, feature manager, mating parts, assemblies, and complete working drawings from parametric models.

DRFT 1081 Architectural 3D Modeling and Rendering: Revit 3D 2012 - 90 Hours

During this course students will learn advanced 3D architectural modeling and parametric design using Revit 3D 2012 software. Architectural 3D CAD models will be developed, animated, and rendered. Presentation style drawings will be produced. Students will learn current industry standard modeling, rendering, and animation software.

DRFT 2100 3D Parametric Solid Modeling: Inventor 2012 - 90 Hours

Students in this course will be introduced to 3D solid modeling and parametric design using Inventor 2012 software. Topics will include sketching planes, extruding, lofting, sweeps, feature manager, mating parts, assemblies, and complete working drawings from parametric models.

DRFT 2105 3D Parametric Solid Modeling: Catia V - 90 Hours

Students will be introduced to 3D solid modeling and parametric design using Catia V software. Topics will include sketching planes, extruding, lofting, sweeps, feature manager, mating parts, assemblies, and complete working drawings from parametric models.

DRFT 2110 Mechanical Drafting - 60 Hours

This course includes an introduction to the following drafting subjects: threads, fasteners, weldments, developments, dimensioning and tolerancing. Students will produce sets of complete working production drawings.

DRFT 2115 3D Parametric Solid Modeling: Advanced SolidWorks 2011 - 90 Hours

This course includes creating three dimensional assemblies using SolidWorks 2011 software. Students will use constrained extrudes, lofts and sweeps on appropriate sketching planes in order to develop a complete set of working drawings from a three dimensional model.

DRFT 2120 Machine Design - 60 Hours

This course includes principles and techniques of machine drafting such as: symbols, conventions used in the representation of gears, cams, jigs, fixtures, belts, and chains in addition to the use of tools and equipment for measuring and material specification.

DRFT 2130 Production Drafting (GD&T) - 90 Hours

This course includes learning advanced principles and techniques of production drawings such as: geometric dimensioning and tolerancing, assembly and production dimensioning, general tolerancing, symbols and terms, geometric characteristics, classes of fit, surface quality, and production specifications.

DRFT 2200 Engineering Design - 90 Hours

This course includes an introduction to Engineering Drawings and design covering subjects such as: Engineering design models, patients, trademarks and design for manufacturability. This course is designed to help students develop an understanding of stresses and loads, with an introduction to statistics, dynamics, and strength of materials.

DRFT 2215 Descriptive Geometry - 60 Hours

An introduction to the fundamentals of descriptive geometry to include: skew lines, piercing points and plane intersections, perpendicular relationships, revolution, intersection and development, and vector geometry.

DRFT 2225 Manufacturing Processes - 60 Hours

This course includes principles and techniques of manufacturing processes and material specification such as: finishes, casting, forging, plastics, welding, symbols, jigs, and fixtures as well as the use of tools and equipment for measuring and material specification.

DRFT 2305 Residential Architectural Drafting - 90 Hours

This course includes learning terminology relating to plumbing plans, framing methods, structural components and loading. Students will learn how to design residential plumbing plans and systems and framing methods. In addition, the student will gain an understanding of basic construction principles and materials and how gravity loads are transferred throughout a structure to achieve equilibrium with the forces acting on the structure. You will also learn typical loading reactions of framing members and the structural capabilities of various species and grades of wood, the importance of accuracy and the layout of the foundation plan as well as conservation design technologies that can be used to improve construction methods and provide alternative energy sources.

DRFT 2315 Commercial Drafting and Detailing - 90 Hours

This course includes learning commercial design specifications such as: zoning and regulations, plan development, and commercial architectural requirements. Students will develop a complete set of commercial building plans that develop elevations, sections, details, building materials that use the ADA standards.

DRFT 2340 Architectural CAD - 90 Hours

This course includes the development of working drawings for a residence using the computer and current, industry -standard, architectural CAD software. The class includes using architectural 3D models. Students will develop a complete set of residential building plans using CAD.

DRFT 2510 Structural Steel Detailing - 90 Hours

This course provides the student with an understanding of structural steel detailing to include: the fundamentals of structural design; structural steel; detailing of beams, columns, braces, templates, marking and numbering systems; bill of materials; welding symbols; and erection drawings to AISC standards.

DRFT 2520 Structural Design Applications - 90 Hours

This course includes topics such as: the proper views and dimensioning practices for columns, stairways, handrails, cross-bracing, tank bottom layouts, tank shell, and tank framing drawings. Also introduces general estimating procedures.

DRFT 2610 Process Pipe Drafting - 90 Hours

This course includes learning topics such as: single-line and double-line pipe symbols, flow diagrams, notes, material lists, and instrumentation diagrams. The class covers both isometric and orthographic projection piping drawings using CAD to develop drawings.

DRFT 2620 Pipe Fabrication and Design - 90 Hours

This course includes a study of piping connections such as welded, screwed, soldered, flanged, bell and spigot, using manufacturer and reference materials specifications. The class covers information on pipe sizing and specifications, methods of joining pipe, valves, pumps, tanks, vessels, tubing, fittings, and hydraulic theory and formulas.

DRFT 2711 Civil Drafting: Civil 3D 2012 - 90 Hours

This course will teach the student how to prepare drawings associated with surveying and the related computations using Civil 3D 2012 software. Students will learn mapping, basic surveying, mapping scales, legal descriptions, contour lines, property and subdivision plot drawing, and plan-profile sheets.

DRFT 2750 Surveying - 90 Hours

This course provides the student with the history of surveying mathematics, field notes, measurement and computations, basic surveying instruments and equipment, leveling procedures, GPS, bearing computations, topography, mathematical traverse closures, area computations, and basic property surveying. The student will also learn topographical drafting by map drawing, contours, stadia points, plans and profiles and grading principles. The student will use a CAD or 3D civil software.

DRFT 2801 Special Projects - 15 Hours

Students will have the opportunity to put into practice the skills gained in the basic architectural and engineering design course by working with the instructor to complete one or more industry-related projects. These may include drafting large buildings or small mechanical parts which must be completed to industry standards of quality and performance. The instructor will provide direction in writing and be available for guidance, but students are expected to work independently as they would be expected by a program completer in industry.

DRFT 2802 Special Projects - 30 Hours

Students will have the opportunity to put into practice the skills gained in the basic architectural and engineering design course by working with the instructor to complete one or more industry-related projects. These may include drafting large buildings or small mechanical parts which must be completed to industry standards of quality and performance. The instructor will provide direction in writing and be available for guidance, but students are expected to work independently as they would be expected by a program completer in industry.

DRFT 2803 Special Projects - 60 Hours

Students will have the opportunity to put into practice the skills gained in the basic architectural and engineering design course by working with the instructor to complete one or more industry-related projects. These may include drafting large buildings or small mechanical parts which must be completed to industry standards of quality and performance. The instructor will provide direction in writing and be available for guidance, but students are expected to work independently as they would be expected by a program completer in industry.

DRFT 2804 Special Projects - 90 Hours

Students will have the opportunity to put into practice the skills gained in the basic architectural and engineering design course by working with the instructor to complete one or more industry-related projects. These may include drafting large buildings or small mechanical parts which must be completed to industry standards of quality and performance. The instructor will provide direction in writing and be available for guidance, but students are expected to work independently as they would be expected by a program completer in industry.

DRFT 2950 Architectural and Engineering Design Externship - 120 Hours

This course provides students with the opportunity to apply knowledge and techniques learned in the classroom to an actual job experience. Classroom instruction must precede the job experience, or the student must be enrolled in the program at the same time as the work experience.

FUND 0050 Keyboarding Skills - 90 Hours

This course covers an introduction to the QWERTY keyboard, correct finger placement, and keyboarding techniques. Students will learn to touch type as they complete drills and timed writings. Through practicepractice, students will increase their typing speed and accuracy on a computer keyboard.

FUND 0065 Computer Skills - 30 Hours

Students will learn beginner computer skills in a Windows XP environment. Topics include starting a computer, using a mouse, launching programs, creating, saving and printing documents, surfing the World Wide Web and sending email.

FUND 0070 Spelling Skills - 30 Hours

Students will improve their spelling skills by learning and using phonics and common spelling rules.

FUND 0075 Language Skills - 90 Hours

In this course students will practice and improve their language and writing skills and will gain an understanding of the English language and its correct use in written communication. Topics include sentence structure, parts of speech, grammar and punctuation rules in addition to extending these rules to sentences and paragraphs.

FUND 0080 Reading Skills - 90 Hours

This course will provide students with a foundation in reading skills, build vocabulary, and will provide practice recalling and interpreting information.

FUND 0085 Math Skills - 60 Hours

In this course students will learn to perform all four basic math operations accurately with whole numbers, fractions and decimals. Students will also be introduced to percentage and converting between fractions, decimals and percents.

FUND 0090 Study Skills - 30 Hours

Students will learn to use effective study habits and strategies for remembering information found in their textbooks and heard in class lectures. Students will also learn to use a strategy for reading and taking notes from textbooks, in class, and learn effective strategies for taking the five types of tests most frequently given by teachers.

FUND 0091 Davis School District Technical Tutoring - 250 Hours

Technical tutoring provides designated high school students with individual tracking to improve student success in Davis Applied Technology College courses. Students are provided assistance in study skills, test preparation as well as review of student progress and attendance.

MACH 1080 CAD/CAM Beginning - 60 Hours

This course provides the fundamentals of CAD/CAM systems. Topics include software operating systems, drawing commands, editing commands, tool path generation, and posting.

MACH 2005 Manual CNC Programming - 60 Hours

This course introduces programming and operation of CNC machines. Students will create CNC programs manually and use them by setting up and operating CNC machines including verification. Part production and inspection is emphasized.

MACH 2015 Introduction to Manual CNC Programming - 30 Hours

Manual programming teaches a tight discipline and organization in program preparation. The programmer is required to understand programming techniques to the very last detail. In fact, many useful skills acquired from manual programming are directly applied to CAD/CAM programming. This course will train students to visualize tool motions and recognize restricting factors that may be involved for part program creation of a machined part. The student will learn to collect, analyze, process and logically integrate all data collected into a single, cohesive and safe part program. The course will teach part program structure for the creation of machined parts by using G and M code programming, based on the Electronics Industries Alliance and International Standards Organization standard (EIA/ISO).

MACH 2420 CNC Program Applications - 60 Hours

Sudents will be given the opportunity to apply the programming skills learned in MACH2015. Students will program a variety of detailed parts to demonstrate they have mastered the ability to create a CNC program.

MACH 2520 CAD/CAM Intermediate - 60 Hours

This course is a continuance of CAD/CAM Beginning, designed to teach intermediate skills of CAD/CAM systems. Topics include 2 ½ D operations, simple indexing, 4th axis machining, and CNC lathe programming.

MACH 2540 CAD/CAM Advanced - 60 Hours

This course provides advanced skills to students familiar with CAD/CAM. Topics include design and programming complex 3 dimensional (3D) shapes of molds and components, and surface modeling using tool containment boundaries, plunge points, and runoff surfaces.

WGDC 2610 3D Modeling and Animation II: 3D Studio Max - 120 Hours

This course teaches students how to use 3ds Max as a modeling, animating and rendering tool in a production environment. It introduces the functional areas of 3DS Max and the features with examples. Students will learn the functions, features, and principles behind 3dx Max and how to apply them to real-world situations.

WKSK 1400_ Workplace Relations (Program Based) - 60 Hours

This course will help students develop essential human-relation skills needed to maintain gainful and satisfying employment. This course includes familiarization with problematic areas found in the workforce including, solving problems; understanding relationships and diversity; increasing personal ethics; and developing strong personal, interpersonal, and human relation skills.

WKSK 1400B Workplace Relations - Blended - 60 Hours

This course will help students develop essential human-relation skills needed to maintain gainful and satisfying employment. Course content includes familiarization with problematic areas found in the workforce including, solving problems; understanding relationships and diversity; increasing personal ethics; and developing strong personal, interpersonal, and human relation skills.

WKSK 1500_ Job Seeking Skills (Program Based) - 30 Hours

This course helps prepare students to successfully apply for a job. This course will present essential job-seeking skills needed to find gainful employment including: developing resumes, applications, networking and interview skills.

WKSK 1500B Job Seeking Skills - Blended - 30 Hours

This course helps prepare students to successfully apply for a job. This course will present essential job-seeking skills needed to find gainful employment including: developing resumes, applications, networking and interview skills.