



## Davis Applied Technology College

A UCAT Campus  
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### Course Descriptions - Welding Technology Catalog Year: 2012

#### **BTEC 1121\_ Operating System Fundamentals Vista - 30 Hours**

This course focuses on basic computer operations, including operating system functions and managing programs, directories, files, and data utilizing the Microsoft Windows Vista operating system. This course includes integrating applications, customizing windows, and managing printing operations.

#### **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 1045\_ Blueprint Reading - 30 Hours**

This course is designed to teach the basic blueprint reading skills. Standard industrial practices will be applied on one or more industrial drawings. Principles and applications of the following will be used--lettering, orthographic, oblique, isometric, dimensioning, sectioning, and auxiliary views.

#### **DRFT 1810\_ Blueprint Reading for Welders - 30 Hours**

This course is designed to teach the student basic blueprint reading skills. Standard industrial practices will be applied on one or more industrial drawings. Principles and applications of the following will be used: lettering, orthographic, oblique, isometric, dimensioning, sectioning, and auxiliary views.

#### **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 1010 Lathe Operations I - 90 Hours**

Students will learn essential material cutting concepts by setting up and operating a manual lathe. Topics include chuck type workholding devices, cutting tool selection, efficient tool management, speeds and feeds, angles, threads, part production, and inspection.

### **MACH 1020 Vertical Mill Operations I - 90 Hours**

In this course, students will learn essential material cutting concepts by setting-up and operating a manual milling machine. Topics include principles of clamping and locating work pieces, selection of cutting tools and holders, milling speeds and feeds, application of cutting depth, width, and direction, part production, and inspection.

### **MACH 1045 Machining Introduction - 60 Hours**

This is an introductory course to basic procedures and machining operations encountered in the machine shop manufacturing industry. Topics include essential safety practices, MSDS, use of basic measuring tools, performing basic layout techniques and applications of bench grinding sawing, feeds and speeds, and basic hole making.

### **WELD 1000 Welding Math - 90 Hours**

Students will apply basic math skills required in the welding industry to include whole numbers, decimals, fractions, averages, percents, measurements, geometric shapes, angles, bends and stretch outs.

### **WELD 1010 Welding Safety - 30 Hours**

In this course students will learn about accident prevention, how to protect themselves, others and the work area; ventilation and fire prevention; safety colors, labeling and lock-out/tag out procedures for a welding shop. Students will be given information that when used, will maximize their potential safety while working in the welding industry.

### **WELD 1120 Communications and Work Assignments - 30 Hours**

This course will provide students with the necessary skills to enable them to understand and learn welding-related technology. In addition, students will learn valuable work-related skills including verbal, listening, and expressive skills, how to follow written instructions, preparation of time and job cards and general housekeeping duties within the welding industry.

### **WELD 1140 Welding Metallurgy Basics - 30 Hours**

This course will introduce students to basic metallurgy and heat treat procedures relating to mild steel, high carbon steel, and cast iron.

### **WELD 1200 Oxy-fuel Gas Welding - 60 Hours**

Students will learn how to setup and use oxy-fuel equipment for welding, cutting, and brazing on plain carbon steel; how to set up equipment, set gases to working pressures, light torch and demonstrate oxidizing, neutral and carburizing flames. Students will demonstrate welding with and without filler metal, and then weld butt, tee and lap joints in the flat position. Students will braze weld butt, lap and tee joints in the flat position and learn to cut using oxy-fuel, cutting straight, bevels and shapes with a manual torch and how to use the oxy-fuel machine track burner.

### **WELD 1250 ARC Cutting Processes-Carbon Air Arc/Plasma Arc Cutting - 30 Hours**

Students will learn proper operating techniques using the air carbon arc cutting process in addition to operating a plasma arc cutting machine cutting on plain carbon steel, aluminum, and stainless steel.

### **WELD 1255 Shielded Metal Arc Welding I - 60 Hours**

Students will learn key terms involved in the Shielded Metal Arc Welding process, how to conduct safety inspections and make minor repairs to equipment. This will include set-up and proper operation of Shielded Metal Arc Welding equipment. Students will learn how to weld with shielded metal arc processes in the flat and horizontal positions (position 1 and 2) using both fillet and groove welds and how to weld fillet welds in the vertical and overhead positions (position 3 and 4). Students will need to pass a guided bend test in the horizontal position (position 2) and in the vertical position (position 3) after initial visual inspection by the instructor.

### **WELD 1310 Shielded Metal Arc Welding II - 120 Hours**

This course includes continued training in the SMAW processes in horizontal, vertical, and overhead positions on plain carbon steel.

### **WELD 1315 Gas Metal Arc Welding I - 60 Hours**

Students will learn welding using the Gas Metal Arc Welding process (GMAW), a process sometimes referred to as the Metal Inert Gas (MIG) welding process. Students will learn terminology and safety, as well as setup, operation, how to weld fillet and groove welds in flat, horizontal, vertical and overhead positions and how to weld the American Welding Society (AWS) QC-10 part.

### **WELD 1410 Gas Metal Arc Welding II - 90 Hours**

Students in this course will how learn to weld using the Gas Metal Arc Welding (GMAW) process, sometimes known as Metal Inert Gas (MIG) welding. Terminology, safety, as well as set-up, operation and how to weld in the vertical-up and overhead position will be included. In addition, students will learn GMAW-Spray Transfer and GMAW-Pulse.

### **WELD 1415 Flux-cored Arc Welding I (Gas Shielded) - 60 Hours**

Students will learn the welding techniques in the FCAW process using a dual shield wire.

### **WELD 1510 Flux-cored Arc Welding II (Self Shielded) - 90 Hours**

Students will learn welding using FCAW self-shielding wire.

### **WELD 1601 Gas Tungsten Arc Welding I (Mild Steel) - 60 Hours**

This course provides students with welding training in the gas tungsten arc welding process welding on plain carbon steel.

### **WELD 1610 Gas Tungsten Arc Welding II (Aluminum) - 60 Hours**

This course provides students with welding training using the gas tungsten arc process welding on aluminum.

### **WELD 1620 Gas Tungsten Arc Welding III (Stainless Steel) - 60 Hours**

This course provides students with welding training using the gas tungsten arc welding process welding on stainless steel.

### **WELD 1700 Welding Inspection and Testing - 30 Hours**

Students will learn destructive and non-destructive testing, welding codes and welder qualification testing.

### **WELD 2210 Resistance Spot Welding - 30 Hours**

Spot welding consists of applying pressure to two or more sheets of material by means of conducting electrodes then passing a high current at low voltage through sheets from one electrode to the other. This action combined with correct pressure causes fusion. Spot welding is done on primarily thin material and is a common welding process for auto body sections and other sheet metal assemblies.

### **WELD 2305 Pipe Welding - 90 Hours**

During this course students will learn pipe welding techniques related to pipelines, petroleum-related facilities, and waterworks on carbon steel pipe.

### **WELD 2400 Ornamental Iron - 60 Hours**

A decorative object whether it be a metal stairway, handrails, window frames, fences, furniture, entry gates, security doors, or hand tools can be classified as ornamental welding. Ornamental iron objects have closer tolerances, smoother finishes, and better fit-ups than most other welding. Students will learn how to fabricate a variety of ornamental projects using castings, bending radiuses and curves on pipe, tubing, and flat bar.

### **WELD 2450 Gas Metal Arc Welding Aluminum - 30 Hours**

Students in this class will learn how to setup welding equipment with the GMAW process for welding on aluminum. Working with aluminum can present the welder with special problems not encountered when welding on carbon steel. It has a very low melting temperature, will not support its own weight when heated to near melting temperature, has a high affinity for oxides, and is relatively hard to clean. Students will learn how to deal with these problems and make sound welds on various types of aluminum using the GMAW process.

### **WELD 2800 Submerged Arc Welding - 30 Hours**

Students will learn how to set up and run a SAW machine and make acceptable welds. Submerged Arc welding is a process wherein an electric arc is submerged or hidden beneath a granular material. The process is either semi-automatic or fully automatic. The arc meets the wire, base metal, and flux in a common pool. The arc is not visible since it is buried in the flux, thus there is no flash or spatter. Submerged arc is best adapted where relatively thick sections are to be joined, because of its high deposition rates. Students will learn proper SAW welding techniques for welding on 1" mild steel plates.

### **WELD 2915 Welding Special Projects - Shielded Metal Arc Welding - 60 Hours**

This class provides students with an opportunity to earn credit for drawing, layout, and fabricating welding-related Shielded Metal Arc Welding class projects.

### **WELD 2925 Welding Special Projects - Gas Metal Arc Welding - 60 Hours**

This class provides students with an opportunity to earn credit for drawing, layout, and fabricating welding-related Gas Metal Arc Welding class projects.

### **WELD 2935 Welding Special Projects - Gas Tungsten Arc Welding - 60 Hours**

This class provides students with an opportunity to earn credit for drawing, layout, and fabricating welding-related Gas Tungsten Arc Welding class projects.

### **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 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.