



Davis Applied Technology College
A UCAT Campus
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Course Descriptions - Industrial Automation

Catalog Year: 2012

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 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.

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.

IAMT 1000 Electronic Fundamentals for Industrial Automation - 120 Hours

This course introduces students to the concepts and fundamentals of electronic devices, systems, and circuits. Students will learn the basics of DC/AC circuits; semiconductor and analog circuits; and microcomputers and learn how to use meters, oscilloscopes, and other measuring equipment. This course will give the students the skills required to make algebra calculations in the automation shop environment.

IAMT 1005 Renewable Energy - 60 Hours

This course is designed to teach students the techniques for building and maintaining a wind generator and solar power system. Student will learn how to determine the size and power demands of a home. In addition, this course will provide information that will help the student acquire the tools and components necessary for building their own wind generator or solar power system.

IAMT 1100 Industrial Safety and Workplace Relations - 30 Hours

This course introduces students to the basic manufacturing processes and the importance of safety in the workplace. Students will learn and understand lockout/tag out, confined spaces, and hazardous communications. This course will teach the basics of first aid, ergonomics, and lifting techniques in addition to ladder and scaffolding safety. It will provide preparation for employer expectations and requirements, and develop essential human-relation skills needed to maintain gainful and satisfying employment. This course includes familiarization with problematic areas found in the workforce including, problem solving; understanding relationships and diversity; increasing personal ethics; and developing strong personal, and interpersonal and human relation skills.

IAMT 1200 Automation Maintenance Basics - 60 Hours

This course introduces students to the basic concepts and terminology used in automation maintenance. Measuring instruments, print reading, shop tools and applications, basic electrical, Programmable Logic Controllers, Refrigeration, Boilers, HVAC, Pneumatics, Hydraulics, and troubleshooting skills. This course will also give students the skills required to make basic calculations in the Industrial Automation environment. During this course students will learn or increase their knowledge and skills using a calculator. Students will use U.S. units in calculating applied problems of linear, perimeter, circumference, tolerances, and trigonometry measurements.

IAMT 1250 Fluid Power Hydraulics - 60 Hours

This course is a real world hands-on approach to learning hydraulic principles and circuitry. Topics include force and energy transmission, identifying ANSI and ISO hydraulic symbols and understanding how to read and draw the hydraulic schematics. In addition, using schematics to construct hydraulic circuits, hydraulic components construction, operation and symbols including prime movers, reservoirs, pumps, gauges, directional control valves, cylinders, motors, and filters, will also be included.

IAMT 1300 Industrial Mechanics - 90 Hours

Students will learn effective and efficient methods of maintenance to reduce downtime and increase company profits. This will include identification, troubleshooting, repair and preventative maintenance of machine parts and components such as chain drives, brake and clutch types, gear reducers, pumps lubrication, viscosity, and bearings.

IAMT 1450 Fluid Power Pneumatics - 60 Hours

Students will learn pneumatic principles and circuitry including force and energy transmission, identification of ANSI and ISO pneumatic symbols, identification of the PSIA Hg and PSIG pressure scales, CFM volume and compression rate, and compressors and pumps. Students will learn how to install, troubleshoot and repair pneumatic systems.

IAMT 1500 Electric Motors/Drives - 90 Hours

This class covers identification of the operating characteristics and nameplate information of most types of AC/DC motors. This course will introduce students to Electric Motor drives, including the installation and programming of an electric motor drive for motor speed control, including ramp up and ramp down parameters. In addition, students will learn how three-phase alternating current (AC) is generated in Delta or Wye circuits. Students will gain knowledge about the distribution of electrical power in a manufacturing facility, including service feeders, branch circuits, and control circuits.

IAMT 1600 Electrical Motor Controls - 120 Hours

This course prepares students for installing and troubleshooting automated equipment used in Manufacturing environments, Packaging, Transportation, Amusement parks, and many other applications used in industry. Students will learn electrical symbols to read and draw electrical schematics and use wiring diagrams and schematics to wire basic circuits including control circuits, power circuits, and over current protection devices,. Students will be trained on Arch Flash safety and may choose to become Arch Flash certified according to NFPA 70.

IAMT 1601 Plumbing for Industrial Automation - 30 Hours

The student will learn to design, install, and test plumbing systems in commercial settings. Topics covered include safety, tools and materials, common joints and plumbing systems.

IAMT 1750 Automatic Controls Troubleshooting - 60 Hours

This course prepares students for troubleshooting integrated pneumatic, hydraulic, electrical and mechanical systems found in the manufacturing processes. Troubleshooting and repair is the primary function of an automation manufacturing maintenance technician. The skills students learn in this course will increase their troubleshooting efficiency.

IAMT 1850 Electrical Equipment Basics - 30 Hours

Students will identify conduit and conductor types and recognize their application, determine size measure, hand bend and install EMT and watertight conduit, recognize the number of conductors needed for conduits and junction boxes. In addition, students will lay out an electrical panel and install these items.

IAMT 2000 Programmable Logic Controllers I - 90 Hours

This course will help students understand ladder logic and programming techniques of Programmable Logic Controllers with hands-on experience. It covers different makes of Programmable Logic Controllers, integration with sensors, switches, and various outputs, various input and output modules, relay and ladder logic diagrams, various software packages for ladder logic design, simulation, and programming and hands-on labs with real components attached for testing.

IAMT 2030 Semiconductor Devices - 120 Hours

Students will study diodes and transistor principles including semiconductor theory, bipolar, and field effect device characteristics and modern thyristor devices. This will include the use of diodes in communication circuits and power supply applications, bias transistor circuits, the use of small-signal, power and FET amplifiers and measurement of frequency response to an amplifier.

IAMT 2035 Digital Fundamentals - 120 Hours

This course is an introduction to the basic theory of digital circuits and programmable logic devices (PLDs). It will cover binary, octal, and hexadecimal number system, truth tables, logic gates, flip-flops, counters, shift registers, interfacing techniques, microprocessors and assembly language. Advanced topics including counters, sequential logic circuits, memory systems, digital busses, A/D and D/A conversions will also be covered.

IAMT 2040 AC/DC Circuits - 60 Hours

In this course students will study AC/DC principles beyond that taught in Electronics Fundamentals. This includes network theorems, capacitance, inductance, impedance, reactance, resonance, power factor and transformers. Students will solve circuit problems, troubleshoot both capacitive and inductive circuits and design filter circuits.

IAMT 2300 Microcontroller/Microprocessor Programming - 90 Hours

This course is a series of presentations/study in number systems and codes, microprocessor/ microcontroller architecture, computer arithmetic, machine and assembler language programming, and microprocessor interfacing. Emphasis is placed on laboratory experiments dealing with machine/assembler language program execution and interfacing.

IAMT 2400 Electronics Assembly and Soldering - 60 Hours

In this course students will develop the ability to solder and desolder connectors, components, and printed circuit boards using industry standards. Topics include: component identification, safety practices, soldering, desoldering, anti-static grounding, and surface mount techniques.

IAMT 2410 Communication Circuits - 120 Hours

This course will introduce students to communication circuits. Topics include amplifiers, oscillators, modulation, mixing, transmitters, receivers, detection methods, transmission lines, antennas, RF propagation, analog integrated circuits, digital signal processing, GPS, spread spectrum, radar, and optical communications.

IAMT 2901 Industrial Automation Externship - 30 Hours

Students participating in this course have the opportunity to gain valuable work experience in the Industrial Automation industry while working under the supervision of a plant manager or maintenance technician. This experience will allow the student to observe and get hands-on experience troubleshooting and repairing equipment.

IAMT 2910 Final Project - 90 Hours

This course challenges students to complete a machine build project including design, layout, construction, operation, and debugging while meeting the given specifications and time limitations. Students will develop schematics for all aspects of the machine and develop and submit required parts.

MACH 1740 Machining I - 90 Hours