COURSE DESCRIPTIONS

AUTOMATION TECHNOLOGY

AT 1103: PROGRAMMING I
Cross-listed with CIS 1103 Programming I.
This course is designed to give the student an understanding of established and new methodologies using Microsoft Visual Basic programming. Emphasis is placed on developing logical thinking skills.
Ozark CTE General Technology Fee: $51.

AT 1123: SEMICONDUCTORS I
This course introduces semiconductors or solid-state components. Topics covered include the diode and applications, transistors, and amplifiers.
Ozark CTE General Technology Fee: $51.

AT 1143: INTRODUCTION TO DIGITAL LOGIC
An introductory course in the study of digital logic systems. Basic digital logic gates, truth tables, numbering systems, and different types of TTL integrated circuits are studied.
Ozark CTE General Technology Fee: $51.

AT 1153: NETWORKING I
Cross-listed with CIS 1153 Networking I.
Designed as a foundation course that provides the theory and basic understanding of the hardware and software that comes together to build local area and wide area networks.
Ozark CTE General Technology Fee: $51.

AT 1163: FUND ELECTRICITY I (DC CRCTS)
This course is an overall study of the fundamental principles of D.C. circuits. A basic study of Ohm's Law, series, parallel and series parallel resistor circuits. The fundamental concepts form the basis for the study of advanced applications of electronic systems. It is necessary for the electronic technician to be able to understand the basic concepts to function as an Electronic Technician.
Ozark Campus CTE fee: $51.

AT 1173: FUND ELECTRICITY II (AC CRCTS)
This course is an overall study of the fundamental principles of A.C. circuits. A basic study of Ohm's Law, series, parallel and series parallel resistor circuits. The fundamental concepts form the basis for the study of advanced applications of electronic systems. It is necessary for the electronic technician to be able to understand the basic concepts to function as an Electronic Technician.
Ozark CTE General Technology Fee: $51.

AT 1253: NETWORKING II
Cross-listed with CIS 1253 Networking II.
Prerequisite: ICS 1153. Builds upon the skills and concepts learned in Networking I. Emphasis will be on the hands-on aspects of personal computer networks using Microsoft and Linux based networking products, including installations and/or expanding a networking system and troubleshooting problems.
Ozark CTE General Technology Fee: $51.

AT 1303: PC MAINTENANCE I
Cross-listed with CIS 1303 PC Maintenance I.
This course is designed to prepare individuals to troubleshoot, build, and repair personal computers, workstations, printers, and other computer peripherals. The student will also learn to install, debug, diagnose, and repair software problems associated with PCs.
Ozark CTE General Technology Fee: $51.

AT 2013: INTRO TO INDUSTRIAL ROBOTICS
Introduction to Industrial Robotics studies the basic operation of a Robot. Skills covered include safety, power up, shutdown, manual operation, homing, and end effector operation. Skills taught also include basic robot programming including movement and effector commands, interfacing and material handling, application development, flexible manufacturing cells, quality control, production control, and work cell development.
Ozark CTE General Technology Fee: $51.

AT 2033: INDUSTRIAL ROBOTICS PROGRAM
Prerequisite: ICS 2013.
This course is intended for an operator, technician, engineer, or programmer
who must setup and record programs on robot or virtually. The course covers the Robot Operations outline intermixed with the tasks required to setup the specific application, test, run and refine the program and production setup. Students will learn Fanuc or ABB robot programming in this course.
Ozark General CTE Fee: $51.

AT 2043: ROBOTICS AND MOTION CONTROL

Prerequisites: ICS 1163 and ICS 1173.

This course teaches the skills required to understand and maintain the sophisticated applications so commonly found in modern industry. The motion control action may be as simple as opening and closing a valve or as complex as controlling multiple axes on a CNC machine. The motion control learning system is self-contained and teaches students to control one axis. It allows students to learn industry-relevant skills including how to create, navigate, configure, operate, maintain, and apply motion control systems. This course covers the basic tasks and procedures required for an operator, technician, engineer, or programmer to setup, teach, test, and modify iRVision applications or ABB integrated Vision applications.

Ozark General CTE Fee: $51.

AT 2123: INDUSTRIAL FLUID POWER

This course is designed to provide the basic knowledge and application of physical principles involving pumps, cylinders, valves, motors, design, assembly, graphic symbols, and the operation of hydraulic and pneumatic control circuits based on logic principles. Lecture: 4 hours, laboratory: 1 hour.

Ozark CTE General Technology Fee: $51.

AT 2133: INTRO TO PROGRAMMABLE CONTROLS

Prerequisites: ICS 1123, 1163, 1173, and 2123.

Co-requisite: ICS 2123, 2143, 2153, and 2163.

NOTE: ICS 2123 may be taken before or concurrently with ICS 2133.

An introduction to programmable controllers (PCs). The PC is a microprocessor-based programmable device used in controlling mechanical machinery, energy management systems, computer integrated manufacturing, and other applications. Lecture: 3 hours, laboratory: 6 hours.

This course is designated as "Green".

Ozark CTE General Technology Fee: $51.

AT 2143: PROGRAMMABLE CONTROLLERS

Prerequisites: ICS 1123, 1163, 1173, 2123 and 2133.

Co-requisite: ICS 2123, 2133, 2153, and 2163.

NOTE: ICS 2123 and 2133 may be taken before or concurrently with ICS 2143.

A continuation of ICS 2133. The PC is a microprocessor-based programmable device used in controlling mechanical machinery, energy management systems, computer integrated manufacturing, and other applications.

Lecture: 1 hours, laboratory: 4 hours.

This course is designated as "Green".

Ozark CTE General Technology Fee: $51.

AT 2153: INTRO TO INDUSTRIAL AUTOMATION

Prerequisites: ICS 1123, 1163, 1173, and 2123.

Co-requisite: ICS 2123, 2133, 2143, and 2163.

NOTE: ICS 2123 may be taken before or concurrently with ICS 2153.

An introduction to circuit configurations used in industry. Topics to be covered are: solid-state systems used to control D.C. motors, electro-mechanical devices, three-phase power, open and closed loop motor control, robotic input and output transducers, various instrumentation and process control classes. Lecture: 4 hours, laboratory: 3 hours.

This course is designated as "Green".

Ozark CTE General Technology Fee: $51.

AT 2163: INDUSTRIAL AUTOMATION

Prerequisites: ICS 1123, 1163, 1173, 2123, and 2153.

Co-requisite: ICS 2123, 2133, 2143, and 2153.

NOTE: ICS 2123 and 2153 may be taken before or concurrently with ICS 2163.

A continuation of ICS 2153. Topics to be covered are: solid-state systems used to control A.C. motors, electro-mechanical devices, three-phase power, open and closed loop motor control, robotic input and output transducers, various instrumentation and process control classes. Lecture: 4 hours, laboratory: 3 hours.

This course is designated as "Green".

Ozark CTE General Technology Fee: $51.

AT 2203: COMPUTER SYSTEM COMPONENTS

A study of the internal structure of the microprocessor. The full computer system is analyzed from both aspects of hardware and software. Many of the principles studied apply to computer troubleshooting and computer interfacing. Many of the computer support circuits are studied. Many of the skills learned from Programming I, Operating Systems, and Digital Logic are brought together and enhanced.

This course is designated as "Green".

Ozark CTE General Technology Fee: $51.

AT 2213: SEMICONDUCTORS II

Prerequisite: ICS 1123.

A continuation of ICS 1123, this course is a study of field effect transistors, thristors, and linear integrated circuits.

Ozark CTE General Tech Fee: $51.

AT 2303: PC MAINTENANCE II

Cross-listed with CIS 2303 PC Maintenance II.

Prerequisite: ICS/CIS 1303 PC Maintenance I.

This course is designed to teach individuals core elements of computer repair based on the A+ Certification exams. The student will build on the knowledge acquired from PC Maintenance I, allowing them to be more prepared to diagnose, and repair computers in the working environment.

Ozark CTE General Technology Fee: $51.

AT 2513: BLUEPRINTS/MEASUREMENTS/SAFETY

This course introduces how to interpret and accurately work with technical drawings, the care and use of precision measuring instruments, and machine safety.

Ozark CF Machining Fee: $75; Ozark CTE Fee: $51.

AT 2514: CNC MILLING

Prerequisites: ICS 2513 and ICS 2523

Manufacturing today utilizes innovative technologies, including Computer Numerical Control (CNC), Computer Aided Manufacturing (CAM) software, and specialty materials to develop and build the products of tomorrow. Students will be walked through all aspects of CNC machining: how to upload and download programs to the machine and how to apply machining techniques to machine a part. At the end of the course, students will spend time on the milling machine learning how to machine a part in a CNC Milling machining center. This last step is critical to putting pieces of the puzzle together so that one can understand the whole process. Students will be applying machining techniques in the virtual world and then applying and seeing how a virtual object becomes reality on a CNC machine.

Ozark Machining Fee: $100; Ozark CTE Fee: $68.

AT 2523: MACHINING TECHNOLOGY

This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, drill machines, saws, milling machines, and layout instruments.

Ozark Machining Fee: $75; Ozark CTE Fee: $51.

AT 2524: CNC TURNING

Prerequisites: ICS 2513 and ICS 2523

Manufacturing today utilizes innovative technologies, including Computer Numerical Control (CNC), Computer Aided Manufacturing (CAM) software, and specialty industry materials to develop and build the products of tomorrow. Students will be walked through all aspects of CNC machining: how to upload and download programs to the machine and how to apply machining techniques to machine a part. At the end of the course, students will spend time on the turning machine learning how to machine a part in a CNC Turning Machining Center. This last step is critical to putting the pieces of the puzzle together so that one can understand the whole process. Students will be applying machining techniques in the virtual world and then applying and seeing how a virtual object becomes reality on a CNC machine.

Ozark Machining Fee: $100; Ozark CTE Fee: $68.