Office Automation
Curriculum Guide

Program Description

MCTI's Office Automation Program has a well-equipped office automation lab that provides a realistic setting for up-to-date, hands-on training. Students spend approximately 30 hours a week maintaining and repairing office management systems, computers, copiers, printers, cash registers, fax machines, and other office equipment. Depending on interest and ability, students may also learn webpage design and basic computer programming.

Office Automation Program Admission Requirements: None

U.S. Department of Labor Occupational Profile:

Students who most closely match the occupational profile for a Computer/Office Machine Technician are selected for enrollment.

- **Aptitude/Abilities:** Above average learning ability, including mechanical reasoning and verbal/math skills. Average spatial/form perception. Demonstrated ability to logically solve problems with abstract and concrete variables, strong interpersonal communication skills and computer literate.

- **Work Keys:** Reading/Locating Information/Applied Math – 5

- **CASAS Scaled Scores:** Reading & Math 236-240

- **Environment:** Office

- **Physical Demands:** Medium

- **Temperament:** Able to make good judgments, multi-task and perform precision work; enjoys working with/without others

Certificate of Completion Programs (SOC Code):
- Cable Installer   (49-9052)
- Copier Servicing and Repair Technician (49-2011)
- Computer/Peripheral Servicing and Repair Technician (15-1133)
- Network Support Technician (15-1152)

Depending on skills, interests and abilities, students may be in the Office Automation program from two to seven terms. At the end of each term, the instructor invites those students who demonstrate academic progress by maintaining an accumulated grade point average or 2.0 or better and good employability skills to advance to the next term.

All Office Automation students take core courses in the first term. At the end of the term, students choose a certificate track. Depending upon the certificate track chosen, students take one to six additional terms.

Students, who pass required coursework with a 2.0 or higher, are eligible to take the CompTIA certification exams. Upon successful completion of these exams (must be taken in sequence listed), the student may receive three (4) national certifications:

- PDI+ Certification
- A+ Computer Certification
- Network + Certification
- Security + Certification

Required Courses for Certification

Core Courses   *(First Term)*

Course Number	Course Name	Credits
EC or SU 115	Algebra	2
OA 110	Customer Service for Technicians	4
OA 115A	Electronics For PC Technicians	8

Cable Installer   (*Second Term*)

Course Number	Course Name	Credits
OA 135	Operating Systems	6
One of the following:		
OA 226	Fundamentals of Voice and Data Cabling	6
OA 227	Network Topology Copper/Fiber Cabling	8

Copier Servicing and Repair Technician
                                        (Second – Third Term)

Course Number	Course Name	Credits
OA 135	Operating Systems	6
OA 215A	Copier Fundamentals Processes/Servicing	4
Must take one of the following:		
OA 200A	Printer Servicing	4
OA 205	Laser (Electrostatic) Printer Servicing	4
OA 220	Facsimile Fundamental Process/Servicing	4

Instructors, program managers, and/or the referring counselor may recommend employability skills and elective classes based on the student's needs, abilities, interest and behaviors. Job Seeking Skills is required for all students anticipating to graduate from MCTI.

Computer/Peripheral Servicing and Repair Technician   (*Second – Fourth Term*)

Course Number	Course Name	Credits
OA 135	Operating Systems	6
OA 260A	Computer Essential I	12
OA 265A	Computer Essentials II	12
One of the following and one elective:		
OA 200A	Printer Servicing	4
OA 205	Laser (Electrostatic) Printer Servicing	4

Network Support Technician - *Must have Computer/Peripheral Servicing & Repair Technician Certificate*   (*Fifth – Sixth Term*)

OA 225	Essentials of Networking	8
Must take one of the following and two electives:		
OA 230	Introduction to Network Operations Systems	8
OA 300	Security of Computer Networks	6

Electives (Instructor Approval)

OA 103	Introduction to XHTML Programming	8
OA 120	Fundamental Digital Concepts	8
OA 201	Electronic Device Concepts	4
OA 203	Programming Logic	6
OA 210	PC/Personal Computer Repair	8
OA 220	Facsimile Fundamental Process/Servicing	4
OA 240	Equipment Servicing Applications	2-6
OA 255	Computer Fundamental Skills	12
OA 300	Security of Computer Networks	6
OA 202	Introduction to VB.net	6
OA 690	Work Internship	Varies

Required course if student on campus
(Last Term)

245A	Job Search	2

Course Descriptions

EC 115: Algebra

Students learn basic algebra that is needed for training in any technical/ vocational field or testing including GED, college entrance, civil service, and military entrance. **Topics covered**: signed numbers and order of operations, powers, roots, and scientific notation, algebraic expressions and formulas, one-step equations, multi-step equations, special equations, graphing equations, polynomials.

OA 103: Introduction to XHTML Programming

Students learn to create basic Web pages using XHTML, the new version of HTML. **Topics covered:** Internet history, HTML and XHTML, creating a page, formatting, links, making lists, adding images, tables, frames to a page.

OA 110: Customer Service for Technicians

This course is for students who will deal with customers in a business setting. Students learn to understand themselves and others and learn different techniques for dealing with various customer situations. **Topics covered:** transactional analysis, communication, perception, defensiveness.

OA 115A: Electronics For PC Technicians

This course, for students with little or no electronic experience, focuses on the fundamental and electronic concepts needed to work as a PC Technician. The course prepares students for the electronic portion of the A+ exam. **Topics covered:** PC overview, safety tools, basic electricity, electrical terms, notation, prefixes

OA 120: Fundamental Digital Concepts

This course is for students who need more practice to master the competencies related to Digital Concepts. The student continues to study and apply the basic fundamentals of digital concepts, internal structure of semiconductors and operation of the logic gates. Students learn hands-on skills needed to build the actual circuits and their logic functions. **Topics covered:** linear integrated circuits, digital IC gate circuits, advanced power supply, op amps, digital IC decoders, oscillators, multi-vibrators, solid state switches, 555 timers.

OA 121: Digital Concepts/Fiber Optics

This course is for students who have a basic under-standing of electronics. Students build under-standing of digital IC circuitry internal components and troubleshooting skills as related to basic digital circuits. The course progresses from the basic fundamentals of digital circuits and how information is interpreted in the computers to analyzing each circuit by building and demonstrating the actual circuits and their logic functions. **Topics covered:** linear integrated circuits, digital IC gate circuits, advance power supply, op amps, digital IC decoders, oscillators, multi-vibrators, solid state switches, 555 timers.

OA 135: Operating Systems

An overview of beginning to advanced operating systems, including intermediate and advanced command-line instructions and GUI navigation for Windows 9X, NT Workstation 4.0, 2000 Profession-al, XP Professional, and Linux. Students learn how to setup/configure, navigate a PC, manage require-ments, manage a hard drive, optimize system resources, and install/remove applications. **Topics covered:** introduction to operating systems, how they work, installation, configuration and function-ality of various operating systems.

OA 200A: Printer Servicing

This course is for students with knowledge and experience in electronics and testing equipment usage. It covers troubleshooting techniques involved in servicing printers and preventative maintenance. **Topics covered:** fundamental processes, operational features and terminology, self-test, setup and configuration.

OA 201: Electronic Device Concepts

This course covers maintenance of computer and peripheral equipment. Focus is on operational and servicing elements of computer printing devices. Students apply various tools and test equipment, basic shop procedures, safety practices, and customer relations skills while servicing equipment. **Topics covered:** cash registers, copiers, fax machines.

OA 203: Programming Logic

Students learn how to design computer programs. Emphasis is on the theory of computer programming and good program design. **Topics covered:** history and design of computers, developing programs, doing math in a program, getting correct/precise results, built-in functions, structured programming, top-down design, writing efficient code, and debugging methods.

OA 205: Laser (Electrostatic) Printer Servicing

This course is for students with knowledge and experience in electronics and testing equipment usage. It covers the preventative maintenance and servicing of laser printing equipment **Topics covered:** fundamental processes, operational features and terminology, self-test, setup and configuration.

OA 210: PC/Personal Computer Repair

This intensive hands-on applications course focuses on servicing computer systems. Students build skills needed for servicing, maintaining, and repairing computer systems and associated software. Emphasis is placed on performing preventative maintenance, applying the use and care of various tools and equipment, while learning basic shop procedures, safety practices and customer relation skills. **Topics covered:** error codes, software diagnostics, configuration, setup, interfacing, upgrading peripheral devices, XP Advanced Options, video, CD-ROM, monitors.

OA 215A: Copier Fundamentals Processes/Servicing

This course familiarizes students with the fundamental processes of copier equipment. The course focuses on the theory and copier process steps. During the course, students analyze each step. Emphasis is placed on copier components and the uses of each component in the copier process. **Topics covered:** operations, setup and configuration, parts identification, theory, process steps, connectivity, maintenance, diagnostics.

OA 220: Facsimile Fundamental Process/ Servicing

This course familiarizes students with the fundamental processes of FAX equipment; operations; setup and installation; preventative maintenance; and basic servicing of equipment. **Topics covered:** operations, setup and configuration, parts identification, process steps, connectivity, preventive maintenance, service and diagnostics.

OA 225: Essential of Networking

Students learn skills to interconnect computer devices and peripheral equipment, maintain a NOS, and associated LAN equipment. Students perform preventative maintenance, apply the use /care of various techniques, diagnostic utilities, and equipment; learn basic shop procedures, safety practices and customer relations skills. **Topic covered:** four elements of networking technologies and concepts: media and topologies, protocols and standards, network implementation, and network support; CompTIA Network+ objectives for exam # N10-002.

OA 226: Fundamentals of Voice & Data Cabling

The purpose of this hands-on course is to introduce students to voice and data cabling application concepts used in entry-level positions in the cable industry **Topics covered**: Basics of networking, media & transmission practices, installation theory; practical installation; wireless practices; overview of cabling

OA 227: Network Topology Copper/Fiber Cabling

This hands-on course is for students to learn how to incorporate data and voice cable standards currently used in the telecommunication industry when working at a job site. Students learn how to document all work, media and transmission types. Emphasis is on communication and safety. **Topics covered**: network theory and components, cable installation, voice installations, testing, optical fiber installation.

OA 230: Introduction to Network Operation Systems

This course provides students with a comprehensive understanding of network operating systems. It prepares students to tackle server administration while applying their knowledge through hands-on projects and case study assignments. **Topics covered:** selecting server and client hardware, installing and configuring a server, setting up and managing network printing services, establishing remote access services, interoperating on a network, setting up for the Internet, monitoring and tuning a server, troubleshooting problems.

OA 240: Equipment Servicing Applications

Students apply theoretical concepts of trouble-shooting to repair customer(s) equipment. **Topics covered:** troubleshooting computer post error codes to lowest replaceable module (LRM), soft-ware diagnostics, configuration, setup, interfacing, and upgrading peripheral devices on all types of office equipment and devices.

OA 245A: Job Search

This course introduces students to Information on placement services and resources available on- and off-campus to help obtain employment. **Topics covered:** job seeking techniques, completing online applications, resume' writing, researching a job/company, job interviewing strategies, ABC's of networking, identifying key skills

OA 255: Computer Fundamental Skills

This course is designed for students who need more practice to master and become proficient in the skills related to A+ Core Hardware and Operating Systems. Emphasis is placed on the hands-on techniques needed to install, troubleshoot, and support personal computers. Students solve simulated real world problems and issues related to operating systems, making it a practical preparation for real world employment. Topics covered: record keeping, construction skills, system and software comprehension, and consumer maintenance and troubleshooting.

OA 260A: Computer Essentials I

This course prepares students for the CompTIA A+ Essentials certification (2006 objectives). Students perform fundamental techniques in operation, building, configuration, preventative maintenance, interfacing, upgrading, and troubleshooting of PC/personal computers and peripheral devices. Hands-on service and maintenance of computer equipment for students seeking to become entry-level IT professionals. **Topics covered:** desktop/ laptop configuration, set up, interfacing, upgrading, and troubleshooting of PC/personal computers, functional processes of printing devices (Dot Matrix, Inkjet, and Laser), and techniques for maintaining and servicing this equipment.

OA 265A: Computer Essentials II

This course prepares students for the CompTIA A+ 220-602, 220-603 exams (2006 objectives). Course is for students seeking to become information technology (IT) technicians or remote desktop/helpdesk support for the IT industry. The business setting, customer support, troubleshooting and servicing of computer and peripheral equipment at the intermediate and advanced levels. **Topics covered:** configuration of Windows operating systems; analyzing boot processes; supporting hardware and software; customer service in IT industry; troubleshooting malfunctioning computer devices.

OA 300: Security of Computer Networks

This highly-interactive course is for students interested in maintaining network computers. Students learn skills required to implement and monitor basic security services on any type of network and computer system, and respond to security breaches. **Topics covered**: security threats, secure systems and devices, network communication, PKI, certificates, organizational security policies, security infrastructure.

OA 303: Introduction to VB.net

A hands-on course for students interested in learning how to use Visual Basic to design basic Windows-type programs. The course focuses on making programs with a Windows style graphical user interface. **TOPICS COVERED:** VB.net, layout forms, controls, properties, add code to get results.

OA 690: Work Internship

This course is for students enrolled in the Office Automation program who want/need real-work experience prior to accepting a full-time job. Internships provide students with an opportunity to apply skills learned in school in a workplace setting, to evaluate themselves as a worker and potential employee. Internships provide experience that help build confidence in abilities.