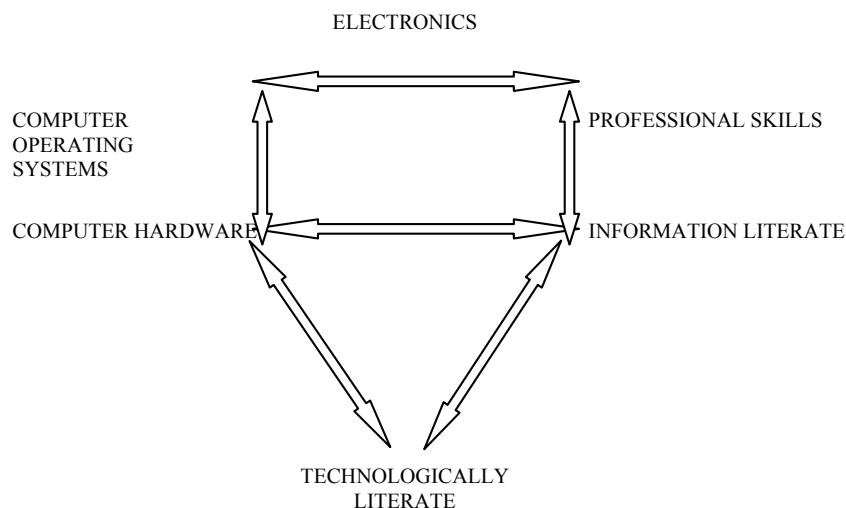


CAREER AND TECHNOLOGICAL EDUCATION DEPARTMENT SOUTH & WEST WASHTENAW CONSORTIUM

ELECTRONICS & COMPUTER SERVICING COURSE SYLLABUS

The Mission of the South & West Technological Consortium is to empower its students to be productive members of a changing technological world. The students are provided with the knowledge necessary to achieve the requisite skills, positive attitudes and work habits to meet those goals.

This class is designed to provide the student with a foundation in basic electronics with concentration in computer systems construction, repair, troubleshooting and upgrading. Basic electrical fundamentals will be covered including DC circuitry, reading schematic drawings, wiring and soldering. The focus of the class will be in preparing students to be computer repair technicians. Computer technicians are in high demand and are responsible for troubleshooting and repairing computers. Upgrading and total construction of PC's will be experienced in this class, following the industry standard of A+ computer repair certification standards. Students that excel will be prepared for A+ computer certification testing.



**Course Title: Electronics
and Computer Servicing**

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Computer Servicing and Associated Electronics **FULL YEAR OUTLINE**

The goal of this class is to prepare students to take and pass the A+ certification exam. The A+ exam is the industry standard for proficiency in computer servicing and repair. This class is a full year (three semesters) of instruction it includes:

Course Overview

This course prepares students for the PC Pro exam and CompTIA's Exam 220-801 and Exam 220-802.

Module 1 – Computing Overview

This module introduces the students to the PC Pro and the A+ certification exams, the basic skills a student should have before taking this course, and the content of the PC Pro course. Students will learn how to use the simulator to complete the lab exercises. This module also provides an overview of the basic elements and functions of computer hardware and operating systems.

Module 2 – PC Technician

This module examines the roles of the PC technician; protection and safety of users and computers, acting in a professional manner, maintaining computer systems, troubleshooting systems, and utilizing Windows tools and utilities to view configuration information and manage computers.

Module 3 – System Components

In this module students will learn concepts about the components that make up computer systems. Students will explore the basics of cases, form factors, power supplies, motherboards, PC expansion buses, processors, memory, BIOS, video, and cooling devices.

Module 4 – Peripheral Devices

This module teaches the students about the following peripheral devices: IO interfaces, USB devices, IEEE 1394-based products, display devices, and sound devices. Students will also receive guidelines for installing devices.

Module 5 – Storage

This module discusses concepts about the storage of digital data. Students will become familiar with storage devices, storage device interfaces, optical media, and file systems. They will also learn details about managing files, using RAID arrays, and optimizing hard disk performance.

Module 6 – Networking

This module examines the fundamentals of networking. Student will learn of the components that make up a network. They will learn about network addressing, networking media (cabling), IP configuration settings, 802.11 wireless networks, Infrared (IrDA) and Bluetooth.

Module 7 – Printing

In this module students will learn concepts about selecting, installing, configuring, and managing printers. They will learn about different types of printers, printer languages, and the components that make up network printing.

Module 8 – Mobile Devices

This module discusses portable computing devices. Topics covered include; classifications for portable devices, components in a notebook system, PC cards, batteries, and power management.

Module 9 – Windows System Management

This module discusses basic concepts of system management which include; installing and managing applications, updating Windows and non-Microsoft software, protecting a system through backups, managing virtual memory, handling system errors, and providing system recovery for a system that does not work properly.

Module 10 – System Implementation

This module discusses the elements of pre-installation, installation and post installation of the Windows Operating Systems.

Module 11 – File Management

This module examines the location of system files, file extensions and file attributes, and the commands to manage files. Students will also learn how to configure NTFS permissions, change file ownership, share a file, and work with offline files.

Module 12 – Security

In this module students will learn the basics of securing a computer system. Concepts covered include; protecting against malware and social engineering attacks, authenticating to validate a user, configuring BIOS security, utilizing encryption technologies, physically securing computer systems, and employing firewalls.

Module 13 – Troubleshooting

This module discusses troubleshooting of hardware devices, operating systems, network, notebooks and printer devices.

Module 14 – Capstone Exercises

This module contains 2 exercises that allow the students to practice all the skills they have acquired during this course.

Practice Exams

In Practice Exams students will have the opportunity to test themselves and verify that they understand the concepts and are ready to take the certification exam. The practice exams are divided into three separate areas and will contain examples of the types of questions that a student will find on the actual exam

COURSE OUTLINE

PAGE 4

Laboratory Activities:

1. Fundamentals of *electronics, digital electronics, and computer servicing* will be explored and applied through a series of laboratory activities.
2. Basic skills will be developed and applied through a series of required and student-designed laboratory activities. Students are expected to complete all assigned laboratory projects.
3. Basic Skill development in the *safe use and handling of tools machines and materials*.
4. *Cooperative learning* skills will be enhanced through integrated activities and projects.
5. *Teamwork* skills will be developed through a series of structured activities.
6. *Problem solving skills* will be developed through a series of predetermined “open-ended”, “structured”, and “closed-ended” technological design problems.
7. *Career pathway skills* will be introduced through resume and portfolio creation, as well as interviewing and job search activities.

Student Evaluation:

1. Evaluation of Electronics and Circuitry:

Students will complete a project evaluation sheet and turn it in with various assignments.

Students will be assessed through a combination of quizzes/exams and engineering-folios.

2. Evaluation of Computer Servicing:

Students will be assessed through a series of activities relating to computer servicing and repair.

Students will complete a laboratory activity sheet and turn it in with all lab assignments.

Students will be assessed through a combination of quizzes/exams.

Students will be assessed on their participation and professionalism

Extra credit may be offered through a variety of extended activities and research work.

COURSE OUTLINE

PAGE 5

It is expected that all assignments will be completed and turned in on the assigned due date. The following is what can be expected if an assignment is turned in late:

Late assignments due to EXCUSED absences will be accepted according to the following guideline: Students will have the same # of days to make up their assignment (equal to the number of days absent). After this time period the teacher has the discretion to mark down the assignment or not accept the assignment (an exception to this rule is the end of a marking period when all assignments become automatically due without notice).

Late assignments due to an UNEXCUSED absence will not be accepted and will receive a 0% grade.

Assignments that are late because students did not turn them in on time will be graded at the teacher's discretion. Assignments will be marked down a minimum of 11%; certain assignments will not be accepted late at all.

Attendance is important in a lab class. For this reason you will be allowed 4 "free" absences during a tri-mester. This means you will get full points for those days. After the four days you will receive a zero for any additional absences. This includes sick days, field trips, athletic events, school competitions, etc. At the instructor's discretion students may be able to complete an alternative assignment to make-up these lab points. Note: the school and CTE absence policy still applies; the alternative assignment only allows you to earn points missed through absences.

GRADING SCALE

The following GRADING SCALE will be used to determine your grades. Your grade for each semester will be assigned according to the total number of points earned.

100	A+		
99 – 93	A	76 – 73	C
92 – 90	A-	72 – 70	C-
89 – 87	B+	69 – 67	D+
86 – 83	B	66 – 63	D
82 – 80	B-	62 – 60	D-
79 – 77	C+	59 - 0	E

Semester Grades are typically determined by the following breakdown:

Marking Period 80%

Final Exam 20%

Total 100%

First assignment (10 points) Detach and return by _____

Student Name _____

Parent or Guardian Signature _____

Parent contact number _____

Parent e-mail _____