

## Washtenaw Community College Comprehensive Report

### CST 160 Computer Systems Technology I Effective Term: Spring/Summer 2024

#### Course Cover

**College:** Business and Computer Technologies

**Division:** Business and Computer Technologies

**Department:** Computer Science & Information Technology

**Discipline:** Computer Systems Technology

**Course Number:** 160

**Org Number:** 13400

**Full Course Title:** Computer Systems Technology I

**Transcript Title:** Computer Systems Technology I

**Is Consultation with other department(s) required:** No

**Publish in the Following:** College Catalog , Time Schedule , Web Page

**Reason for Submission:** Three Year Review / Assessment Report

**Change Information:**

**Consultation with all departments affected by this course is required.**

**Course title**

**Course description**

**Pre-requisite, co-requisite, or enrollment restrictions**

**Outcomes/Assessment**

**Objectives/Evaluation**

**Rationale:** Updating course based on industry needs advancing quickly.

**Proposed Start Semester:** Winter 2024

**Course Description:** In this course students will learn the foundations of computer systems and digital technology as well as install, configure, upgrade, and troubleshoot personal computers. Students learn the fundamentals of various types of computer hardware and their respective subsystems, including the motherboard, power supply, central processing unit (CPU), memory, storage devices, add-on cards, BIOS/UEFI, interfaces, configuration settings, binary, octal and hexadecimal numbering systems. Additionally, students learn the fundamentals of the Windows operating system including operating system functions, structure, major system files, the Registry and the POST and boot sequence. The title of this course was previously Computer Technology I.

#### Course Credit Hours

**Variable hours:** No

**Credits:** 4

**Lecture Hours: Instructor: 60 Student: 60**

**Lab: Instructor: 0 Student: 0**

**Clinical: Instructor: 0 Student: 0**

**Total Contact Hours: Instructor: 60 Student: 60**

**Repeatable for Credit:** NO

**Grading Methods:** Letter Grades

Audit

**Are lectures, labs, or clinicals offered as separate sections?:** NO (same sections)

#### College-Level Reading and Writing

College-level Reading & Writing

## **College-Level Math**

Level 2

### **Requisites**

#### **General Education**

##### **Degree Attributes**

High School articulation approved

##### **General Education Area 7 - Computer and Information Literacy**

Assoc in Arts - Comp Lit

Assoc in Applied Sci - Comp Lit

Assoc in Science - Comp Lit

#### **Request Course Transfer**

##### **Proposed For:**

Eastern Michigan University

Ferris State University

Grand Valley State University

Jackson Community College

Kendall School of Design (Ferris)

Lawrence Tech

Michigan State University

Oakland University

University of Detroit - Mercy

University of Michigan

Wayne State University

Western Michigan University

#### **Student Learning Outcomes**

1. Identify the names, purposes and operational characteristics of computer hardware subsystems.

##### **Assessment 1**

Assessment Tool: Outcome-related departmental test questions

Assessment Date: Winter 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

2. Install, configure, optimize and upgrade personal computer hardware components and install an operating system.

##### **Assessment 1**

Assessment Tool: Outcome-related departmental task list

Assessment Date: Winter 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Student achievement checklist

Standard of success to be used for this assessment: At least 70% of the students will successfully install and configure the required hardware.

Who will score and analyze the data: Departmental faculty

3. Identify tools, diagnostic procedures and troubleshooting techniques used to resolve computer subsystem hardware problems.

**Assessment 1**

Assessment Tool: Outcome-related departmental test questions

Assessment Date: Winter 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

4. Troubleshoot system and subsystem failures.

**Assessment 1**

Assessment Tool: Outcome-related departmental task list

Assessment Date: Winter 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Student achievement checklist

Standard of success to be used for this assessment: At least 70% of the students will successfully isolate and resolve two of three system faults or failures.

Who will score and analyze the data: Departmental faculty

5. Identify tools, diagnostic procedures and troubleshooting techniques used to resolve operating system problems.

**Assessment 1**

Assessment Tool: Outcome-related departmental test questions

Assessment Date: Winter 2026

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

**Course Objectives**

1. Identify the physical and functional characteristics of hardware subsystems and associated components including: motherboard, central processor, ROM BIOS, CMOS, RAM, video graphics, storage, power supply and other subsystems.
2. Identify the names, purposes, and performance characteristics of standardized/common peripheral ports, associated cabling, and their connectors.
3. Identify the types of system memory including: Dynamic Memory (DRAM), Static Memory (SRAM) and Read-Only Memory (ROM).
4. Identify the physical and functional characteristics of disk storage devices including: file systems, disk format (cylinders, sectors, surfaces), and solid state drives.
5. Demonstrate proper removal/replacement procedures (including static protection) when installing and configuring system components.
6. Install and test additional memory on the system board using DIMM modules.
7. Identify and perform proper procedures for installing and configuring common peripheral devices.

8. Identify and perform proper procedures for installing, configuring and maintaining common storage devices, including partitioning, formatting and operating system installation.
9. Identify and perform basic troubleshooting procedures and tools.
10. Identify, describe and repair a variety of hardware subsystems.
11. Identify the major operating system components including: Application Program Interfaces (API's), Dynamic Link Library (DLL) files, Kernal (NTOSKRNL.EXE), and Registry files.
12. Identify computer numbering systems and convert between binary, octal, hexadecimal and decimal numbering systems.
13. Identify and perform the procedures for installing Windows or other operating systems.
14. Identify and perform procedures for installing/adding a device, including loading, adding, and configuring device drivers, and required software.
15. Demonstrate the ability to use command-line functions and utilities to manage the operating system, including the proper syntax and switches.

### New Resources for Course

### Course Textbooks/Resources

#### Textbooks

Lulu Press. *Computer Numbering Systems*, ed. CDTS LLC, 2022

#### Manuals

Lulu Press. *Computer Systems Technology*, CDTS LLC, 08-01-2023

#### Periodicals

#### Software

### Equipment/Facilities

Level III classroom

Computer workstations/lab

Data projector/computer

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
<b>Faculty Preparer:</b> <i>James Lewis</i>	<i>Faculty Preparer</i>	<i>Apr 27, 2023</i>
<b>Department Chair/Area Director:</b> <i>Scott Shaper</i>	<i>Recommend Approval</i>	<i>May 05, 2023</i>
<b>Dean:</b> <i>Eva Samulski</i>	<i>Recommend Approval</i>	<i>May 12, 2023</i>
<b>Curriculum Committee Chair:</b> <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Nov 09, 2023</i>
<b>Assessment Committee Chair:</b> <i>Jessica Hale</i>	<i>Recommend Approval</i>	<i>Nov 09, 2023</i>
<b>Vice President for Instruction:</b> <i>Brandon Tucker</i>	<i>Approve</i>	<i>Nov 09, 2023</i>

## Washtenaw Community College Comprehensive Report

### CST 160 Computer Technology I Effective Term: Fall 2017

#### Course Cover

**Division:** Business and Computer Technologies

**Department:** Computer Instruction

**Discipline:** Computer Systems Technology

**Course Number:** 160

**Org Number:** 13400

**Full Course Title:** Computer Technology I

**Transcript Title:** Computer Technology I

**Is Consultation with other department(s) required:** No

**Publish in the Following:** College Catalog , Time Schedule , Web Page

**Reason for Submission:** Course Change

**Change Information:**

**Consultation with all departments affected by this course is required.**

**Pre-requisite, co-requisite, or enrollment restrictions**

**Rationale:** A prerequisite level change is required to provide more flexibility for the student pursuing both the Networking and Cybersecurity degrees.

**Proposed Start Semester:** Fall 2017

**Course Description:** Through hands-on experiences, this course prepares students to install, configure, upgrade, and troubleshoot personal computers. Students learn the fundamentals of PC hardware including the motherboard, power supply, CPU, memory, storage devices, add-on cards, BIOS/UEFI, and CMOS. In addition, students learn the fundamentals of the Windows operating system including operating system functions, structure, major system files, and the basic boot sequence. This course contains content previously taught in CST 150.

#### Course Credit Hours

**Variable hours:** No

**Credits:** 4

**Lecture Hours: Instructor: 60 Student: 60**

**Lab: Instructor: 0 Student: 0**

**Clinical: Instructor: 0 Student: 0**

**Total Contact Hours: Instructor: 60 Student: 60**

**Repeatable for Credit:** NO

**Grading Methods:** Letter Grades

Audit

**Are lectures, labs, or clinicals offered as separate sections?:** NO (same sections)

#### College-Level Reading and Writing

College-level Reading & Writing

#### College-Level Math

Level 2

#### Requisites

**Level II Prerequisite**

CIS 100 minimum grade "C"

**General Education****Degree Attributes**

High School articulation approved

**General Education Area 7 - Computer and Information Literacy**

Assoc in Arts - Comp Lit

Assoc in Applied Sci - Comp Lit

Assoc in Science - Comp Lit

**Request Course Transfer****Proposed For:**

Central Michigan University  
College for Creative Studies  
Eastern Michigan University  
Ferris State University  
Grand Valley State University  
Jackson Community College  
Kendall School of Design (Ferris)  
Lawrence Tech  
Michigan State University  
Oakland University  
University of Detroit - Mercy  
University of Michigan  
Wayne State University  
Western Michigan University

**Student Learning Outcomes**

1. Identify the names, purposes and operational characteristics of personal computer hardware components.

**Assessment 1**

Assessment Tool: Departmental test questions (multiple choice/matching) included as part of instructor developed tests.

Assessment Date: Winter 2016

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: At least 70% of the students will score 70% or better.

Who will score and analyze the data: The test will be scored through Blackboard. The department faculty will analyze the data.

2. Install, configure, optimize and upgrade personal computer hardware components.

**Assessment 1**

Assessment Tool: Departmental task list used to assess proficiency in applying concepts and performing hands-on tasks.

Assessment Date: Winter 2016

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: The student will complete hands-on lab experiences, installing the required hardware components. A departmentally approved task list will be used for the evaluation.

Standard of success to be used for this assessment: At least 70% of the students will successfully install and configure the required hardware.

Who will score and analyze the data: Departmental faculty.

3. Identify tools, diagnostic procedures and troubleshooting techniques used to resolve personal computer hardware problems.

**Assessment 1**

Assessment Tool: Departmental test questions (multiple choice/matching) included as part of instructor developed tests.

Assessment Date: Winter 2016

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: At least 70% of the students will score 70% or better.

Who will score and analyze the data: The test will be scored through Blackboard. The department faculty will analyze the data.

4. Identify the names, locations, purposes and characteristics of key operating system files.

**Assessment 1**

Assessment Tool: Departmental test questions (multiple choice/matching) included as part of instructor developed tests.

Assessment Date: Winter 2016

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: At least 70% of the students will score 70% or better.

Who will score and analyze the data: The test will be scored through Blackboard. The department faculty will analyze the data.

5. Install, configure, optimize and upgrade operating systems.

**Assessment 1**

Assessment Tool: Departmental task list used to assess proficiency in applying concepts and performing hands-on tasks.

Assessment Date: Winter 2016

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: The student will complete hands-on lab experiences, installing the required hardware components. A departmentally approved task list will be used for the evaluation.

Standard of success to be used for this assessment: At least 70% of the students will successfully install and configure the required hardware.

Who will score and analyze the data: Departmental faculty.

6. Identify tools, diagnostic procedures and troubleshooting techniques used to resolve operating system problems.

**Assessment 1**

Assessment Tool: Departmental test questions (multiple choice/matching) included as part of instructor developed tests.

Assessment Date: Winter 2016

Assessment Cycle: Every Three Years

Course section(s)/other population: all

Number students to be assessed: all

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: At least 70% of the students will score 70% or better.

Who will score and analyze the data: The test will be scored through Blackboard. The department faculty will analyze the data.

### **Course Objectives**

1. Identify the physical and functional characteristics of the hardware components of a typical PC compatible computer system including: motherboard, central processor, ROM BIOS, CMOS RAM, system expansion bus and adapter cards, and power supply.
2. Identify the names, purposes, and performance characteristics of standardized/common peripheral ports, associated cabling, and their connectors.
3. Identify the types of system memory including: Dynamic Memory (DRAM), Static Memory (SRAM) and Read-Only Memory (ROM).
4. Identify the physical and functional characteristics of disk storage devices including: writing and reading bits on a disk, disk format (cylinders, sectors, surfaces).
5. Demonstrate proper removal/replacement procedures (including static protection) when installing and configuring system components.
6. Install and test additional memory on the system board using DIMM modules.
7. Identify and perform proper procedures for installing and configuring common peripheral devices.
8. Identify and perform proper procedures for installing, configuring and maintaining common storage devices, including partitioning and formatting hard drives.
9. Demonstrate proper configuration and installation procedures when adding an optical drive.
10. Identify basic troubleshooting procedures and tools, and how to elicit problem symptoms from customers.
11. Identify and repair a variety of hardware, software, and firmware problems.
12. Identify the major Windows 2000/XP desktop components and interfaces, and their functions.
13. Identify the major components of the Windows 2000/XP operating system including: Application Program Interfaces (API's), System Support Library (NTDLL.DLL), Windows NT Kernel (NTOSKRNL.EXE), Window Manager & GDI (WIN32K.SYS), Hardware Abstraction Layer (HAL.DLL), and Registry files.
14. Identify key system files involved in Windows 2000/XP system startup including: NTLDR, BOOT.INI, NTDETECT.com, WINLOGON.EXE.
15. Identify and perform the procedures for installing Windows 2000/XP and bringing the operating system to a basic operational level.
16. Identify and perform procedures for installing/adding a device, including loading, adding, and configuring device drivers, and required software.
17. Demonstrate the ability to use command-line functions and utilities to manage the operating system, including the proper syntax and switches.

### **New Resources for Course**

#### **Course Textbooks/Resources**

Textbooks  
Manuals  
Periodicals  
Software

**Equipment/Facilities**

Level III classroom  
 Computer workstations/lab  
 Data projector/computer

<b><u>Reviewer</u></b>	<b><u>Action</u></b>	<b><u>Date</u></b>
<b>Faculty Preparer:</b> <i>Michael Galea</i>	<i>Faculty Preparer</i>	<i>Feb 20, 2017</i>
<b>Department Chair/Area Director:</b> <i>Philip Geyer</i>	<i>Recommend Approval</i>	<i>Feb 27, 2017</i>
<b>Dean:</b> <i>Kimberly Hurns</i>	<i>Recommend Approval</i>	<i>Feb 28, 2017</i>
<b>Curriculum Committee Chair:</b> <i>David Wooten</i>	<i>Recommend Approval</i>	<i>Mar 21, 2017</i>
<b>Assessment Committee Chair:</b>		
<b>Vice President for Instruction:</b> <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Mar 23, 2017</i>