

**Clackamas Community College**  
Online Course/Outline Submission System

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### Section #1 General Course Information

**Department:**Business & Computer Science: Computer Science

**Submitter**

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**Course Prefix and Number:**CS - 227

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**# Credits:**4

**Contact hours**

Lecture (# of hours): 33

Lec/lab (# of hours):

Lab (# of hours): 33

Total course hours: 66

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

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**Course Title:**Computer Hardware & Repair

**Course Description:**

An in-depth course in computer hardware. Covers operational concepts, identification, installation, configuration, and troubleshooting of power supplies, motherboards, microprocessors, memory modules, disk drives, optical drives, and expansion cards. This course, in conjunction with CS-228, covers the topics of the CompTIA A+ certification exam.

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**Type of Course:**Lower Division Collegiate

Is this class challengeable?

**Yes**

Can this course be repeated for credit in a degree?

**No**

Is general education certification being sought at this time?

**No**

Does this course map to any general education outcome(s)?

**No**

Is this course part of an AAS or related certificate of completion?

**Yes**

**Name of degree(s) and/or certificate(s):**Computer Science AAS & Certificate

Are there prerequisites to this course?

**Yes**

**Pre-reqs:**Pass CS-140 or instructor consent

**Have you consulted with the appropriate chair if the pre-req is in another program?**

**No**

Are there corequisites to this course?

**No**

Are there any requirements or recommendations for students taken this course?

**No**

Are there similar courses existing in other programs or disciplines at CCC?

**No**

Will this class use library resources?

**No**

Is there any other potential impact on another department?

**No**

Does this course belong on the Related Instruction list?

**No**

**GRADING METHOD:**

A-F or Pass/No Pass

**Audit:Yes**

When do you plan to offer this course?

✓ **Fall**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

**No**

Will this course appear in the college catalog?

**Yes**

Will this course appear in the schedule?

**Yes**

**Student Learning Outcomes:**

Upon successful completion of this course, students should be able to:

1. explain and implement proper safety procedures when working with computer components,
2. use PC repair tools, techniques, and procedures appropriately;
3. explain concepts, organization and operation of PC hardware and associated software;
4. identify different case, power supply, and motherboard from factors and components;
5. identify PC hardware components, and explain the advantages and disadvantages of different types of components;
6. upgrade a computers power supply, CPU, memory, disk drives, video cards, and other internal comonents;
7. completely disassemble and reassemble a PC,
8. diagnose and repair common hardware and driver problems,
9. evaluate and select appropriate components to meet a customer's specifications or needs.

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***This course does not include assessable General Education outcomes.***

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**Major Topic Outline:**

1. Safety.
2. PC component overview.
3. Power supplies.
  - a. Electricity basic (voltage/current/resistance, AC vs DC)
  - b. Properties and operation.
  - c. Form factors.
  - d. Testing and replacing.
4. Microprocessors.
  - a. Operation.
  - b. Packages.
  - c. Upgrading.
5. Memory.
  - a. Operation.
  - b. Packages.
  - c. Testing and upgrading.

6. Cases and motherboards.
  - a. Components (including firmware).
  - b. Form factors.
  - c. Installation.
  - d. Expansion slots/busses.
7. Disk drives.
  - a. Terms and operation.
  - b. Types (HDD, SSD).
  - c. Interfaces (SATA, PATA).
  - d. File systems.
8. Removable media.
  - a. CDs.
  - b. DVDs.
  - c. Flash memory.
9. I/O ports and devices.
  - a. Serial, parallel, USB, firewire, eSATA.
  - b. Keyboard, mouse.
10. Video.
  - a. Monitors.
  - b. Video cards.
  - c. Interfaces.
11. Multimedia.
  - a. Sound file formats.
  - b. Sound cards.
12. Troubleshooting.

Does the content of this class relate to job skills in any of the following areas:

- |                                      |           |
|--------------------------------------|-----------|
| 1. Increased energy efficiency       | <b>No</b> |
| 2. Produce renewable energy          | <b>No</b> |
| 3. Prevent environmental degradation | <b>No</b> |
| 4. Clean up natural environment      | <b>No</b> |
| 5. Supports green services           | <b>No</b> |

Percent of course:0%

## Section #2 Course Transferability

Concern over students taking many courses that do not have a high transfer value has led to increasing attention to the transferability of LDC courses. The state currently requires us to certify that at least one OUS school will accept a new LDC course in transfer. Faculty should communicate with colleagues at one or more OUS schools to ascertain how the course will transfer by answering these questions.

1. Is there an equivalent lower division course at the University?
2. Will a department accept the course for its major or minor requirements?
3. Will the course be accepted as part of the University's distribution requirements?

If a course transfers as an elective only, it may still be accepted or approved as an LDC course, depending on the nature of the course, though it will likely not be eligible for Gen Ed status.

Which OUS schools will the course transfer to? (Check all that apply)

Identify comparable course(s) at OUS school(s)

How does it transfer? (Check all that apply)

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First term to be offered:

**Next available term after approval**

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