

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: CIS 190		Number of Credits: 3 Course credit policy (105)															
Course Full Title: System Hardware Concepts Course Short Title: <i>(Transcripts only display 30 characters. Departments may recommend a short title if one is needed. If left blank, one will be assigned.)</i>																	
Faculty: Faculty of Professional Studies		Department (or program if no department): Computer Information Systems															
Calendar Description: <p>Introduces students to various microcomputer components, equipment needs, and application of formal problem-solving techniques. The installation and maintenance of components such as CPUs, memory, expansion devices, communications equipment, secondary storage, and displays will be covered. Concepts such as CPU architectures, microprocessor technologies, character encoding, and number representations will also be discussed.</p> <p>Note: Competency in computer skills is required. See CIS Required Skills section on the CIS department website for details.</p>																	
Prerequisites (or NONE):		One of the following: C or better in one of Principles of Mathematics 11, Foundations of Mathematics 11, Pre-calculus 11, or MATH 085; or one of Principles of Mathematics 12, Foundations of Mathematics 12, Pre-calculus 12, MATH 092, or MATH 094.															
Corequisites (if applicable, or NONE):		NONE															
Pre/corequisites (if applicable, or NONE):		NONE															
Antirequisite Courses <i>(Cannot be taken for additional credit.)</i> Former course code/number: Cross-listed with: Dual-listed with: Equivalent course(s): <i>(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)</i>		Special Topics <i>(Double-click on boxes to select.)</i> This course is offered with different topics: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <i>(If yes, topic will be recorded when offered.)</i>															
Typical Structure of Instructional Hours <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Lecture/seminar hours</td> <td style="text-align: center; padding: 2px;">45</td> </tr> <tr> <td style="padding: 2px;">Tutorials/workshops</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Supervised laboratory hours</td> <td style="text-align: center; padding: 2px;">7</td> </tr> <tr> <td style="padding: 2px;">Experiential (field experience, practicum, internship, etc.)</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Supervised online activities</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">Other contact hours:</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="text-align: right; padding: 2px;">Total hours</td> <td style="text-align: center; padding: 2px;">52</td> </tr> </table> <p>Labs to be scheduled independent of lecture hours: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes</p>		Lecture/seminar hours	45	Tutorials/workshops		Supervised laboratory hours	7	Experiential (field experience, practicum, internship, etc.)		Supervised online activities		Other contact hours:		Total hours	52	Independent Study If offered as an Independent Study course, this course may be repeated for further credit: <i>(If yes, topic will be recorded.)</i> <input type="checkbox"/> No <input type="checkbox"/> Yes, repeat(s) <input type="checkbox"/> Yes, no limit	
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Transfer Credit Transfer credit already exists: <i>(See bctransferguide.ca.)</i> <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes Submit outline for (re)articulation: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <i>(If yes, fill in transfer credit form.)</i>																	
Grading System <input checked="" type="checkbox"/> Letter Grades <input type="checkbox"/> Credit/No Credit																	
Maximum enrolment (for information only): 35 Expected Frequency of Course Offerings: <i>(Every semester, Fall only, annually, etc.)</i>																	
Department / Program Head or Director: Talia Q		Date approved: December 2028															
Faculty Council approval		Date approved: December 7, 2018															
Dean/Associate VP: Dr. Tracy Ryder Glass		Date approved: December 7, 2018															
Campus-Wide Consultation (CWC)		Date of posting: February 22, 2019															
Undergraduate Education Committee (UEC) approval		Date of meeting: March 1, 2019															

Learning Outcomes:

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

- Explain the components of a PC and how they work together.
- Describe how the CPU operates internally.
- Demonstrate how data, letters, and numbers are represented in computers.
- Express and convert numbers in binary, hexadecimal, and decimal.
- Describe how data is organized in memory and in file systems.
- Explain how assembler and higher-level languages differ.
- Compare different CPU and machine architectures.
- Demonstrate how to install new hardware components.
- Demonstrate how to take apart and reassemble a PC.
- Apply simple PC fixes to repair problems.
- Explain how to format, partition, and reorganize a disk.
- Explain how disk storage works, and how to fix common disk problems.
- Describe how viruses and hackers work, and how they threaten data integrity.
- Describe how video cards and monitors work.
- Describe how CDs and DVDs work and are used.
- Explain how multimedia devices (sound boards and video capture) work in PCs.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods (*Guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion.*)

Lectures and bi-weekly hardware labs with hands-on lab exercises involving disassembly, setup, and configuration of PCs

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (*If more space is required, download Supplemental Texts and Resource Materials form.*)

Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1. Jean Andrews	A+ Guide to Managing and Maintaining Your PC	<input checked="" type="checkbox"/>	Course Technology	
2.		<input type="checkbox"/>		

Required Additional Supplies and Materials (*Software, hardware, tools, specialized clothing, etc.*)

A small flash drive and a set of screw drivers.

Typical Evaluation Methods and Weighting

Final exam:	40%	Assignments:	10%	Field experience:	%	Portfolio:	%
Midterm exam:	20%	Project:	%	Practicum:	%	Participation:	10%
Quizzes/tests:	10%	Lab work:	10%	Shop work:	%	Total:	100%

Details (if necessary):**Typical Course Content and Topics**

Topics covered should include (but not be limited to):

- Components of a computer and general architecture.
- Software: operating systems, compilers and application programs.
- Representation of data in the computer, ASCII, EBCDIC, and Unicode.
- Binary, Hexadecimal, and Decimal number conversions
- Introduction to the PC and its components.
- Microprocessors (Intel x86 and other types).
- Different generations of the PCs (8086 to Itanium and beyond).
- BIOS (Basic Input/Output System), system booting, and DOS.
- Interrupts, I/O addresses, DMA channels, and resource conflicts.
- DOS memory organization.
- Semiconductor memory (RAM).
- Disks and other removable and optical storage.
- Disks: FAT (file access tables), NTFS, and partitions.
- Disk utilities — including recovery, compression, and optimizers.
- Video: text and graphics, CGA, EGA, VGA, SVGA, and beyond.
- Printers, modems, and sound.
- Plug and Play, multimedia, video capture, viruses and more.