UNIVERSITY OF THE FRASER VALLEY

OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE:	September 1997
COURSE REVISED IMPLEMENTATION DATE:	September 2012
COURSE TO BE REVIEWED:	May 2018
(six years after UEC approval)	*(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

CIS 190	**Computer Information Systems**	**3**
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

System Hardware Concepts

COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

This course will introduce students to the capabilities of various microcomputer hardware components, describe and specify equipment needs, and describe and apply formal problem-solving techniques. The physical installation and maintenance of components such as CPUs, memory, expansion devices, communications equipment (LAN, modem, printers), secondary storage, and video displays will be covered. Important computer concepts such as CPU architectures, microprocessor technologies, character encoding, and number representations will also be discussed.

PREREQUISITES: Competency in computer skills – see "CIS Required Skills" section on the CIS department website for details.
Note: As of September 2013, prerequisites will also include 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, or MATH 094.

COREQUISITES:

SYNONYMOUS COURSE(S):
(a) Replaces:
(b) Cross-listed with:
(c) Cannot take: for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: **52**

STRUCTURE OF HOURS:

Lectures:	**45**	Hrs
Seminar:		Hrs
Laboratory:	**7**	Hrs
Field experience:		Hrs
Student directed learning:		Hrs
Other (specify):		Hrs

TRAINING DAY-BASED INSTRUCTION:
Length of course:
Hours per day:

OTHER:
Maximum enrolment: **35**
Expected frequency of course offerings:
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☒ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☐ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☒ Yes	☐ No

Course designer(s):	**Edward Lo**		
Department Head:	**Lynn Kirkland-Harvey**	Date approved:	**Dec. 9, 2011**
Supporting area consultation (Pre-UEC)		Date of meeting:	**Feb. 3, 2012**
Curriculum Committee chair:	**Norm Taylor**	Date approved:	**April 20, 2012**
Dean/Associate VP:	**Ora Steyn**	Date approved:	**May 4, 2012**
Undergraduate Education Committee (UEC) approval		Date of meeting:	**May 23, 2012**

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.

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

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

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☒ Examination(s) ☒ Portfolio assessment ☒ Interview(s) ☐ Other (specify):

TEXTBOOKS, REFERENCES, MATERIALS: *[Textbook selection varies by instructor. Examples for this course might be:]*

A+ Guide to Managing and Maintaining Your PC, by Jean Andrews, Course Technology.

SUPPLIES / MATERIALS:

A small flash drive and a set of screw drivers.

STUDENT EVALUATION: *[An example of student evaluation for this course might be:]*

Participation	10%
Labs	10%
Assignments	10%
Weekly Quizzes	10%
Mid-term exam	20%
Final exam (comprehensive)	40%

COURSE CONTENT: *[Course content varies by instructor. An example of course content might be:]*

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 & optimizers.
- Video: text and graphics, CGA, EGA, VGA, SVGA and beyond.
- Printers, modems and sound.
- Plug and Play, multimedia, video capture, viruses and more.