Algonquin College

CST8101
Computer Essentials

Course Outline

2021-2022

Pre-requisite(s)	N/A
Co-requisite(s)	N/A
Prepared by	Matthew O'Meara
Approved by	Sandra Brancatelli, Chair, ICT - Applications & Programming
Normative hours	56.00
Grading system	A+ Through F
Experiential Learning	No

Applicable Program(s)	Level	Core/Elective
0006X01FWO - Computer Eng. Technology - Comp. Science	1	Core
0006X03FWO - Computer Eng. Technology - Comp. Science	1	Core
0336X01FWO - Computer Programming	1	Core
0336X03FWO - Computer Programming	1	Core
0336X07PAO - Computer Programming	1	Core
0336X09FAO - Computer Programming	1	Core

Course Description

The essentials of computer software, hardware, and laptop management form the foundation for building further technical programming skills. Learn to configure your laptop environment, basic PC and troubleshoot problems. Create backups, install virus protection, and manage files through a basic understanding of the Windows Operating System. Install and configure the Windows Operating System, and a virtual machine environment. Explore computer organization including basic numerical systems, functional hardware and software components needed to run programs.

Vocational Learning Outcomes

This course provides the opportunity for you to achieve the following outcomes:

0006X01FWO - Computer Eng. Technology - Comp. Science

VLO 2 Diagnose, troubleshoot, document and monitor technical problems using appropriate methodologies and tools. (T, A)

VLO 6 Select and apply strategies for personal and professional development to enhance work performance. (T, A)

VLO 8 Adhere to ethical, social media, legal, regulatory and economic requirements and/or principles in the development and management of the computing solutions and systems. (T, A)

VLO 9 Investigate emerging trends to respond to technical challenges. (T)

VLO 16 Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T, A)

0006X03FWO - Computer Eng. Technology - Comp. Science

VLO 2 Diagnose, troubleshoot, document and monitor technical problems using appropriate methodologies and tools. (T, A)

VLO 6 Select and apply strategies for personal and professional development to enhance work performance. (T, A)

VLO 8 Adhere to ethical, social media, legal, regulatory and economic requirements and/or principles in the development and management of the computing solutions and systems. (T, A)

VLO 9 Investigate emerging trends to respond to technical challenges. (T)

VLO 16 Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T, A)

0336X01FWO - Computer Programming

VLO 2 Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T)

VLO 3 Implement and maintain secure computing environments. (T, A)

VLO 8 Adhere to ethical, legal, and regulatory requirements and/or principles in the development and management of computing solutions and systems. (T)

VLO 14 Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T, A)

0336X03FWO - Computer Programming

VLO 2 Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T)

VLO 3 Implement and maintain secure computing environments. (T, A)

VLO 8 Adhere to ethical, legal, and regulatory requirements and/or principles in the development and management of computing solutions and systems. (T)

VLO 14 Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T, A)

0336X07PAO - Computer Programming

VLO 2 Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T)

VLO 3 Implement and maintain secure computing environments. (T, A)

VLO 8 Adhere to ethical, legal, and regulatory requirements and/or principles in the development and management of computing solutions and systems. (T)

VLO 14 Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T, A)

0336X09FAO - Computer Programming

VLO 2 Contribute to the diagnostics, troubleshooting, documenting and monitoring of technical problems using appropriate methodologies and tools. (T)

VLO 3 Implement and maintain secure computing environments. (T, A)

VLO 8 Adhere to ethical, legal, and regulatory requirements and/or principles in the development and management of computing solutions and systems. (T)

VLO 14 Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship. (T, A)

Assessment Levels —T: Taught **A**: Assessed **CP**: Culminating Performance

Essential Employability Skills

This course contributes to your program by helping you achieve the following Essential Employability Skills:

EES 3 Execute mathematical operations accurately. (T, A)

EES 4 Apply a systematic approach to solve problems. (T, A)

EES 5 Use a variety of thinking skills to anticipate and solve problems. (T, A)

EES 6 Locate, select, organize and document information using appropriate technology and information systems. (T, A)

EES 7 Analyze, evaluate and apply relevant information from a variety of sources. (T, A)

EES 11 Take responsibility for one's own actions, decisions and consequences. (T, A)

Assessment Levels —T: Taught **A**: Assessed **CP**: Culminating Performance

Course Learning Requirements / Embedded Knowledge and Skills

When you have earned credit for this course, you will have demonstrated the ability to:

1. In a Windows environment, create, delete, rename, move files and folders, add/modify system environment variables, write and execute simple batch script files from a command prompt.

- Explain clearly the relationship between folders and files.
- Create, delete, rename, copy, and move files and folders.
- Write batch file scripts which create and modify environment variables, execute programs, test for completion status from a command prompt window.
- Check for and install any updated drivers for the video, sound, and any other device.

2. Become familiar with specified online learning and communications environments.

- Explain clearly and access the information and resources contained in ACSIS.
- Explain clearly and access the information and resources contained in Brightspace.
- Become familiar with and use Algonquin's student calendar system.
- Be able to connect to College's printers.

3. Understand the importance of backups and file retention both for the PC/laptop and for the company/organization. Perform basic backups on alternate media and using online resources.

- Explain clearly the value of computer backups as they relate to the laptop in a personal environment, as they relate to the backup and file retention required by an organization in the workplace.
- Explain the effects of a loss both personally and to the organization in the event data/hardware failure.
- Perform backups of your critical laptop information to a hard drive partition or external data storage.
- Set up a schedule for regular backup activities and explain an appropriate schedule for the organization.
- Verify data backups.

4. Install, update and maintain; anti-virus software, device drivers, operating system updates. Explain why the above activities are essential to safe computing both personally and in the company/organization (workplace).

- Explain clearly the value and functionality of anti-virus software.
- Explain clearly the types of threats to computer systems.
- Conduct manual virus and malware scans and set up automatic, regular schedules for scans, verify for a clean system.
- Check for and install any operating system updates.
- Develop a schedule of regular maintenance and care operations.

5. Describe the architecture and processing of hardware and software functional components of a computer.

- Explain the basic sections of modern computer architecture.
- Identify the issues which differentiate single and multi-user/task environments.
- Explain the purposes of different layers of the operating system

6. Identify and explain the different systems of data representation and discuss their implications on program design.

- Explain clearly how binary numbers are stored both as signed and unsigned integer.
- Explain carry, borrow, and arithmetic overflow operations in the computer CPU.

- Perform number conversion of real numbers between IEEE-754 floating point numbers and decimal numbers/fractions.

7. Install and configure an operating system in a virtual environment using VMWare.

- Learn virtualization concepts.
- Install and configure VMware virtualization software.
- Perform a full OS install including configuration.

8. Identify factors and practices that contribute to computers and software sustainability.

- Explore practices and factors in the purchase, use and disposal of computer hardware, and the production and use of computer software that contribute to financial and environmental sustainability.

9. Connect a computer to a network using wireless and wired networking

- Configure a laptop with a static IP address

Learning Resources

Required Equipment:
This course is part of a mobile/laptop initiative at Algonquin College. All students must have a functioning laptop at all classes and labs. Information about the requirements for the laptop and about the mobile/laptop program is available at http://www7.algonquincollege.com/byod/#

Required Text:
To be determined, please see the Course Section Information for more information.

Learning Activities

Lectures (2 hours per week)
Hybrid Activities (1 hour per week)
Labs (1 hour per week)

Pre-defined Evaluation / Earning Credit

The following list provides evidence of this course's learning achievements and the outcomes they validate:

Quiz(zes)/Test(s) (30%)

Validates Outcomes: CLR 1, CLR 3, CLR 5, CLR 6, CLR 8, EES 4

Hybrid Assignment(s) (10%)

Validates Outcomes: CLR 2, EES 3, EES 4, EES 5, EES 7, EES 11

Lab Activity(ies) (30%)

Validates Outcomes: CLR 1, CLR 3, CLR 4, CLR 7, CLR 9, EES 4, EES 5, EES 6, EES 7, EES 11

Final Exam (30%)

Validates Outcomes: CLR 2, CLR 3, CLR 5, CLR 6, CLR 8, EES 4

Prior Learning Assessment and Recognition

Students who wish to apply for Prior Learning Assessment and Recognition (PLAR) need to demonstrate competency at a post-secondary level in all outlined course learning requirements. Evidence of learning achievement for PLAR candidates includes:

- Other: At the discretion of the department, a portfolio and interview may be allowed.A challenge exam, typical assignment may also be required to challenge this course. The portfolio, assignment(s), and/or exam specifics will be determined on a case by case basis.

Other Information

Students are required to respect the confidentiality of employer, client and/or patient information, interactions, and practices that occur either on Algonquin College premises, or at an affiliated clinical/field/co-op placement site. Concerns regarding clients, patients, and/or employer practices are to be brought to the attention of the program coordinator, or designated field/clinical/co-op placement supervisor so that they may be resolved collaboratively. Such concerns are not to be raised publically either verbally, in writing, or in electronic forums. These matters are to be addressed through established program communication pathways.

Grade Scheme

Final Grade	Mark Equivalent	Numeric Value	Final Grade	Mark Equivalent	Numeric Value
A+	90% - 100%	4.0	A	85% - 89%	3.8
A-	80% - 84%	3.6	B+	77% - 79%	3.3
B	73% - 76%	3.0	B-	70% - 72%	2.7
C+	67% - 69%	2.3	C	63% - 66%	2.0

C-	60% - 62%	1.7	D+	57% - 59%	1.4
D	53% - 56%	1.2	D-	50% - 52%	1.0
F	0% - 49%	0	FSP	0	0

Course Related Information

Please refer to the Course Section Information (CSI) / weekly schedule for specific course-related information as provided by your professor.

Department Information

STUDENT ACADEMIC RESPONSIBILITIES

Each student is responsible for:
• Knowing the due dates for marked out-of-class assignments.
• Attending all classes and knowing the dates of in-class marked assignments and exercises.
• Maintaining a folder of all work done in the course during the semester for validation claims in cases of disagreement with faculty.
• Keeping both paper and electronic copies of all assignments, marked and unmarked, in case papers are lost or go missing.
• Regularly checking both Brightspace announcements as well as one's Algonquin e-mail account for important messages from both professors and college administration.
• Participating in on-line and classroom exercises and activities as required.
• Retaining course outlines for possible future use to support applications for transfer of credit to other educational institutions.

Department Grading Policy - For all courses that have both a theory and practical (lab) component, students must have a grade of at least 50% (or "D-") on both the theory component as well as in the practical (i.e. lab) component in order to achieve a passing grade in the course. i.e. Even if your combined grade exceeds 50% for the entire course, if you fail either the theory component or the practical component, you will not achieve a passing grade in the course.

Harassment/Discrimination/Violence will not be tolerated. Any form of harassment (sexual, racial, gender or disability-related), discrimination (direct or indirect), or violence, whether involving a professor and a student or amongst students, will not be tolerated on the college premises. Action taken will start with a formal warning and proceed to the full disciplinary actions as outlined in Algonquin College Policies - HR22 and SA07.
Harassment means one or a series of vexatious comment(s) (whether done verbally or through electronic means), or conduct related to one or more of the prohibited grounds that is known or ought reasonably to be known to be unwelcome/unwanted, offensive, intimidating, derogatory or hostile. This may include, but is not limited to: gestures, remarks, jokes, taunting, innuendo, display of offensive materials, offensive graffiti, threats, verbal or physical assault, stalking, slurs, shunning or exclusion related to the prohibited grounds.

For further information, a copy of the official policy statement can be obtained from the Student Association.

Violation of the Copyright Act
General – The Copyright Act makes it an offence to reproduce or distribute, in whatever format, any part of a publication without the prior written permission of the publisher. For complete details, see the Government of Canada website at http://laws.justice.gc.ca/en/C-42 . Make sure you give it due consideration, before deciding not to purchase a textbook or material required for your course.

Software Piracy - The Copyright Act has been updated to include software products. Be sure to carefully read the licensing agreement of any product you purchase or download, and understand the terms and conditions covering its use, installation and distribution (where applicable). Any infringement of licensing agreement makes you liable under the law.

Disruptive Behaviour is any conduct, or threatened conduct, that is disruptive to the learning process or that interferes with the well being of other members of the College community. It will not be tolerated. Members of the College community, both students and staff, have the right to learn and work in a secure and productive environment. The College will make every effort to protect that right. Incidents of disruptive behaviour must be reported in writing to the departmental Chair as quickly as possible. The Chair will hold a hearing to review available information and determine any sanctions that will be imposed. Disciplinary hearings can result in penalties ranging from a written warning to expulsion.

For further details, consult the Algonquin College Policies AA32, SA07 and IT01 in your Instaguide.

College Related Information

Algonquin College's policies have been developed to ensure the health, safety and security of all students, faculty and staff, and the proper and fair operation of the College as an academic institution and employer. Please refer to the Algonquin College Policies website for the most current policy information available at http://www.algonquincollege.com/policies/.

Students are especially encouraged to be aware of the following College expectations

Academic Integrity

Algonquin College is committed to the highest standards of academic integrity, and students are expected to uphold these standards as part of the learning process. Any academic work submitted by a student is expected to be their own work, unless designated otherwise and all sources must be attributed. All students should be familiar with the Algonquin College policy AA48: Academic Integrity . In some courses, online proctoring may be used to discourage cheating. Additional information can be found at https://www.algonquincollege.com/studentsupportservices/student-learning-kit/preparing-to-learn-online/. Students with any questions about the course expectations for academic dishonesty and plagiarism are encouraged to speak to their professor.

Centre for Accessible Learning

Students with visible and/or non-visible disabilities are encouraged to register with the Centre for Accessible Learning (CAL) in order to be eligible for appropriate learning supports and/or accommodations. Students are strongly encouraged to make an appointment at the Centre for Accessible Learning as early as possible when starting a program. Once your needs are identified, a Letter of Accommodation (LOA) will be issued which you can share with your professors. If you are a returning student, please ensure that professors are given a copy of your LOA each semester.

College Email

Students at Algonquin College are provided with a college email account. This is the address that will be used when the College, your professors, or your fellow students communicate important information about your program or course activities. Your network credentials can be found in the ACSIS portal and you are expected to check your Algonquin email regularly and to use it to send and receive college-related email. Support is available through the college Information Technology Service (ITS) at: https://www.algonquincollege.com/its/

Retroactive Accommodations

Students are expected to meet evaluation and completion deadlines as stated in course outline and course section information documents. In circumstances where evaluation and/or completion deadlines are missed or student performance has been affected by a temporary or permanent disability (including mental health), interim or retroactive accommodations may be considered. In such instances, please consult your course faculty member. For other situations where deferral of evaluations may be warranted, please consult Algonquin College Policy AA21: Deferred Evaluation.

Student Course Feedback

Algonquin College's invites students to share their course experience by completing a student course feedback survey for each course they take. For further details consult Algonquin College Policy AA25: Student Course Feedback.

Use of Mobile Devices in Class

With the proliferation of small, personal mobile devices used for communications and data storage, Algonquin College believes there is a need to address their use during classes and examinations. During classes, the use of such devices can be disruptive and disrespectful to others. During examinations, the use of such devices may facilitate cheating. For further details consult Algonquin College Policy AA32: Use of Mobile Devices in Class

Technology Requirements

As Algonquin College continues to respond to public health guidelines, many courses will be offered through remote delivery. As such, students will be required to have access to a computer and to the internet. There may also be additional technology-related resources required to participate in a course that are not included in the course materials fee, such as headphones, webcams, specialized software, etc. Details on these requirements can be found in the Course Section Information of the course outline for each course available on Brightspace.

Transfer of Credit

It is the student's responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.