



Certificate in Computers and Information Technology

Are you looking for a Career in Information Technology?

The Certificate in Computers and Information Technology is a program offered completely online. The program provides a solid foundation in the concepts and techniques required for effective planning, design and development of software applications and systems, Internet technologies, applied computer knowledge and networking. The program will help develop skills necessary to assume positions in the fields of information technology, technical support, Internet and web specialism, computer support consulting, and help desk analysis.

The online courses in the Computers and Information Technology program are offered in the evenings (6 pm – 9 pm). You can participate in the class from the comfort of your home or office using a web conferencing interface. This mode of delivery is very similar to videoconferencing, as used in the business world. The class takes place on defined schedule and requires students and course lecturer to be online at the same time. During the online class you will be able to see and hear the course lecturer in real-time, view and download course lecturer's presentation, ask questions and receive answers using the chat function, interact with fellow online students. In some cases, course lecturers enable online students' microphones allowing them to speak directly to the entire group. Sometimes you might be required to turn on your webcam during graded assessments to allow for course lecturer supervision. All course material is made available through myCourses, McGill's Learning Management System.

Whether you are working in accounting, banking, health care, real estate, marketing or any other industry, information technology is an ever growing field and the career possibilities are endless.

Typical career opportunities include:

- Software Engineer/Developer
- QA Analyst/Test Engineer
- Web Designer/Web Developer
- Software Support Analyst
- Systems Administrator/Web Master
- Computer Operations Support
- IT Business Analyst
- Network Administrator
- Technical Consultant/Support
- Database Administrator
- Database Analyst
- Customer Service Representative
- Helpdesk Technician
- Systems Engineer/Analyst
- IT Support Analyst
- Interface Development Engineer

How Can a McGill Program help prepare you for a career in Information Technology?

The Certificate in Computers and Information Technology focuses on the development of an in-depth understanding of the principles of information technology and its applications. It provides a solid foundation in the concepts and techniques required for the effective planning, design, and development of software applications and systems, Internet technologies, applied computer knowledge, and networking. The program is designed to develop the skills necessary to assume positions in the fields of technical support, software development and software infrastructure, web development, mobile application development, database administration and system administration.

The Program

The Certificate in Computers and Information Technology is a 30-credit program which consists of 10 required courses.

Courses can be taken in the Fall, Winter, Spring and Summer sessions. Classes in the Spring and Summer sessions may be given in less than 13 weeks. Not all courses are offered every semester.

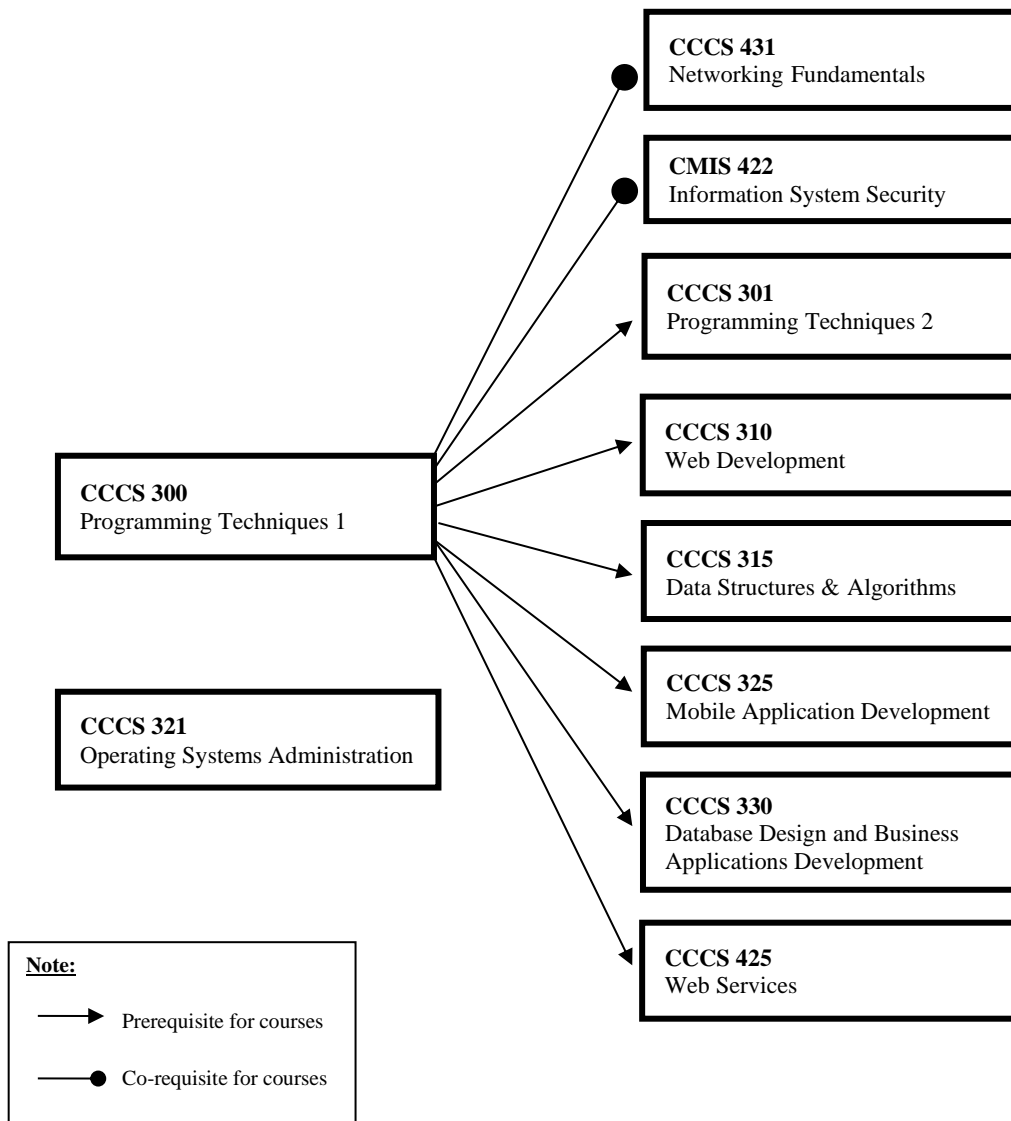
The certificate's program requirements are:

10 Required courses (30 credits):

CCCS 300 Programming Techniques 1
CCCS 301 Programming Techniques 2
CCCS 310 Web Development
CCCS 315 Data Structures & Algorithms
CCCS 321 Operating Systems Administration
CCCS 325 Mobile Application Development
CCCS 330 Database Design & Business Application Development
CCCS 425 Web Services
CCCS 431 Networking Fundamentals
CMIS 422 Information System Security

Course Sequence

Certificate in Computers and Information Technology



Course Descriptions

CCCS 300 Programming Techniques 1

(3 credits)

Co-requisite / Pre-requisite:
None

Fundamental programming techniques, concepts, and data structures, including modularization and maintainability. Emphasis on facilitating communication and understanding between systems analysts and programmers to support decision-making.

CCCS 301 Programming Techniques 2

(3 credits)

Pre-requisite:
CCCS 300

Object oriented design and programming techniques, including the creation of classes, the use of objects, inheritance, and other object oriented principles. Strong focus on problem solving techniques and ways in which programmers can support decision-making within an organization. Inheritance. Interfaces. Design patterns. Application development frameworks. Build automation tools.

CCCS 310 Web Development

(3 credits)

Pre-requisite:
CCCS 300

Development of web sites and web-based applications using page markup, style sheets, and client-side scripting. Emphasis will be placed on developing pages that support current standards and accessibility requirements, as well as multimedia, cross-platform development, and site deployment.

CCCS 315 Data Structures and Algorithms

(3 credits)

Pre-requisite:
CCCS 300

Programming techniques used to implement algorithms on computers with an object oriented programming language through the careful design of data structures which support the efficient manipulation of data.

CCCS 321 Operating Systems Administration

(3 credits)

Co-requisite / Pre-requisite:
None

Operating systems such as Windows and LINUX/UNIX environments, administration of computer servers, usage of script languages and in various operating systems, back up procedures and remote access, communication protocol used among different systems, managing information, and system security.

CCCS 325 Mobile Application Development

(3 credits)

Pre-requisite:
CCCS 300

Examines the limitations and technical challenges of current mobile devices and wireless communications by using up-to-date software development tools and application programming interfaces. Develop small realistic applications for mobile devices by using a standard software development environment.

CCCS 330 Database Design & Business App Development**(3 credits)**Pre-requisites:
CCCS 300

Design and implement applications that make use of different database management systems. Simple and complex Structured Query Language (SQL) used in manipulation of information, data design, querying, and programming. Connectivity to different databases through programming languages to implement web applications.

CCCS 425 Web Services**(3 credits)**Pre-requisite:
CCCS 300

Design, implementation and deployment of web services based solutions to solve common problems in the distributed application domain.

CCCS 431 Networking Fundamentals**(3 credits)**Co-requisite:
CCCS 300

Fundamental concepts and practices of network principles, technical and managerial aspects of data communications, overview of local area and wide-area networks, network topology, network protocols, Internet/intranet, client/server communication and file sharing.

CMIS 422 Information Systems Security**(3 credits)**Co-requisite:
CCCS 300

Fundamental concepts relating to the design of secure information systems. Identification and assessment of security risks and the application, network, and physical levels. Use of cryptography and other techniques to provide necessary level of security.

Admission Requirements

To be admitted to an Undergraduate Certificate in Computers and Information Technology:

- Applicants must hold a CEGEP diploma (DCS, DEC or equivalent) OR
- Applicants who do not have the normal academic background for admission but are 21 years of age and older may be admitted as mature students OR
- Applicants between 18 and 21 years of age who do not have a CEGEP diploma but have at least a high school leaving certificate may be accepted into a qualifying program (a copy of the certificate must be provided).

Admission Procedures

STEP 1: PREPARE

1. Choose the program (certificate, diploma, graduate certificate or graduate diploma) you would like to apply to.
2. Verify the **Application Deadlines** to ensure that you submit your application in time.
3. Ensure you have a valid email address and credit card on hand to pay for the application fee (Visa, Master Card or America Express).
4. From the **list of programs**, click on the program you would like to apply to.
5. Review the admission requirements for the program to ensure you meet the criteria.
6. Ensure you have all necessary documentations required for your application as indicated in the “Documents Required” section.

STEP 2: APPLY

1. Click “Apply Now” at the top of the program page or go to <https://mcgill.ca/x/4Um> and click “Apply Now”.
2. If you have a Login ID and PIN, enter them now, or if not, create one and log in.
3. Click on “Begin New”.
4. Enter the information requested and click “Continue”.
5. When asked, “What are you applying for at McGill?”, click on “Continuing Studies”.
6. On the next page, select the program you would like to apply to.
7. Complete the rest of the application with all required information and submit.
8. You will receive a confirmation email providing you with a McGill ID number and a PIN. Within 24-48 hours, you will be able to log in to **Minerva** (www.mcgill.ca/minerva).

STEP 3: UPLOAD SUPPORTING DOCUMENTS

Once you have access to Minerva, upload your supporting documentation as per the admission requirements of your chosen program.

- Uploading your documents will speed up your application process and is strongly recommended.
- For instructions on how to proceed, please go to: <https://mcgill.ca/continuingstudies/legal-documents>.

(If you are unable to upload the documents, you can send them by regular mail or bring them in person to our Client Services office at the address below).

- **Sending official transcripts: All transcripts received via the upload process are considered unofficial.** If transcripts are required for your application, you will also need to have any official transcripts sent directly to McGill University by mail, in a sealed envelope by the educational institution(s) where you studied.

STEP 4: VERIFY ADMISSION STATUS

Once a decision has been made, admitted students will receive a “Letter of Admission” along with registration instructions.

Difficulty Applying Online?

If you have any problems with your online application, or if you have questions regarding admission requirement and procedures, contact Client Services (<https://www.mcgill.ca/continuingstudies/client-services>).

Helpful Tips for Applying

What is an Official Transcript?

If you have studied at an institution:

- In Canada or the United States – you will need to request a copy of your official transcripts (your marks) from that institution which the institution will mail to the address below in a sealed envelope with the official institution’s logo.
 - Outside of Canada or the United States, - you will need to request a copy of your official transcripts (your marks) from that institution which the institution will mail to the address below in a sealed envelope with the official institution’s logo.
 - **Note:** In cases where the language of instruction at the institution is not English or French, you must also send an official translation of the official transcript certified by a representative from the **Ordre des traducteurs, terminologues et interprètes agréés du Québec (OTTIAQ - <http://ottiaq.org/>)**.
- You need to request **official transcripts** as soon as possible once your application has been submitted to the School of Continuing Studies. Your Educational Institution must then mail these directly to the appropriate office below:

Client Services c/o Admissions

McGill University – School of Continuing Studies
688 Sherbrooke Street West, Room 1125
Montreal, QC H3A 3R1
Canada

- **Important:** You must make sure you apply by the application deadline. However, if you have any outstanding supporting documents at the time of your application, you may upload them as they become available or forward them directly to the School of Continuing Studies as soon as possible. Your admission application will only be completed once the University has received all of the required documents.
- **Note:** All required documents received by McGill University’s School of Continuing Studies become the property of the university. Official documents and/or transcripts will not be returned to the applicant.
- **Note:** Transcripts received by McGill University’s School of Continuing Studies cannot be transferred to any other department or program as it would constitute submitting a new application. Therefore, you must submit a new sealed envelope of your official transcripts for each application made to McGill University’s School of Continuing Studies.

Language Requirements

- The **language of instruction** for most courses and programs at McGill University is English; however, students may submit any written work that is to be graded in English or French, except in cases where knowledge of the language is one of the objectives of the course.
- Applicants must demonstrate an adequate level of **proficiency in English prior to admission**, regardless of citizenship status or country of origin. McGill University has this language requirement in place to ensure that all students are provided with the opportunity to succeed in their chosen program.
- In all cases, the University reserves the right to require **proof of English** proficiency if it is deemed necessary. For additional information, please click on the link below.

<https://www.mcgill.ca/continuingstudies/language-policy>

Exemption by Examination

Students admitted to a Certificate, Diploma, Graduate Certificate or Graduate Diploma program requiring a pre-requisite or co-requisite course, must provide proof that they have taken and successfully passed an equivalent 3-credit course, with the requisite grade as per McGill University's requirements, at the appropriate level at another approved institution or have successfully completed the Exemption by Examination test.

- The Exemption by Examination test is **not applicable to required or complementary course(s)** within a program.
- You cannot take the Exemption by Examination test if you have already attempted the course (a grade of W is considered as have attempted the course).
- If you are unsuccessful in the Exemption by Examination test(s) you will not be permitted to repeat the test(s) and must instead enroll in the course(s) for which the particular test(s) was taken.

To be eligible to write the Exemption by Examination test, you must have applied to or been admitted into a program. (The test is optional).

For more information visit: <https://www.mcgill.ca/continuingstudies/recognition-prior-learning>

Student Awards and Financial Aid

McGill University's School of Continuing Studies Bursaries

The School of Continuing Studies will post the application form and eligibility requirements for the active term on its website. Please refer to link below for further information.

<https://www.mcgill.ca/continuingstudies/student-awards-and-financial-aid>

McGill University's School of Continuing Studies Scholarships

For a list of McGill University Scholarships, please consult McGill University's School of Continuing Studies website by clicking on the link below.

<https://www.mcgill.ca/continuingstudies/student-awards-and-financial-aid>

McGill University's School of Continuing Studies Graduating Prizes

For a list of McGill SCS Graduating Prizes, please consult McGill University's School of Continuing Studies website by clicking on the link below.

<https://www.mcgill.ca/continuingstudies/graduating-students>

Aide financière aux études (AFE)

As a credit-bearing program, this program is eligible for financial aid through the Quebec Government.

<https://www.quebec.ca/education/aide-financiere-aux-etudes/>

Note: The amount and number of McGill University's School of Continuing Studies Bursaries, Scholarships, and Graduating Prizes issued varies from year to year, depending on funds received and their specifications.

Contact

McGill University
School of Continuing Studies

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Montreal, QC, H3A 3R1

Program information

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