COMPUTER SYSTEMS TECHNICIAN - NETWORKING

Program Outline

Major: CSTN
Length: 2 Years
Delivery: 4 Semesters, plus 2 work terms
Credential: Ontario College Diploma, Co-op
Effective: 2015-2016
Location: Barrie
Start: Fall (Barrie), Winter (Barrie)

Description

As students progress through this program, the courses they take focus on networking, operating systems, system administration, virtualization, and security. These five core areas apply to new and the maintenance or expansion of existing computer networks.

This program is designed to meet the academic needs of all students. A structured approach to problem solving, effective oral and written communications, and attention to standards and documentation is stressed throughout.

As an official Cisco Networking Academy partner, certified instructors assist students preparing for industry recognized certifications such as the Cisco Certified Network Associate (CCNA) Routing & Switching. Industry trends and requirements are continually monitored to ensure curriculum remains current and relevant.

Career Opportunities

Graduates will be prepared to work independently or as a member of a team to support the development, implementation, and maintenance of computer systems and networks. Graduates with networking interests/skills generally find employment as data communications and network technical support specialists or network administrators;

while graduates with hardware interests/skills generally find employment as computer operations specialists in many types of businesses and government.

Program Learning Outcomes

The graduate has reliably demonstrated the ability to:

- communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience;
- interact with others in groups and teams, use critical thinking skills to evaluate and solve problems, communicate confidently in a variety of situations, and demonstrate technological fluency;
- analyze and resolve basic information technology problems through the application of systematic approaches;
- support the analysis, planning, design, development, and implementation of computer systems and networks;
- install, configure, troubleshoot, maintain, and upgrade components of computer systems and networks;
- complete all work in compliance with relevant policies, practices, processes and procedures;
- participate as an effective individual and member of a team;
- interpret, produce, and present work-related documents and information effectively and accurately;
- identify and implement strategies to improve job performance and promote personal and professional growth;
- utilize effective communication and interpersonal skills. employ generic skills for personal and professional growth;
- examine organizational behaviour and group dynamics within a technology team. discuss ethical issues within a multicultural and global business environment;
- participate in society as an informed citizen and pursue an enriched professional and personal life through life-long learning;
- describe technologies and techniques that can be used to reduce the impact of information technology on the environment.

Practical Experience:

Co-operative Education is a mandatory component of all Co-op programs at Georgian College; it has been designed as a process by which students integrate their academic education with work experience related to their programs of study. This integration affects much more than simply earning a salary, including the adjustment to the work environment and the development of professionalism. It also reinforces skills and theory learned during academic semesters, develops professional contacts, job knowledge and career path, improves human relations and communication skills, and promotes personal maturity and financial independence.

Students are requested to register, attend and participate in their scheduled co-operative education classes. These classes are scheduled for all first year students and are expected to be completed in order for students to proceed successfully to their first co-op work experiences. To ensure students are eligible to proceed onto any co-op work experience, students should refer to Promotional Status and Eligibility for Co-op as outlined in the College Calendar. Co-op policies and procedures can be located on our website: www.georgiancollege.ca/student-services/co-op-and-career-services/students-tab/

Georgian College follows the Co-operative Education guidelines set out by the Canadian Association for Co-operative Education (CAFCE) and Education at Work Ontario (EWO) by supporting the learning outcomes designed for the program specific graduate profile and curriculum as set out by the Ministry of Training, Colleges and Universities.

The Program Progression:
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Fall Intake - Barrie

Sem 1 | Sem 2  | Work Term 1 | Sem 3 | Work Term 2 | Sem 4
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Fall  | Winter | Summer      | Fall  | Winter      | Summer
2015  | 2016   | 2016        | 2016  | 2017        | 2017

Winter Intake - Barrie

Sem 1  | Sem 2  | Work Term 1 | Sem 3  | Sem 4   | Work Term 2
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Winter | Summer | Fall        | Winter | Summer  | Fall
2016   | 2016   | 2016        | 2017   | 2017    | 2017
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Articulation:
A number of articulation agreements have been negotiated with universities and other institutions across Canada, North America and internationally. These agreements are assessed, revised and updated on a regular basis. Please contact the program co-ordinator for specific details if you are interested in pursuing such an option. Additional information can be found on our website at http://www.georgiancollege.ca/admissions/credit-transfer/

Admission Requirements:
OSSD or equivalent with
- Grade 12 English (C or U)
- any Grade 12 Mathematics (C or U)

Mature students, non-secondary school applicants (19 years or older), and home school applicants may also be considered for admission. Eligibility may be met by applicants

who have taken equivalent courses, upgrading, completed their GED, and equivalency testing. For complete details refer to: www.georgiancollege.ca/admissions/policies-procedures/

Applicants who have taken courses from a recognized and accredited post-secondary institution and/or have relevant life/learning experience may also be considered for admission; refer to the Credit Transfer Centre website for details: www.georgiancollege.ca/admissions/credit-transfer/

Additional Information:
To be successful in this program, you are required to have a personal notebook computer (either PC or Mac architecture) prior to the start of the program that meets or exceeds the following hardware specifications:
- Intel I5 processor or AMD equivalent
- 4GB of memory (8GB recommended)
- 250GB hard drive

Additional operating systems, tools, and software used in the program will be provided to the student upon commencement of the program.

Graduation Requirements:
18 Mandatory Courses
2 Communications Courses
1 Optional Course
3 General Education Courses
2 Co-op Work Terms

Graduation Eligibility:
To graduate from this program, the passing weighted average for promotion through each semester, from year to year, and to graduate is 60%. Additionally, a student must attain a minimum of 50% or a letter grade of P (Pass) or S (Satisfactory) in each course in each semester unless otherwise stated on the course outline.

Mandatory Courses
COMP1035   Networking Essentials
COMP1046   Windows System Administration
COMP1070   Computer Hardware and Virtualization

COMP1071   Linux Network Administration
COMP1086   Routing and Switching Essentials
COMP2017   Windows Server Administration
COMP2018   Linux System Administration
COMP2020   Windows Network Administration
COMP2057   Wide Area Networks
COMP2071   Enterprise Technical Support
COMP2072   Network Design
COMP2078   Emerging Technology and Innovation
COMP2101   Administrative Scripting
COMP2102   Windows Service Administration
COMP2103   Introduction to Information Security
COMP2122   Scaling Networks
MATH1003   Math for the Computer Industry
MGMT2008   Project Management for Information Technology

Communications Courses
To be selected at time of registration from the College list, as determined by testing.

Optional Course
To be selected from College list

General Education Courses
To be selected from College list

Co-op Work Terms
COOP1007   Computer Systems Technician Work Term 1
COOP2004   Computer Systems Technician Work Term 2

Course Descriptions:
COMP1035 Networking Essentials   42.0 Hours
Network systems interconnect computer related resources, services and users. This course provides the student with a fundamental knowledge of networking concepts and technologies. There is a strong emphasis on terminology, protocols, error detection/correction and network security. This course assists in developing the necessary skills to plan and implement small networks across a range of applications.

COMP1046 Windows System Administration   42.0 Hours

The Windows operating system is the most widely deployed desktop operating system. This course focuses on the principles of workstation administration by teaching students how to deploy, configure, and troubleshoot a Windows System. By the end of this course students will be expected to demonstrate the ability to manage a Windows computer system.

COMP1070 Computer Hardware and Virtualization   42.0 Hours
Virtualization allows systems engineers to leverage information technology (IT) resources by running multiple instances of different operating systems on a single hardware device. This course teaches students how to install, configure, and troubleshoot both workstations and server hardware as well as prepare, deploy, and maintain virtual machines. Upon completion of this course students will be able to install, configure, and manage both the hardware and software components of a virtual infrastructure.

COMP1071 Linux Network Administration   42.0 Hours
Linux network servers are commonly found all over the Internet. This course teaches the student how to install, configure, and manage network services using the Linux operating system. Students will gain experience in configuring services such as Domain Name Service (DNS), email, database, and web.

COMP1086 Routing and Switching Essentials   42.0 Hours
This course introduces the student to the concept of basic switching concepts and configuration, Virtual Local Area Networks (VLAN), static and dynamic routing concepts. A student will learn the skills and hands-on experience needed to design, install, operate, and maintain networks in small to medium-sized businesses, as well as enterprise and service provider environments.
P- COMP1035 Networking Essentials

COMP2017 Windows Server Administration   42.0 Hours
Windows servers provide applications and services that manage a network. This course examines the implementation of these services in a networked environment, and teaches students how to install, configure, and manage common services such as such as Dynamic Host Configuration Protocol (DHCP), Domain Name Service (DNS), and file and print services.

COMP2018 Linux System Administration   42.0 Hours
The Linux operating system is commonly found powering Internet and network servers. This course explores different ways that Linux can be deployed within an organization. With a strong emphasis on command line administration, students will learn how to manage user accounts, file systems, and processes while gaining hands-on experience installing, configuring, and administering a Linux system.

COMP2020 Windows Network Administration   42.0 Hours

Windows servers provide applications and services that manage a network. This course examines the implementation of these services in a networked environment, and teaches students how to install, configure, and manage common services such as such as Dynamic Host Configuration Protocol (DHCP), Domain Name Service (DNS), and file and print services.

COMP2057 Wide Area Networks   42.0 Hours
Wide Area Networks (WAN) facilitate the transmission of data across large geographic areas. Students will learn how to select appropriate technologies, services, and devices to meet the changing business requirements of an evolving enterprise. This course examines several technologies and their configuration techniques.
P- COMP2056 Network Planning or P- COMP1038 Networking Essentials 1 or P- CSC2294 Windows Server or P- CSC2291 Data Communications-Networking or P- COMP1035 Networking Essentials or P- COMP3009 Computer Networks

COMP2071 Enterprise Technical Support   42.0 Hours
Information Technology professionals are expected to support users as well as troubleshoot and resolve common system issues. This course examines the roles of first and second level IT technical support. Students will explore common network management tools while learning how to problem solve, resolve technical issues, and support users.

COMP2072 Network Design   42.0 Hours
This course prepares the student to analyze network infrastructure requirements and to design and implement the infrastructure for business solutions. Implementation responsibilities include installing, configuring, and troubleshooting network systems.

COMP2078 Emerging Technology and Innovation   42.0 Hours
Technology is rapidly changing and evolving. An IT professional must be able to identify the potential benefits of new technology and determine the feasibility of implementation into a given system. Students will learn to research and apply new and/or innovative technologies which are being integrated into the Information Technology environment. This course will provide students with the opportunity to investigate trends and examine the potential impact of the technology.

COMP2101 Administrative Scripting   42.0 Hours
Scripts are used to automate common network administration tasks. This course introduces students to both Windows and Linux administrative scripting languages. Students will write scripts that perform administrative tasks such as manage the user environment, automate routines, and configure system settings.

COMP2102 Windows Service Administration   42.0 Hours
Businesses rely on interconnected productivity and content services. This course examines the application of common Microsoft business technologies to enhance

collaboration and communications exchange. Students will gain experience installing, configuring, and managing common services such as remote access, file, and web services through a series of applied assignments.

COMP2103 Introduction to Information Security   42.0 Hours
Information Technology systems need to ensure the confidentiality, integrity, and availability of information. This course introduces students the principles of network and operating system security through hands-on exploration. Students learn how to harden an operating system as well as secure the network by implementing technologies such as firewalls, Virtual Private Networks (VPN), and Intrusion Detection Systems (IDS).

COMP2122 Scaling Networks   42.0 Hours
This course introduces the student to the architecture, components, and operations of routers and switches in a large and complex network. A student will learn the skills and hands-on experience needed to configure and troubleshoot routers and switches and resolve common issues with Open Shortest Path First (OSPF), Enhanced Interior Gateway Protocol (EIGRP), Spanning Tree Protocol (STP) and Virtual Local Area Network Trunking Protocol (VTP) in both Internet Protocol (IP)v4 and IPv6 networks.

COOP1007 Computer Systems Technician Work Term 1   560.0 Hours
Co-operative Education is a mandatory component of all Co-op programs at Georgian College. Students are required to attend and participate in their scheduled semester co-op classes CPHR 0001 (12 sessions) in order to proceed successfully to their first co-op work experience.

COOP2004 Computer Systems Technician Work Term 2   560.0 Hours
After completion of co-op work experience 1, students are required to attend a scheduled debriefing session. This session will be scheduled in the first month for all returning co-op students and is intended to prepare students for work term 2. This session will also allow the student to validate and submit supporting documentation for work term1 credit. This must be achieved before proceeding to co-op work experience 2 and graduating with a two year Computer Systems Technician Diploma.
P- COOP1007 Computer Systems Technician Work Term 1

MATH1003 Math for the Computer Industry   42.0 Hours
This course provides students with the practical knowledge and skills in the use of mathematics in relation to computers. Alternate number bases, set theory, logic, and Boolean algebra are the foundation of this course. In addition, students use basic statistical concepts to understand challenges in information technology.

MGMT2008 Project Management for Information Technology   42.0 Hours
This course introduces the fundamental principles necessary for successful management of Information Technology (IT) projects. Project planning, management and control

techniques will be discussed and the application of computers in project management will be studied.

Course Description Legend
P = Prerequisite; C = Concurrent prerequisite; CO= Corequisite

Information contained in College documents respecting programs is correct at the time of publication. Academic content of programs and courses is revised on an ongoing basis to ensure relevance to changing educational objectives and employment market needs. The college reserves the right to add or delete programs, options, courses, timetables or campus locations subject to sufficient enrolment, and the availability of courses.