

## Computer Programmer Analyst

A Three-Year Ontario College Advanced Co-operative Education Endorsed Diploma

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### The Program

As well as providing students with in-depth training in specific areas of commercial software development, each semester of this program one or more key employable skills is emphasized such as communications, positive attitudes, responsibility, adaptability and working with others.

### The Content

In this laptop-required program, there is an emphasis on the object-oriented development of Linux and Windows-based, client/server systems. Students also study Java, ASP.NET, C++ with components, Internet and Web technologies. There is also training in analysis, design and development of business applications, database design and development and network delivery systems including Internet/Intranet.

### Outcomes

Students graduate to work as software developers, programmers, web developers, database designers and software designers.

### Skill Levels

#### Level One

- Trace network operations and routing
- Describe the overall structure of computer hardware
- Use and install computer operating systems, including fundamental configuration
- Build relational databases and manipulate data with SQL
- Create computer programs using object-oriented tools and techniques with Java
- Understand essential business processes, marketing and commerce
- Research and effectively compose written documents
- Design and create web pages including simple web animations
- Find and correct basic programming and logic errors

#### Level Two

- Analyze standard Canadian business process as they relate to technology
- Developing ASP.NET programs with C#
- Build client/server applications over the web
- Code graphical programs with the .NET framework
- Integrate databases with applications using stored SQL procedures
- Apply detailed knowledge of how numbers and information are stored and manipulated at the CPU level
- Code solutions to real problems through analysis, modeling and simulation
- Build programs that access data through XML
- Determine appropriate algorithms for given complex data structures
- Create programs that produce 3D DirectX graphics

#### Level Three

- Building secure n-tiered web applications
- Integrate programs of different sources using components
- Manage substantial projects from end to end
- Identify and take advantage of known software patterns
- Build interactive, three dimensional animated graphical programs
- Design software solutions that leverage multiple processors and inter-process communications

### Co-op Progression:

September Intake			
	Sep-Dec	Jan-Apr	May-Aug
Year 1	Acad. 1	Acad. 2	Off
Year 2	Acad. 3	Work 1	Acad. 4
Year 3	Work 2	Acad. 5	Work 3
Year 4	Acad. 6		

## Course Outline

For the official Degree Audit, please see Registrar's Office

### Level 1 – Take all of the following Mandatory Courses

BUSI-1060	Strategies for Success
INFO-1135	Networking Fundamentals - CCNA
INFO-1150	Programming Fundamentals
INFO-1119	Operating Systems/Hardware Fund
INFO-1120	Database Fundamentals
WRIT-1043 OR WRIT-1034	Reason & Writing I

### Level 2 – Take all of the following Mandatory Courses

INFO-1167	Business at the Speed of Light
INFO-1148	Web Design
INFO-3061	Object Oriented Prog with Java
INFO-3104	Relational Databases & SQL
INFO-1156	Object Oriented Prog with C++
MGMT-3052	Understanding Workplace Behaviours

### Level 3 – Take all of the following Mandatory Courses

INFO-3070	Client/Server App Development
INFO-5052	Advanced Databases
INFO-5055	OO Analysis & Modeling
MATH-3045	Mathematics of Computing
COMM-3047	Communication for IT Professionals
COOP-1020	Co-op Ed Employment Prep

### Level 4 – Take all of the following Mandatory Courses

INFO-3067	ASP.NET Programming with C#
INFO-3109	Patterns in Software I
INFO-3110	Programming with XML
INFO-5051	Java - Adv
MGMT-3036	Prof Development – Career Planning
INFO-3105	System Z Cobol Programming
OR	
INFO-3111	C++ Graphics Programming

### Level 5 – Take all of the following Mandatory Courses

Gen Ed – Take a 3 credit Gen. Ed. elective course	
INFO-3069	Web Applications & Technologies
INFO-3112	Managing Software Projects – Applied I
INFO-5060	Component-based Prog with .NET
INFO-5100	Patterns in Software II
INFO-5101	C# Advanced Topics
INFO-5102	GUI Development

### Level 6 – Take all of the following Mandatory Courses

Gen Ed – Take a 3 credit Gen. Ed. elective course	
INFO-3068	Secure Computing
INFO-3097	Mobile Development
INFO-5059	Java EE Client/Server Applications
INFO-5103	Managing Software Projects – App II
INFO-5104	C++ Advanced Topics

### Requirements:

- Take two 3-credit General Education (Gen.Ed.) elective Courses
- Program Residency

Students must complete a minimum of 30 credits in this program at Fanshawe College to meet the Program Residency requirement and graduate from this program.

### Why Should You Hire a Co-operative Education Student?

Many employers feel today's graduates have no concept of the "real" world of work; we are providing this experience in Co-operative Education. Any job that gives the student related background in your business would be suitable.

Eligible employers can claim a tax credit for each qualifying work placement for up to \$3000.

Co-operative Education students are ultimately looking ahead to careers in businesses such as yours. For this reason they are not expecting to simply put in time on the job, but are eager to get involved and make a worthwhile contribution. Participation in co-operative education also gives the employer the opportunity to try out a student's capabilities without obligation or commitment to permanent employment.

This work oriented educational system integrates classroom study and paid, on-the-job work experience, by alternating periods in College with periods of employment by co-operating organizations.

The work terms are spaced out through the academic program and students will be at various academic levels in successive work terms. The working experience will ideally increase in difficulty and responsibility as the student progresses academically. However, the College realizes it is often difficult in practice to do this.

It is essential that the work experience be a normal one; that the student be treated like a regular company employee so that a realistic picture of the working environment in that field may be obtained. Perhaps most important is what students gain from the working experience, i.e. an attitude for success and the ability to get along with co-workers at all levels.

