Computer Programmer Analyst

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

1001 Fanshawe College Blvd. – Room D1063
London, ON N5Y 5R6
Phone: 519-452-4294    Fax: 519-452-4572
coop@fanshawec.ca

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:

<table>
<thead>
<tr>
<th>September Intake</th>
<th>Sep-Dec</th>
<th>Jan-Apr</th>
<th>May-Aug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Acad. 1</td>
<td>Acad. 2</td>
<td>Off</td>
</tr>
<tr>
<td>Year 2</td>
<td>Acad. 3</td>
<td>Work 1</td>
<td>Acad. 4</td>
</tr>
<tr>
<td>Year 3</td>
<td>Work 2</td>
<td>Acad. 5</td>
<td>Work 3</td>
</tr>
<tr>
<td>Year 4</td>
<td>Acad. 6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

Visit fanshawec.ca/coop