

INFO300 - Client/Server Application Development I This course allows the student to learn how client/server applications are designed, implemented and managed. Projects use Microsoft's Visual Basic professional in a Windows NT environment with Microsoft's SQL Server allowing students the opportunity to develop realistic business programs.

INFO311 - Systems Analysis and Design This course emphasizes using the systems development life cycle in systems analysis and design. Various design methodologies are discussed. Theory is put into practice through groups of students developing complete design specifications for a project that they will implement in the fourth term, Advanced Application Development (INFO400).

INFO325 - Object-Oriented Methodologies This course emphasizes both the theoretical and practical aspects of object oriented design and implementation. Specific areas of study include object database concepts and object design using BOOCH methodologies.

INFO361 - Intermediate C++/Java This course focuses on using object-oriented software construction techniques to develop concepts in data structures and graphics programming with OpenGL. Object concepts are reinforced with studies and exercises in Java.

INFO370 - Microsoft Foundation Classes (MFC) This course introduces the student to the Microsoft Foundation Classes as a tool for application development within a WIN32 environment. Students will have an opportunity to create practical GUI based applications using only Microsoft Visual C++ and MFC.

INFO400 - Advanced Application Development This course enhances the student's ability to develop object oriented application software using Visual Basic as the implementation language. Advanced programming practices are emphasized as students implement a major software application.

INFO410 - Database Deployment and Administration This course is an introduction to database deployment and administration with an emphasis on Oracle databases. This course gives the student the opportunity to study advanced database issues. This course will provide the student with a good foundation should they desire to attempt to write the DBA certification exams offered by Oracle.

INFO420 - Network Management This course enables the student to develop and implement an application using Microsoft's Distributed Network Architecture. Various network components will be covered, including: Active Server Pages; Microsoft Internet Information Server and Microsoft SQL Server; Microsoft Transaction Server; Collaborative Data Objects; Active-x Data Objects.

INFO440 - Project Management Introduces the student to the practices and techniques of software project management. These methods provide a systematic approach to software development, beginning with the initial planning stages and ending with the delivery of the final software product. Working in small groups the students will put theory into practice by applying these techniques to a series of projects which are geared toward team solutions.

INFO460 - Advanced C++ This course examines selected topics in advanced software construction and programming techniques. Topics will include complex algorithms, 3D graphics using OpenGL, performance tuning using C/C++.

INFO500 - System Design This course is a practical seminar in which the student will participate in group design projects to be completed in the course INFO600, System Implementation.

INFO510 - Component Object Model I The student will be able to design applications using ActiveX, COM, CORBA or JavaBean objects. They will be able to implement applications in Java, Visual Basic and Visual C++ that use COM, CORBA or JavaBean objects. The student will be able to implement simple COM objects in Visual Basic and Visual C++.

INFO520 - Client-Server Development The student will be able to design client-server applications using Visual Basic and Visual C++. The student will be able to optimize these applications for performance issues and security.

INFO530 - Rapid Application Development The student will be able to apply the techniques of 'Rapid Application Development' (RAD) to quickly develop applications without sacrificing quality. The student will be able to employ RAD and CASE tools such as Visual Basic Enterprise and Visual Modeler.

INFO540 - OOD Using UML The student will be able to use Unified Modeling Language and C++ to clarify the basic concepts associated with OO technology; to expose some of the myths surrounding OO technology while focusing on its practicality as a software engineering tool; to provide a step-by-step guide to develop an OO solution; and to provide a practical approach to design and programming in the OO technology.

INFO600 - System Implementation The student will be able to develop an application that uses object technologies and networking in the delivery of a group project that was designed in INFO500.

INFO610 - Component Object Model II The student will be able to design applications using COM, CORBA, or JavaBean objects; to implement applications in Java, Visual Basic and Visual C++ that use COM, CORBA or JavaBean objects; and be able to implement complex COM objects in Visual Basic and Visual C++ or JavaBean and CORBA objects in Java.

INFO620 - Software Testing and Reliability The student will be able to examine in detail the relationships between design, pre- and post-conditions, assertions, exception handling, testing, and over-all software quality. The student will be able to apply this knowledge to the design and development of safe and reliable software systems.

INFO630 - Managing Large Software Projects The student will be able to understand and adapt to the differences between small and large-scale development of software systems from the perspective of both management and programmer/analysts. Project scheduling, metering, and development team dynamics will be employed by these students.

INFO640 - DirectX The student will be able to design and develop interactive applications using DirectX or "Fahrenheit". The student will be able to produce an interactive graphical application; to utilize alternate input devices; to utilize alternate output technologies (sound, video); and be able to utilize networking for multi-user interaction.

MATH290 - Mathematics of Computing Provides the student with the mathematics foundation required for scientific and engineering programming. Topics will include Boolean algebra, statistics, trigonometry, number systems, and matrix/vector algebra. An emphasis will be placed on practical applications within computing systems.

MNMT190 - Professional Development I Helps students establish a solid foundation for individual adjustment and effective social

functioning. Emphasis will be on the psychological dimensions of communication, factors influencing interpersonal relations, and personal growth and development.

MNMT290 - Professional Development II Using both an academic and experiential approach, students will (a) be introduced to both the theory and research findings needed to understand what makes groups effective and (b) develop the skills required to apply that knowledge in practical situations.

MNMT390 - Professional Development III Today's business environment, and particularly IT is clearly client-oriented. This course helps the student to learn the skills required to be effective. Quality concepts, interview techniques, questionnaire development, presentation, political, and persuasion skills will be developed.

MNMT490 - Professional Development IV This course introduces the student to the role of the Human Resource function in an organization. It will detail the various activities i.e. job analysis, job description, recruitment, selection, orientation, training, compensation, benefits, labour relations legislation, HR issues, etc. These will be explored from the perspective of both the employer and the employee. The employment contract will be explored as it impacts the IT environment.

Application Procedure

In order to apply for admission to this program an applicant must complete an "Application for Admission to Ontario Colleges of Applied Arts and Technology" form and submit this form to the:

Ontario College Application Service
P.O. Box 810, Guelph, Ontario, N1H 6M4
1-888-892-2228

Application Forms and Applicant Guidebooks are available at Ontario Secondary Schools, at Ontario Colleges of Applied Arts and Technology and at the Ontario College Application Service office.

Admission to the College

Complete information concerning admission to programs at Fanshawe College may be found in the Central Admission Publication located in Registrar and Student Awards Services, Fanshawe College.

The College reserves the right to make changes in the information in this brochure without prior notice.

The College reserves the right to cancel a program, a program major or option, or a course, and to change the location and term in which programs/courses are offered because of insufficient registrations or for other budgetary reasons.

This brochure is available in alternative formats, upon request, for persons with disabilities.

For further information on admission and registration, contact:
Registrar and Student Awards Services, (519) 452-4277

For further specific program information, contact:
Information Technology Division, (519) 452-4291

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Printed in Canada 9908

Fanshawe

COLLEGE

Computer Programmer Analyst



FANSHAWE
COLLEGE

Community Driven . . .
Student Focused

Computer Programmer Analyst

A Co-Operative Education Program (Optional)
A Three Year Diploma Program
Program Code: CPA2 Campus Code: LC
September/January Admission

The Computer Programmer Analyst program is a three year diploma program that is designed to provide the students with in-depth training in specific areas of commercial software development. An emphasis is placed on the object-oriented development of Windows-based client/server systems. Current object-oriented and RAD methodologies will be utilized to produce reliable systems combining Microsoft Visual Basic, Visual C++ with COM and Internet technologies. Students will be provided with a solid training in the design and development of business applications by studying current programming languages, and database design and development methods. Students will then integrate these programs with different types of network delivery systems including Internet/ Intranet systems. Financial, manufacturing, wholesale, retail, and service sector business cases are used to give the student a fundamental knowledge of these systems.

Career Opportunities

Graduates can expect to obtain software construction positions in the following development areas: entertainment and games, simulations, medical imaging, programming control systems, commercial applications, network software, ActiveX technologies and Microsoft applications. As a programmer or business analyst, you will have many exciting opportunities in any field that uses computers as a business or research tool.

CPA21	Level 1	Hrs/Wk
COPT151	Computer Applications Level I	3.0
FINA160	Financial Systems	3.0
INFO101	Introductory Visual Basic	3.0
INFO110	Exploring Database Concepts with Access	4.0
INFO120	Information Technology in Business	3.0
INFO140	Software Construction	4.0
MNMT190	Professional Development I	3.0

CPA22	Level 2	Hrs/Wk
INFO200	Intermediate Visual Basic	4.0
INFO210	Designing Databases for Business	4.0
INFO220	Local Area Networks	3.0
INFO230	Hardware and Operating Systems	3.0
INFO261	Introductory C++/Java	4.0
MATH290	Mathematics of Computing	3.0
MNMT290	Professional Development II	3.0

CPA23	Level 3	Hrs/Wk
INFO300	Client/Server Application Development	4.0
INFO311	Systems Analysis and Design	3.0
INFO325	Object-Oriented Methodologies	3.0
INFO361	Intermediate C++/Java	4.0

INFO370	Microsoft Found Classes (MFC)	4.0
MNMT390	Professional Development III	3.0

CPA24	Level 4	Hrs/Wk
ENGL240	Communication for Systems Analysts	3.0
INFO400	Advanced Application Development	3.0
INFO410	Database Deployment and Administration	3.0
INFO420	Network Management	3.0
INFO440	Project Management	3.0
INFO460	Advanced C++	4.0
MNMT490	Professional Development IV	3.0

CPA25	Level 5	Hrs/Wk
INFO500	System Design	3.0
INFO510	Component Object Model I	4.0
INFO520	Client-Server Development	4.0
INFO530	Rapid Application Development	3.0
INFO540	OOD Using UML	3.0

CPA26	Level 6	Hrs/Wk
INFO600	System Implementation	3.0
INFO610	Component Object Model II	4.0
INFO620	Software Testing and Reliability	3.0
INFO630	Managing Large Software Projects	3.0
INFO640	DirectX	4.0

Program Eligibility Criteria Required Academic Preparation

OSSD with courses at the General Level with:

- Grade 12 English
- Grade 12 Mathematics*

Or

BTSD-Level 4 Certificate

Or

Ontario High School Equivalency Certificate (GED) and:

- Grade 12 Mathematics*

Or

Mature Applicant with standing in the required courses stated above

Notes:

1. *The following mathematics courses meet the entrance requirements:
 - Grade 12 Mathematics for Business and Consumers
 - Grade 12 Mathematics for Technology
 - Grade 12 Mathematics, Advanced
 - OAC Finite Mathematics
2. Applicants who do not have standing in Grade 12 Mathematics may still gain eligibility for admission by completing the pre-admission mathematics testing and upgrading offered by Fanshawe College.

Recommended Academic Preparation

- Grade 12 English, Advanced
- Grade 11 or Grade 12 Computer Studies courses
- Grade 11 or Grade 12 Business Studies courses

Applicant Selection Criteria

Where the number of eligible applicants exceeds the available spaces in the program, the Applicant Selection Criteria will be:

- A. Preference for Permanent Residents of Ontario.
- B. Receipt of Application by February 1st.
- C. Achievement in the required academic preparation.
- D. Achievement in the recommended academic preparation.

Other Information

- Graduates from this program may be eligible for advanced standing admission to the three-year Bachelor of Commerce (Computing and Information Systems) program at the University of Western Sydney, Australia.
- Students entering the program in the Fall Term will continue in the program in the Winter Term. Students entering the program in the Winter Term will continue in the program in the Summer Term.
- It is strongly recommended that students have access to or own a computer having the following minimum configuration: Pentium 300, 64 MG RAM, 6.0 gigabyte hard drive, CD ROM or DVD drive, 16 bit sound card and a 56 K phone modem. The operating system should be Windows 98 or Windows NT version 4. Students wishing to buy a computer should delay the purchase until after the start of classes and they can confirm with the Co-ordinator of the program that the suggested configuration is still current. Rapid technological change may require an updated configuration.

Approximate Costs (1999/2000)

Fees for:	Levels 1 & 2	Levels 3 & 4
	\$2100.30*	\$2100.30*
Books and Supplies:	\$85.00 plus textbook costs available in September, 1999; plus optional computer \$2000.00	\$80.00 plus textbook costs available in September, 1999; plus optional software \$400.00 & software \$600.00

Fees for:	Levels 5 & 6
	\$2100.30*

Books and Supplies: \$ 80.00

*additional fees are required for the co-op option

Course Descriptions

COPT151 - Computer Applications Level I Students will be introduced to software applications used in the workplace. The fundamentals of the Windows NT operating system, Microsoft Word, Microsoft Excel, Internet Explorer, and e-mail are introduced.

ENGL240 - Communication for Systems Analysts This course provides the programmer/systems analyst with the basic information to develop organizational and presentation skills in oral and written forms. Topics covered include writing and designing for the workplace (letters, memos, brochures, and short reports), effective group communication, research skills, and desktop publishing.

FINA160 - Financial Systems Provides the student with a fundamental knowledge of business organizations and financial

management methods. Topics will include the types and structures of various business organizations, basic accounting principles and procedures, and the information technology methods used to support the business.

INFO101 - Introductory Visual Basic This is an introductory computer programming course using the Visual Basic programming language. Topics include the Visual Basic IDE, forms, controls and programming. The emphasis is on graphical user interface design techniques.

INFO110 - Exploring Database Concepts with Access Introduces the design and management of database systems using Microsoft Access. Data modeling using Semantic Object and Entity Relationship diagrams is emphasized. Through the use of case studies, implementation of database design will be explored.

INFO120 - Information Technology in Business This course provides an introduction to all facets of Information Systems from Internet and Networks to Data Base languages. The emphasis is on a systems overview.

INFO140 - Software Construction This course is an introduction to program design and construction using C++. The emphasis is on using current software engineering practices to document, develop, and test code.

INFO200 - Intermediate Visual Basic This is an intermediate computer programming course using the Visual Basic programming language. Topics include menus, mouse events, grids, database applications and other topics. Carefully designed projects allow the student to apply the language in business situations.

INFO210 - Designing Databases for Business This course builds on the concepts presented in INFO110 and introduces client/server database systems. Oracle is used as the database platform to demonstrate the operation of large multi-user systems. Particular emphasis is placed on mastering the fundamentals of Structured Query Language (SQL) for the purpose of creating both DML and DDL statements. If time permits, students will be introduced to the use of CASE tools in database design and development.

INFO220 - Local Area Networks This course provides the student with a fundamental understanding of Local Area Networks, giving him/her a solid knowledge base on which to build further studies. Topics covered include Network Basics using NT Workstation and Server, Ethernet, TCP/IP, and Internetworking Devices. A Local Area Network Lab will be used to demonstrate, understand and practice the networking principles involved.

INFO230 - Hardware and Operating Systems Furthers his/her knowledge of computer hardware and operating systems. Topics will include the functions of an operating system, explorations of popular operating systems and their applications in business and the interaction of the hardware and the operating system. Windows NT workstation and UNIX will be used in practical projects.

INFO261 - Introductory C++/Java This course is a continuation of INFO140 - Software Construction. It will complete the students' knowledge of the structured programming features of C/C++ technologies such as structured exception handling, and templates. The standard C++ library will be introduced. The fundamental structure of Java applications will be introduced and similarities between C++ and Java will be highlighted. The development of software construction techniques and practices will be continued.