Co-op Program

COMPUTER SCIENCE

The Computer Science program from Université de Sherbrooke brings together academic studies and practical experience to prepare students for effective job market integration. The program covers virtually all aspects of computer science and some areas of mathematics. In addition to courses in high-tech fields such as software engineering, telecommunications, operating systems, object-oriented programming (OOP), algorithms, parallel programming, security, artificial intelligence and computer graphics, it also offers concentrations in software engineering, systems and networks, and intelligent systems.

These computer science professionals are particularly sought after for their ability to grasp and solve complex issues and for their capacity to take ownership of project design and configuration. They are also valued for their communication skills and talent to convey ideas in a clear, concise way when working on scientific and technical teams.

WHAT OUR STUDENTS CAN DO FOR YOU

Analysis

- Problem analysis and solution
- Client needs analysis
- .NET applications
- Automated data project planning and management on an Oracle Server
- Agile methodology

Management

- JSP image search engine programming (servlet)
- Development and design of security tools (encryption)
- Programming and logic problem-solving
- SQL database management
- Network programming (TCP, UDP)

Development and Maintenance

- Multithreaded applications
- Object-oriented programming
- Optimization of HTML/ASPX interfaces and of server code (VB.NET) for Intranet
- Pocket PC application design and testing (C#, XML)
- Installation applications and modules (C++, Visual Studio, .NET)
- C++ and COM object interfaces
- Multi-user Web applications
- Developer tools, Python, ASP, StarTeam, Visual Studio
- Modify and improve databases
- Computing support
- Eclipse
- B2B2C
- VHDL programming

Design

- Web-based transactional systems (HTML, JavaScript, Access, ASP, SQL, Java)
- Integration of new modules of varied complexities
- Image visualization components
- Database design pattern
- Write technical documents and procedures
- Automated tests

ACCREDITED

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UNIVERSITÉ DE SHERBROOKE

KNOWLEDGE AND SKILLS

Term	Description
S-1	**Analysis, programming and databases** Database elements (SQL and standardization); analysis and programming (C++); technical and specialized writing; logic and discrete mathematics; applied statistics.
S-2	**Advanced concepts of programming and database** System programming (assembler and drivers); relational and object databases; (Java, JDBC, and SQL); interfaces and multimedia (Java); data structures (C++ and STL); linear algebra.
S-3	**Computer science basics** Object-oriented design methods (Java, UML, Design pattern); formal languages (automaton, lexical and syntactic analysis); algorithms and data structures; operating systems (C++); functional programming (Scheme, Haskell).
S-4	**Advanced design software methods** Concurrent and parallel processes (synchronization, multithreaded, MPI, openCL); computer graphics; artificial intelligence; requirements specification and verification (software engineering); telematics (communication protocol and networks).
S-5	**Electives or concentration (Software engineering, network systems, intelligent systems, no concentration)** Security and cryptography; concentrations or electives; final projects and integration.
S-6	**Electives or concentration (Software engineering, network systems, intelligent systems, no concentration)** Concentrations or electives; final projects and integration.

ORGANIZATION OF STUDY (S) AND WORK TERM (W)

Group	1st year			2nd year			3rd year			4th year	
	FALL	WIN	SUM	FALL	WIN	SUM	FALL	WIN	SUM	FALL	WIN
F	S-1	S-2	W-1	S-3	W-2	S-4	W-3	S-5	W-4	S-6	-
I-F	S-2	W-2	S-3	W-3	S-4	W-4	S-5	S-6	-	-	-
I-W	-	S-2	W-1	S-3	W-2	S-4	W-3	S-5	W-4	S-6	-
W	-	S-1	-	S-2	W-1	S-3	W-2	S-4	W-3	S-5	S-6

F : regular fall cohort; **I-F :** integrated DEC-BAC fall cohort
I-W : integrated DEC-BAC winter cohort; **W :** regular winter cohort

Work Term and Professionnal Development | 819 821-7747 | coop@USherbrooke.ca
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