APPLIED COMPUTER SCIENCE BACCALAUREATE – CO-OP PROGRAM

SKILLS ACQUIRED DURING THEIR STUDIES	
Coop work-term I 2nd year completed (Four study sessions completed) Work under supervision and initial training	• Word processing, spreadsheet. • Programming: C++, Java, Assembler. • Structured approach to problem solving. • In depth knowledge of object-oriented programming: classes, objects, inheritance, polymorphism, encapsulation, genericity. • Digital circuits: sequential and combinatorial, design, micro-programming. • Basic computer organisation, data representation and instruction coding, registers, memory, addressing modes, interruption, assembly language. • Algorithms and data structures, recursion, computational complexity, undecidability. • Software development : development cycle models, project management, risk evaluation, types of specifications, types of designs, validation and verification, metrics, quality assurance, cost estimation and timetables. • Introduction to files and database management systems (DBMS).
Coop work-term II (Five study sessions completed) Work under periodic supervision	• Operating systems: structures and functions, tasks and processes, synchronisation, scheduling, memory management, security and protection. • Computer networks and protocols • Computer architecture: micro-programming, micro-processors, super-pipeline, super-scalar, memory cache, parallel architectures. • Programming languages and algorithms: grammars, compilers, interpreters, programming paradigms, complexity classes. • Introduction to Artificial Intelligence: knowledge representation, reasoning, control strategies and heuristic search. • Introduction to parallel algorithms for parallel and distributed architectures.
Coop work-term III (Six study sessions completed) Semi-autonomous work under limited supervision	The student will have added 6 to 8 computer science electives in one or more of the following orientations : • Software design and development. • Knowledge based systems. • Communication networks and systems. • Information management systems. • Information highway technologies.

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