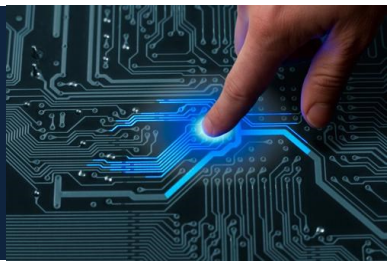
BACHELOR OF SCIENCE IN COMPUTER SCIENCE



The Department of Computer & Information Sciences is committed to providing the knowledge and skills required to prepare students to innovate and develop relevant technologies. We seek to instill within our students the attitudes and values that will prepare them for a lifetime of service, learning, and leadership.

WHAT IS COMPUTER SCIENCE?

Computer Science refers to the study of the hardware and software of the computer and its use as a tool in various disciplines. A Computer Science major will study a considerable amount of mathematics in order to understand and model the underlying processes of computing. Sample disciplines include networking, programming languages, database systems, artificial intelligence, graphics, and human-computer interaction.

A computer scientist's strength lies in his or her ability to solve problems of efficiency and overall performance of applications from a machine perspective, and an overall technical orientation to problem-solving. Considerable time is spent on how to develop software in high-level programming languages such as C++ and Java.

A Computer Science degree prepares a student best for software development and testing, but graduates may also pursue system administration, support, and managerial roles. Specifically, the Computer Science graduates are most suited for:

- Applications Software Development
- Information Center/Office automation
- Database Management with SQL
- EDP Auditing/Quality Assurance
- Telecommunications Planning/Implementation
- Security Administration
- Simulation and Modeling
- Disaster Planning and Recovery
- Computer Graphics
- Human Factors/Interface Design

ADMISSSION REQUIREMENTS

Must have five (5) external passes including **Mathematics** (CXC level 1,2/G.C.E. grade A,B), **English** (CXC level 1,2/G.C.E. grade A,B) and a Science subject preferably Physics (CXC General Proficiency level 1, 2 or 3; G.C.E. at grade A, B,C, from this region) or equivalent, or satisfactory grade in SAT (outside this region).

PROGRAM DURATION

Assuming that a full course load is taken each semester, the program takes, on average, 4 years to complete.

GRADUATION REQUIREMENTS

- An overall G.P.A. of 2.0, a minimum of 2.5 in core classes and 2.25 in the minor.
- At least a "**C+**" grade for all core, and a "**C**" in cognate classes.
- A passing score on the Language and Content Examination (Oral Exam).

INTERNSHIPS

Internships provide the opportunity for upper level students to garner practical work experience in their field through temporary supervised positions in public or private organizations. This will foster enhanced learning through the application of skills acquired in a professional environment. All students are encouraged to involve themselves in this programme.

PROFESSIONAL ADVANCEMENT CREDITS (PAC)

Students must accumulate a minimum of 100 PACs starting in their junior year. Each one hour activity will be assigned 5 PACs. Credits can be obtained through participation in relevant and approved seminars, workshops and conferences. Membership in approved professional organizations is awarded up to 10 PACs. Completion of at least 100 PACs is a requirement for the course CPTR401 Seminar in Computer & Information Sciences.

NORTHERN CARIBBEAN UNIVERSITY
A Seventh-day Adventist Institution

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PROGRAM OUTLINE

Total Credit Hours: **137**

CORE REQUIREMENTS (70 credits)

CPTR113	Introduction to Programming
CPTR151	Principles of Programming I
CPTR204	Website Design & Implementation
CPTR213	Fundamentals of Databases
CPTR235	Software Engineering
CPTR242	Principles of Programming II
CPTR252	Data Structures & Algorithms
CPTR282	Computer Organization & Architecture
CPTR293	Field Group Project
CPTR300	Colloquium
CPTR304	Internet Authoring
CPTR311	Discrete Structures in Computer Science
CPTR313	Fundamentals of Security Technologies
CPTR315	Theories of Programming Languages
CPTR355	Algorithm Design & Analysis
CPTR365	Artificial Intelligence
CPTR375	Operating Systems
CPTR380	Data Telecommunication
CPTR401	Seminar in Computer Information Science
CPTR415	Human Computer Interaction
CPTR450	Database Systems
CPTR489	CIS Project/Research Proposal Development
CPTR490	Advanced Project

300/400 Level Electives (9 credits)

CONCENTRATIONS

Students can use their electives to form concentrations in areas related to Computer Science. Some of these areas are identified below. Normally a student will not take all of the courses listed for an area, but rather only those courses which best meet his/her educational objectives.

SOFTWARE ENGINEERING

CPTR342 Mobile Application Development
CPTR370 Expert Systems
CPTR413 Cryptography
CPTR430 Assembly Language Programming
CPTR440 Enterprise Information Systems
CPTR453 Computer Graphics
CPTR465 Advanced Application Development
CPTR467 Compiler Design & Development
CPTR470 Data Security

DATA COMMUNICATIONS AND NETWORKS

CPTR363 Information Security Policy & Auditing
CPTR421 Systems Administration & Engineering
CPTR425 Network Design & Implementation
CPTR460 Distributed Systems
CPTR470 Data Security
CPTR483 Security Vulnerabilities & Attack Prevention

INFORMATION SECURITY

CPTR421 Systems Administration & Engineering
CPTR363 Information Security Policy & Auditing
CPTR413 Cryptography
CPTR421 Systems Administration & Engineering
CPTR470 Data Security
CPTR483 Security Vulnerabilities & Attack Prevention

ASSOCIATIONS / PARTNERSHIPS

The **CompTIA Academy Partner Program** is designed to provide a pathway for students toward a rewarding, high-growth IT career. The program is open to educational institutions that grant diplomas or degrees, and to nonprofit or government training organizations. Its goal is to help partners deliver a substantial IT curriculum and learning experience.

DreamSpark is a Microsoft Program that supports technical education by providing access to Microsoft software for learning, teaching and research purposes.

DreamSpark is simple: it's all about giving students Microsoft professional-level developer and designer tools at no cost so that students can chase their dreams and create the next big breakthrough in technology - or just get a head start on their career.

The **Jamaica Computer Society** is an independent professional body designed to facilitate the establishment and maintenance of standards of practice for technology professionals. JCS represents companies and individuals involved in the Information and Communication Technology (ICT) industries.

TestOut is the leader in online labs for academia and IT professionals. With LabSim, students get a broad range of hands-on experience in a safe, simulated environment.

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