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Bachelor of Science in Cyber Security (BScCyS)

Program Viewbook

Canadian University Dubai

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Program Overview

The Bachelor of Science in Cyber Security (BScCyS) is a 4-year program preparing students for careers in network, web and applications security. The program equips students with experience in network and cyber-attacks, AI-driven solutions and how to defend and prevent them, as well as the ethical implications of security. Graduates are in high demand in various industries due to the UAE's focus on diversifying its economy. Graduates can pursue roles such as Chief Information Security Officer, Forensic Computer Analyst, and Cyber Security Engineer.

Program Requirements

Program Requirements	Compulsory Cr. Hrs.	Elective Cr. Hrs.	Total Cr. Hrs.
University Requirements (GE Courses)	18	09	27
Program Core Requirements (Core Courses)	64	-	64
Program Major Requirements	33	03	36
Total	**115**	**12**	**127**

University Requirements [General Education Courses - 27 Credits]

Course Code		Course Title	Prerequisite	Cr. Hrs.
Compulsory Courses (18 Credits)				
LNG	181	English I for Engineering and Computing	None	3
LNG	182	English II for Engineering and Computing	LNG 181	3
GED	190	Emirati Studies	None	3
GED	255	Critical Thinking and Problem Solving	LNG 182 or LNG 172	3
ENT	141	Fundamentals of Innovation and Entrepreneurship 1	None	2
ENT	142	Fundamentals of Innovation and Entrepreneurship 2	ENT 141	1
ENT	241	Entrepreneurship 1	ENT 142	2

ENT	242	Entrepreneurship 2	ENT 241	1
Science Elective Courses (03 Credits): Students are required to Select ONE Course from the following Courses				
BIO	102	Biology I	None	3
SHS	103	Chemistry	None	3
SCI	210	Modern Physics	None	3
Humanities Elective Courses (06 Credits): Students are required to Select TWO Courses from the following Courses				
GED	110	Modern Art Appreciation	None	3
GED	111	Music Appreciation and Communication	None	3
GED	191	Islamic Studies	None	3
GED	196	Communication Skills in Arabic 1	None	3
GED	205	Psychology in Everyday Life	LNG 182 or LNG 172	3
GED	324	Ethical Reasoning for Today's World	LNG 182 or LNG 172	3
GED	330	Introduction to Canadian Studies	None	3

Program Core Requirements [Core Courses - 64 Credits]

Course Code		Course Title	Prerequisite	Cr. Hrs.
BCS	101	Elements of Computing	None	3
BCS	102	Introduction to Computing Science I	BCS 101	3
MTH	112	Calculus I	None	3
MTH	113	Calculus II	MTH 112	3
MTH	114	Linear Algebra	MTH 112	3
MTH	120	Discrete Mathematics	None	3
MTH	130	Probability and Statistics	MTH 112	3
MTH	203	Discrete Mathematics for Computing Science	BCS 102, MTH 120	3

Course Code		Course Title	Prerequisite	Cr. Hrs.
BCS	201	Logic for Computing Science	MTH 120	3
BCS	202	Introduction to Computing Science II	BCS 102	3
BCS	203	Software Specifications	BCS 201, BCS 202	3
BCS	206	Information Structures	BCS 202, MTH 203	3
BCS	222	Programming Paradigms	BCS 201, BCS 202	3
ENG	210	Computer Architecture	BCS 202 or ENG 101	4
BCS	305	Software Architecture	BCS 203, BCS 206	3
BCS	306	Database Management Systems	BCS 201, BCS 202	3
BCS	309	Algorithms I	BCS 201, BCS 206	3
BCS	311	Scientific Computing	BCS 102, MTH 114	3
BCS	323	System-Level Programming	BCS 102	3
BCS	401	Ethics for Computing Professionals	None	3
CYS	480	Internship in Cyber Security	90 Credit Hours & CGPA ≥ 2.0	3

Program Major Requirements [36 Credits]

Course Code		Course Title	Prerequisite/Corequisite	Cr. Hrs.
Compulsory Courses (33 Credits)				
BCS	221	Communication Networks	BCS 102	3
BCS	301	Operating Systems	BCS 206, ENG 210	4
BCS	303	Security Principles and Practices	BCS 221	4
CYS	311	Security Threats and Risk Analysis	BCS 303	3
CYS	312	Cryptographic Algorithms and Protocols	BCS 203, BCS 303	3
BCS	407	Artificial Intelligence	SWS 111 or BCS 206, BCS 222	3
CYS	411	Engineering Secure Software	CYS 312	3
CYS	412	Mobile and Wireless Security	BCS 221, CYS 411	4

CYS	417	Cyber Security Graduation Project	Completed 90 Credit Hours	6
Elective Courses (03 Credits): Students are required to Select ONE Course from the following courses				
SWS	215	Web Development	BCS 306	3
CYS	413	Web Application Security and Testing	CYS 411	3
CYS	414	Penetration Testing and Ethical Hacking	CYS 411	3
CYS	415	Malicious Software	CYS 411	3
CYS	416	Human and Organizational Security	BCS 303	3

Study Plan

Sem.	Course Code		Course Title	Prerequisite	Cr. Hrs.
Semester 1	LNG	181	English I for Engineering and Computing	None	3
	BCS	101	Elements of Computing	None	3
	MTH	112	Calculus I	None	3
	ENT	141	Fundamentals of Innovation and Entrepreneurship 1	None	2
	GED	190	Emirati Studies	None	3
	Total				**14**
Semester 2	LNG	182	English II for Engineering and Computing	LNG 181	3
	BCS	102	Introduction to Computing Science I	BCS 101	3
	MTH	113	Calculus II	MTH 112	3
	MTH	120	Discrete Mathematics	None	3
	ENT	142	Fundamentals of Innovation and Entrepreneurship 2	ENT 141	1
	XXX	XXX	Science Elective	None	3
	Total				**16**
Semester 3	MTH	114	Linear Algebra	MTH 112	3
	MTH	130	Probability and Statistics	MTH 112	3
	MTH	203	Discrete Mathematics for Computing Science	BCS 102, MTH 120	3
	BCS	201	Logic for Computing Science	MTH 120	3
	BCS	202	Introduction to Computing Science II	BCS 102	3
	ENT	241	Entrepreneurship 1	ENT 142	2
	Total				**17**

Semester 4	ENG	210	Computer Architecture	BCS 202 or ENG 101	4
	BCS	203	Software Specifications	BCS 201, BCS 202	3
	BCS	206	Information Structures	BCS 202, MTH 203	3
	BCS	221	Communication Networks	BCS 102	3
	BCS	222	Programming Paradigms	BCS 201, BCS 202	3
	ENT	242	Entrepreneurship 2	ENT 241	1
	Total				**17**
Semester 5	XXX	XXX	Humanities Elective (1)		3
	BCS	301	Operating Systems	BCS 206, ENG 210	4
	BCS	303	Security Principles and Practices	BCS 221	4
	BCS	305	Software Architecture	BCS 203, BCS 206	3
	BCS	311	Scientific Computing	BCS 102, MTH 114	3
	Total				**17**
Semester 6	BCS	306	Database Management Systems	BCS 201, BCS 202	3
	BCS	309	Algorithms I	BCS 201, BCS 206	3
	CYS	311	Security Threats and Risk Analysis	BCS 303	3
	CYS	312	Cryptographic Algorithms and Protocols	BCS 203, BCS 303	3
	BCS	323	System-Level Programming	BCS 102	3
	Total				**15**
Semester 7	GED	255	Critical Thinking and Problem Solving	LNG 182 or LNG 172	3
	BCS	401	Ethics for Computing Professionals	None	3
	CYS	411	Engineering Secure Software	CYS 312	3
	CYS	417	Cyber Security Graduation Project	Completed 90 Credit Hours	6
	Total				**15**
Semester 8	CYS	417	Cyber Security Graduation Project (Cont.)	Completed 90 Credit Hours	--
	XXX	XXX	Humanities Elective (2)		3
	BCS	407	Artificial Intelligence	SWS 111 or BCS 206, BCS 222	3
	CYS	412	Mobile and Wireless Security	BCS 308, CYS 411	4
	XXX	XXX	Program Major Elective		3
	Total				**13**
Internship to be taken in summer after completion of 90 Cr. Hrs. and CGPA 2.0 or more.					3
Total Credits Hours					**127**

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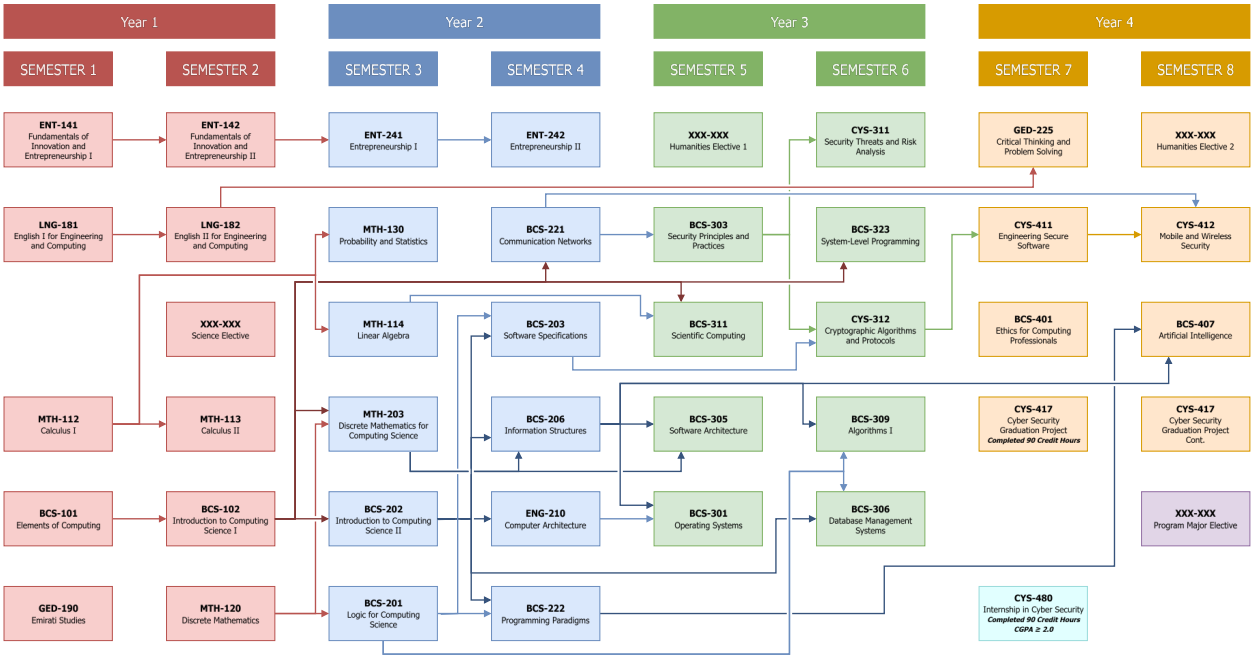
Program Prerequisite Structure



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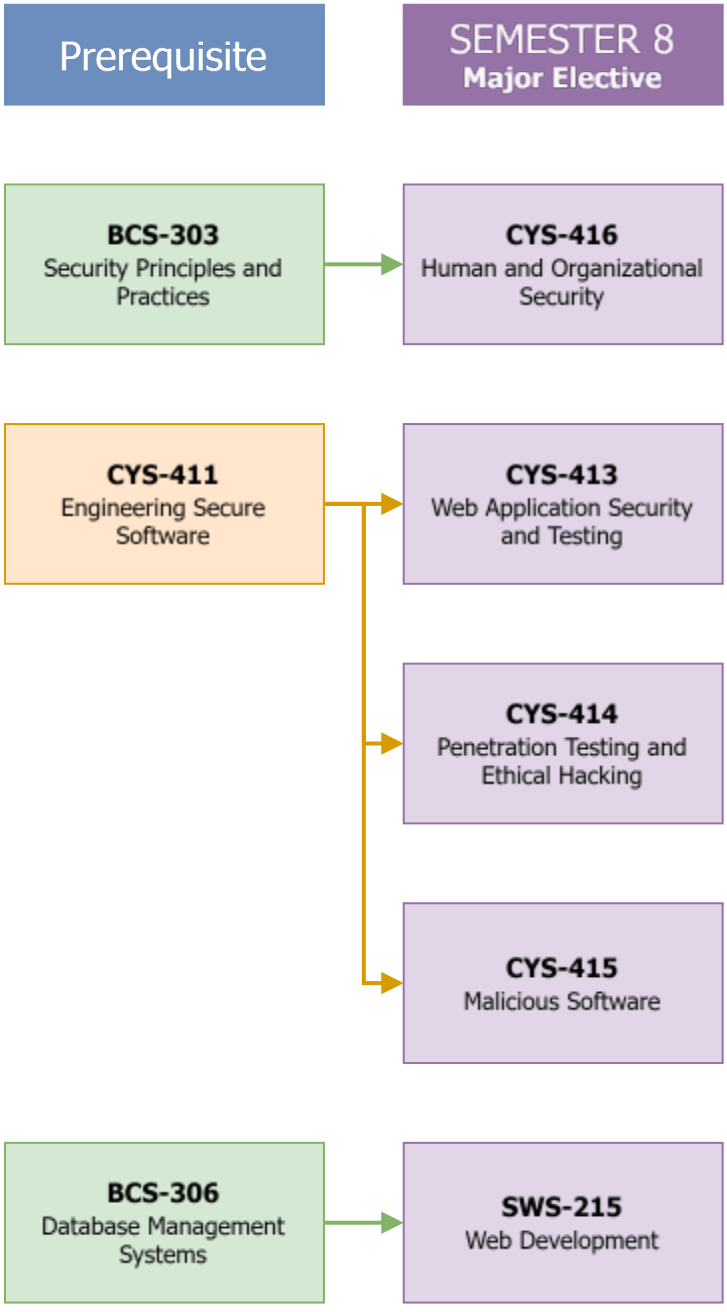

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