

# INFORMATION TECHNOLOGY

## Admission to Program

Admission to the program is explained in the HCT Admission Policy described in the Academic Policies section of this Catalog.

## Program Mission

Prepare graduates to be successful Information Communication Technology (ICT) professionals in technical leadership roles, embracing innovation and discovery and striving for professional growth through life-long learning in the field of Information Technology and associated domains.

## Program Description

The Bachelor of Information Technology program prepares students to respond to the needs of the workforce for knowledgeable and skilled IT professionals who can apply ethical values to complex and unpredictable problems and to plan, design, implement, evaluate and manage IT solutions.

The program provides students with the broad technical education necessary for employment in the public or private sector, and it enables them to develop an understanding of fundamentals and current issues important for future development. Students also develop professional work competencies to complement their technical skills and apply high-level special administrative responsibilities.

The program is structured as a set of core, elective, general studies, and concentration courses. In the core courses, students will acquire the core knowledge, skills, and competencies needed for IT. Through the concentration courses, students will develop up-to-date knowledge and skills, in this fast-growing field to meet the industry requirement.

*The program offers four concentrations:*

- **Applications Development**
- **Networking**
- **Security and Forensics**
- **Cloud Computing**

Students are eligible for one year Work Experiential Learning during their study.

## Program Goals

- Provide Information Technology professionals with the technical knowledge and skills required by the industry to design, develop, and maintain com systems to the highest level of industry standards.
- Prepare graduates for a successful career as effective decision makers with strong communication and teamwork skills and an understanding of global, ethical, and social implications of the industry and Information Technology profession.
- Prepare graduates with technical and entrepreneurial leadership qualities, who support the development of innovative computing solutions in response to local, regional, or global challenges.
- Provide graduates with strong commitment to lifelong learning, continuing education, and professional growth.

## Program Learning Outcomes

### All Concentrations

1. Demonstrate an understanding of critical analysis, research systems and methods, and evaluative problem-solving techniques, showing familiarity with sources of current and new research in the field of computing.
2. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
3. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
4. Communicate effectively in a variety of professional contexts.
5. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
6. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

### Application Development Concentration

7. Use systemic approaches to select, develop, apply, integrate, and administer computing technologies to accomplish user goals.
8. Apply systemic approaches to secure applications per user requirements.

### Networking Concentration

7. Use systemic approaches to select, develop, apply, integrate, and administer secure computer networking technologies to accomplish user goals.
8. Produce appropriate secure network infrastructure solutions to meet customer requirements at an enterprise level.

### Security and Forensics Concentration

7. Use systemic approaches to select, develop, apply, integrate, and administer secure computer networking technologies to accomplish user goals.
8. Apply security principles and practices to maintain operations in the presence of risks and threats.

### Cloud Computing Concentration

7. Use systemic approaches to select, develop, apply, integrate, and administer secure computer networking technologies to accomplish user goals.
8. Produce secure cloud-based infrastructure solutions to meet stakeholder requirements.

## Requirements

### Completion Requirements

#### Bachelor of Information Technology

*Students must successfully complete a minimum of 135 credits, including:*

Code	Title	Credit Hours
Information Technology Core Courses		60
Concentration Courses		36
4000 Elective Courses		6
General Studies		33
<b>Total Credit Hours</b>		<b>135</b>

To qualify for the bachelor's degree, a student is required to:

- Successfully complete the required number of credits and courses specific to the program with a minimum cumulative GPA of 2.0.
- Complete 100 hours of volunteering.
- Meet the residency requirement that a minimum of 50% of the program credit requirements have been completed at the HCT.

Code	Title	Credit Hours
<b>IT Core Courses</b>		
Required Credits: 60		
CIS 1103	Hardware and Networking	3
CIS 1203	Web Technologies	3
CIS 1303	Database Systems	3
CIS 1403	Fundamentals of Programming	3
CIS 2003	Statistics and Probability	3
CIS 2023	Applied Discrete Mathematics	3
CIS 2103	Principles of Information Assurance, Security and Privacy	3
CIS 2303	Systems Analysis and Design	3
CIS 2403	Object Oriented Programming	3
CIS 2413	Data Structures and Algorithms	3
CIS 2806	Work Related Experience I	6
CIS 2903	Operating Systems	3
CIS 3003	Human Computer Interaction	3
CIS 3303	System Architecture and Integration	3
CIS 3603	Project Management	3
CIS 3806	Work Related Experience II	6
CIT 4933	Capstone Project I	3
CIT 4943	Capstone Project II	3

#### General Studies

Required Credits: 33

English, Arabic, or other Languages : 12

Humanities or Art : 3

Information Technology or Mathematics : 6

The Natural Sciences : 3

The Social or Behavioral Sciences : 9

#### Concentration Name: Applications Development

Total Credit Hours: 36

Concentration Curriculum:

Concentration Code : CAP

Code	Title	Credit Hours
CIA 2503	Web Applications Development	3
CIA 2513	Key Components of IoT Architecture for Smart Applications	3
CIA 3003	Introduction to Mobile Applications	3
CIA 3013	Advanced Mobile Applications	3
CIA 3313	Database Administration	3
CIS 3113	Object Oriented Analysis & Design	3
CIA 3503	Advanced Object Oriented Programming	3
CIA 4103	Data Driven Web Technologies	3
CIA 4123	Mobile Game Development	3
CIA 4133	Advanced Application Development	3
CIA 4303	System Administration	3
CIA 4403	Software Testing and Quality	3

#### Concentration Electives:

Code	Title	Credit Hours
CDS 4103	Data Visualization	3
CIA 4203	Enterprise Database Applications	3
CIS 4403	Cloud Computing	3
CIS 4703	Blockchain Applications and Coding	3
CSF 4003	Security and Risk Management	3

\*Additional electives may be added later

#### Concentration Name: Security and Forensics

Total Credit Hours: 36

Concentration Curriculum:

Concentration Code : CCS

Code	Title	Credit Hours
CNS 2003	Enterprise Network Services	3
CNS 2103	Network Fundamentals	3
CNS 3003	Switching and Routing Essentials	3
CNS 3023	Network Security and Cryptography	3
CNS 3113	Cyber Law and Ethics	3
CNS 3123	Intrusion Detection and Ethical Hacking	3
CNS 3203	Enterprise Networking, Security and Automation	3
CSF 4003	Security and Risk Management	3
CSF 4113	Web Application Security	3
CSF 4213	Incident Response and Disaster Recovery	3
CSF 4403	Computer Forensics and Investigation	3
CSF 4613	Security Intelligence	3

#### Concentration Electives:

Code	Title	Credit Hours
CDS 4103	Data Visualization	3
CIS 4703	Blockchain Applications and Coding	3
CIN 4203	Voice over Internet Protocol (VoIP) Fundamentals	3
CIA 4303	System Administration	3
CIN 4403	Cloud Network Services	3
CIN 4003	Routing Solutions for the Enterprise	3

CIN 4103	Network Management	3
CIN 4113	Scalable Computer Network	3
CIN 4503	Virtualization Technologies	3
CCC 4003	Cloud Technologies	3
CCC 4013	Virtualization for the Cloud	3

*\*Additional electives may be added later*

**Concentration Name: Networking**

Total Credit Hours: 36

Concentration Curriculum:

**Concentration Code : CNT**

Code	Title	Credit Hours
CNS 2003	Enterprise Network Services	3
CNS 2103	Network Fundamentals	3
CNS 3003	Switching and Routing Essentials	3
CNS 3023	Network Security and Cryptography	3
CNS 3113	Cyber Law and Ethics	3
CNS 3123	Intrusion Detection and Ethical Hacking	3
CNS 3203	Enterprise Networking, Security and Automation	3
CIN 4003	Routing Solutions for the Enterprise	3
CIN 4103	Network Management	3
CIN 4113	Scalable Computer Network	3
CIN 4403	Cloud Network Services	3
CIN 4503	Virtualization Technologies	3

Concentration Electives:

Code	Title	Credit Hours
CDS 4103	Data Visualization	3
CIS 4703	Blockchain Applications and Coding	3
CIN 4203	Voice over Internet Protocol (VoIP) Fundamentals	3
CIA 4303	System Administration	3
CSF 4213	Incident Response and Disaster Recovery	3
CSF 4003	Security and Risk Management	3
CSF 4403	Computer Forensics and Investigation	3
CSF 4613	Security Intelligence	3
CSF 4113	Web Application Security	3

*\*Additional electives may be added later*

**Concentration Name: Cloud Computing**

Total Credit Hours: 36

Concentration Curriculum:

**Concentration Code : CCC**

Code	Title	Credit Hours
CNS 2103	Network Fundamentals	3
CNS 2003	Enterprise Network Services	3
CNS 3113	Cyber Law and Ethics	3
CNS 3003	Switching and Routing Essentials	3
CNS 3023	Network Security and Cryptography	3
CNS 3203	Enterprise Networking, Security and Automation	3
CNS 3123	Intrusion Detection and Ethical Hacking	3

CCC 4003	Cloud Technologies	3
CCC 4013	Virtualization for the Cloud	3
CCC 4023	Cloud Architecting	3
CCC 4033	Cloud Application Development	3
CCC 4043	System Operations on the Cloud	3

Concentration Electives:

Code	Title	Credit Hours
CDS 4103	Data Visualization	3
CIS 4703	Blockchain Applications and Coding	3
CIN 4203	Voice over Internet Protocol (VoIP) Fundamentals	3
CIA 4303	System Administration	3
CIN 4403	Cloud Network Services	3
CIN 4003	Routing Solutions for the Enterprise	3
CIN 4103	Network Management	3
CIN 4113	Scalable Computer Network	3
CIN 4503	Virtualization Technologies	3
CSF 4213	Incident Response and Disaster Recovery	3
CSF 4003	Security and Risk Management	3
CSF 4403	Computer Forensics and Investigation	3
CSF 4613	Security Intelligence	3
CSF 4113	Web Application Security	3

*\*Additional electives may be added later*

Description	Data
Total Required Credits	135
Maximum Duration of Study	6 years
Minimum Duration of Study	4 years
Cost Recovery Program	No
Program Code	BCINT
Concentration Codes	CAP, CCS, CNT, CCC

## Ideal Study Plan

### Recommended Sequence of Study

#### Applications Development Concentration

Year 1		Credit Hours
<b>Semester 1</b>		
CIS 1103	Hardware and Networking	3
CIS 1203	Web Technologies	3
ICT 2013	Computational Thinking and Coding	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
		<b>Credit Hours</b>
		<b>15</b>
<b>Semester 2</b>		
CIS 1303	Database Systems	3
CIS 1403	Fundamentals of Programming	3
AES 1033	Islamic Culture	3
AES 1013	Arabic Communications	3
LSM 1003	Applied Mathematics	3
		<b>Credit Hours</b>
		<b>15</b>
<b>Year 2</b>		
<b>Semester 3</b>		
CIS 2003	Statistics and Probability	3

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CIS 2103	Principles of Information Assurance, Security and Privacy	3
CIS 2303	Systems Analysis and Design	3
CIS 2413	Data Structures and Algorithms	3
LSS 1123	Basic Research Methods	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 4</b>		
CIS 2023	Applied Discrete Mathematics	3
CIS 2403	Object Oriented Programming	3
CIS 2903	Operating Systems	3
CIA 2503	Web Applications Development	3
CIA 2513	Key Components of IoT Architecture for Smart Applications	3
<b>Credit Hours</b>		<b>15</b>
<b>Summer</b>		
CIS 2806	Work Related Experience I	6
<b>Credit Hours</b>		<b>6</b>
<b>Year 3</b>		
<b>Semester 5</b>		
AES 1003	Emirati Studies	3
LSC 2223	Future Skills Capstone	3
CIA 3313	Database Administration	3
CIS 3003	Human Computer Interaction	3
CIS 3113	Object Oriented Analysis & Design	3
CIA 3003	Introduction to Mobile Applications	3
<b>Credit Hours</b>		<b>18</b>
<b>Semester 6</b>		
CIS 3603	Project Management	3
CIS 3303	System Architecture and Integration	3
CIA 3503	Advanced Object Oriented Programming	3
CIA 3013	Advanced Mobile Applications	3
BUS 2403	Innovation and Entrepreneurship	3
<b>Credit Hours</b>		<b>15</b>
<b>Summer</b>		
CIS 3806	Work Related Experience II	6
<b>Credit Hours</b>		<b>6</b>
<b>Year 4</b>		
<b>Semester 7</b>		
CIA 4123	Mobile Game Development	3
CIA 4133	Advanced Application Development	3
CIA 4403	Software Testing and Quality	3
CIT 4933	Capstone Project I	3
4000 Level Elective		3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 8</b>		
CIA 4103	Data Driven Web Technologies	3
CIA 4303	System Administration	3
CIT 4943	Capstone Project II	3
CIS 4003	Green Computing	3
4000 Level Elective		3
<b>Credit Hours</b>		<b>15</b>
<b>Total Credit Hours</b>		<b>135</b>

Additional courses may be offered in each Summer Semester at the discretion of the academic faculty.

### Security and Forensics Concentration

Year 1		Credit Hours
<b>Semester 1</b>		
CIS 1103	Hardware and Networking	3
CIS 1203	Web Technologies	3

ICT 2013	Computational Thinking and Coding	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 2</b>		
CIS 1303	Database Systems	3
CIS 1403	Fundamentals of Programming	3
AES 1033	Islamic Culture	3
AES 1013	Arabic Communications	3
LSM 1003	Applied Mathematics	3
<b>Credit Hours</b>		<b>15</b>
<b>Year 2</b>		
<b>Semester 3</b>		
CIS 2003	Statistics and Probability	3
CIS 2103	Principles of Information Assurance, Security and Privacy	3
CIS 2303	Systems Analysis and Design	3
CIS 2413	Data Structures and Algorithms	3
LSS 1123	Basic Research Methods	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 4</b>		
CIS 2023	Applied Discrete Mathematics	3
CIS 2403	Object Oriented Programming	3
CIS 2903	Operating Systems	3
CNS 2103	Network Fundamentals	3
CNS 2003	Enterprise Network Services	3
<b>Credit Hours</b>		<b>15</b>
<b>Summer</b>		
CIS 2806	Work Related Experience I	6
<b>Credit Hours</b>		<b>6</b>
<b>Year 3</b>		
<b>Semester 5</b>		
AES 1003	Emirati Studies	3
LSC 2223	Future Skills Capstone	3
CIS 3003	Human Computer Interaction	3
CNS 3113	Cyber Law and Ethics	3
CNS 3003	Switching and Routing Essentials	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 6</b>		
CIS 3603	Project Management	3
CNS 3023	Network Security and Cryptography	3
CNS 3203	Enterprise Networking, Security and Automation	3
CIS 3303	System Architecture and Integration	3
CNS 3123	Intrusion Detection and Ethical Hacking	3
BUS 2403	Innovation and Entrepreneurship	3
<b>Credit Hours</b>		<b>18</b>
<b>Summer</b>		
CIS 3806	Work Related Experience II	6
<b>Credit Hours</b>		<b>6</b>
<b>Year 4</b>		
<b>Semester 7</b>		
CSF 4003	Security and Risk Management	3
CSF 4403	Computer Forensics and Investigation	3
CSF 4213	Incident Response and Disaster Recovery	3
CIT 4933	Capstone Project I	3
4000 Level Elective		3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 8</b>		
CSF 4113	Web Application Security	3
CSF 4613	Security Intelligence	3
CIT 4943	Capstone Project II	3
CIS 4003	Green Computing	3

4000 Level Elective	3
<b>Credit Hours</b>	<b>15</b>
<b>Total Credit Hours</b>	<b>135</b>

**Additional courses may be offered in each Summer Semester at the discretion of the academic faculty.**

### Networking Concentration

Year 1		Credit Hours
<b>Semester 1</b>		
CIS 1103	Hardware and Networking	3
CIS 1203	Web Technologies	3
ICT 2013	Computational Thinking and Coding	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 2</b>		
CIS 1303	Database Systems	3
CIS 1403	Fundamentals of Programming	3
AES 1033	Islamic Culture	3
AES 1013	Arabic Communications	3
LSM 1003	Applied Mathematics	3
<b>Credit Hours</b>		<b>15</b>
<b>Year 2</b>		
<b>Semester 3</b>		
CIS 2003	Statistics and Probability	3
CIS 2103	Principles of Information Assurance, Security and Privacy	3
CIS 2303	Systems Analysis and Design	3
CIS 2413	Data Structures and Algorithms	3
LSS 1123	Basic Research Methods	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 4</b>		
CIS 2023	Applied Discrete Mathematics	3
CIS 2403	Object Oriented Programming	3
CIS 2903	Operating Systems	3
CNS 2103	Network Fundamentals	3
CNS 2003	Enterprise Network Services	3
<b>Credit Hours</b>		<b>15</b>
<b>Summer</b>		
CIS 2806	Work Related Experience I	6
<b>Credit Hours</b>		<b>6</b>
<b>Year 3</b>		
<b>Semester 5</b>		
AES 1003	Emirati Studies	3
LSC 2223	Future Skills Capstone	3
CIS 3003	Human Computer Interaction	3
CNS 3113	Cyber Law and Ethics	3
CNS 3003	Switching and Routing Essentials	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 6</b>		
CIS 3603	Project Management	3
CNS 3023	Network Security and Cryptography	3
CNS 3203	Enterprise Networking, Security and Automation	3
CIS 3303	System Architecture and Integration	3
CNS 3123	Intrusion Detection and Ethical Hacking	3
BUS 2403	Innovation and Entrepreneurship	3
<b>Credit Hours</b>		<b>18</b>
<b>Summer</b>		
CIS 3806	Work Related Experience II	6
<b>Credit Hours</b>		<b>6</b>

### Year 4

Semester 7		Credit Hours
CIN 4003	Routing Solutions for the Enterprise	3
CIN 4103	Network Management	3
CIN 4403	Cloud Network Services	3
CIT 4933	Capstone Project I	3
4000 Level Elective		3
<b>Credit Hours</b>		<b>15</b>

### Semester 8

CIN 4113	Scalable Computer Network	3
CIN 4503	Virtualization Technologies	3
CIS 4003	Green Computing	3
CIT 4943	Capstone Project II	3
4000 Level Elective		3
<b>Credit Hours</b>		<b>15</b>
<b>Total Credit Hours</b>		<b>135</b>

**Additional courses may be offered in each Summer Semester at the discretion of the academic faculty.**

### Cloud Computing Concentration

Year 1		Credit Hours
<b>Semester 1</b>		
CIS 1103	Hardware and Networking	3
CIS 1203	Web Technologies	3
ICT 2013	Computational Thinking and Coding	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 2</b>		
CIS 1303	Database Systems	3
CIS 1403	Fundamentals of Programming	3
AES 1033	Islamic Culture	3
AES 1013	Arabic Communications	3
LSM 1003	Applied Mathematics	3
<b>Credit Hours</b>		<b>15</b>
<b>Year 2</b>		
<b>Semester 3</b>		
CIS 2003	Statistics and Probability	3
CIS 2103	Principles of Information Assurance, Security and Privacy	3
CIS 2303	Systems Analysis and Design	3
CIS 2413	Data Structures and Algorithms	3
LSS 1123	Basic Research Methods	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 4</b>		
CIS 2023	Applied Discrete Mathematics	3
CIS 2403	Object Oriented Programming	3
CIS 2903	Operating Systems	3
CNS 2103	Network Fundamentals	3
CNS 2003	Enterprise Network Services	3
<b>Credit Hours</b>		<b>15</b>
<b>Summer</b>		
CIS 2806	Work Related Experience I	6
<b>Credit Hours</b>		<b>6</b>
<b>Year 3</b>		
<b>Semester 5</b>		
AES 1003	Emirati Studies	3
CIS 3003	Human Computer Interaction	3
CNS 3003	Switching and Routing Essentials	3
CNS 3113	Cyber Law and Ethics	3

LSC 2223	Future Skills Capstone	3
	<b>Credit Hours</b>	<b>15</b>
<b>Semester 6</b>		
BUS 2403	Innovation and Entrepreneurship	3
CIS 3303	System Architecture and Integration	3
CIS 3603	Project Management	3
CNS 3023	Network Security and Cryptography	3
CNS 3123	Intrusion Detection and Ethical Hacking	3
CNS 3203	Enterprise Networking, Security and Automation	3
	<b>Credit Hours</b>	<b>18</b>
<b>Summer</b>		
CIS 3806	Work Related Experience II	6
	<b>Credit Hours</b>	<b>6</b>
<b>Year 4</b>		
<b>Semester 7</b>		
CCC 4003	Cloud Technologies	3
CCC 4013	Virtualization for the Cloud	3
CIS 4003	Green Computing	3
CIT 4933	Capstone Project I	3
4000 Level Elective		3
	<b>Credit Hours</b>	<b>15</b>
<b>Semester 8</b>		
CCC 4023	Cloud Architecting	3
CCC 4033	Cloud Application Development	3
CCC 4043	System Operations on the Cloud	3
CIT 4943	Capstone Project II	3
4000 Level Elective		3
	<b>Credit Hours</b>	<b>15</b>
	<b>Total Credit Hours</b>	<b>135</b>

Additional courses may be offered in each Summer Semester at the discretion of the academic faculty.

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