BACHELOR OF DATA SCIENCE

Admission to Program

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

Program Mission

Prepare graduates to be Information Communication Technology (ICT) professionals in technical and organizational leadership roles, embracing innovation and discovery and striving for professional growth through lifelong learning in fields associated with Data Science, with a strong focus on enhancing Information Systems.

Program Description

The Bachelor of Data Science program is designed to equip students with the necessary knowledge and skills to apply ethical values to complex and unpredictable problems, and to plan, design, implement, evaluate, and manage an organization's ICT infrastructure.

The program provides a comprehensive understanding of information technology assets, archival, and information processing systems within the context of data science applications. Throughout their studies, students will develop proficiency in fundamental concepts and skills across various information technologies, preparing them for roles where they can harness the power of data to drive organizational success.

The Bachelor of Data Science program is structured as a set of cores, elective, general studies, and specialized courses. Within the core curriculum, students gain fundamental knowledge, skills, and competencies crucial for Information Systems, which are further enhanced by specialized courses aligned with current industry trends in Data Science. To integrate theoretical knowledge with practical experience, the program offers a year-long apprenticeship, enabling students to acquire valuable real-world skills. This holistic approach ensures graduates are well-prepared to succeed in the dynamic field of Data Science.

Program Goals

1. Equip graduates with the necessary technical knowledge and skills to design and develop data-driven solutions to specific business challenges in accordance with industry best practices in data science.
2. 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 Data Science profession.
3. Prepare graduates with technical and entrepreneurial leadership qualities, who support the development of innovative computing solutions in response to local, regional, or global challenges.
4. Equip graduates with strong commitment to lifelong learning, continuing education, and professional growth.

Program Learning Outcomes

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.

7. Apply theory, techniques, and tools throughout the data science lifecycle and employ the resulting knowledge to satisfy stakeholders' needs.

Requirements
Completion Requirements

Students must successfully complete a minimum of 120 credits, including:

Code	Title	Credit Hours
CIS Core Courses		33
Data Science Specialisation Courses		63
Elective Courses		6
General Studies		18
Total Credits		**120**

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
CIS Core Courses		
Required Credits: 33		
CIS 1313	Introduction to Computer Systems and Networks	3
CIS 1203	Web Technologies	3
CIS 1603	Programming I	3
CIS 1213	Introduction to Information Security	3
CIS 1303	Database Systems	3
CIS 1613	Programming II	3
CIS 2033	User Centered Design	3
CIS 2023	Applied Discrete Mathematics	3
CIS 2213	Full-stack Web Application Development	3
CIS 2113	Introduction to Software Engineering	3
CIS 3603	Project Management	3

Code	Title	Credit Hours
Data Science Specialisation Courses		
Required Credits: 63		
CDS 2413	Programming for Data Science	3
CDS 2433	Business Process Modeling and Optimization	3

CDS 2443	Advanced Database Systems	3
CSE 2623	Algorithms and Data Structures	3
CDS 3513	Data Mining Techniques	3
CDS 3523	Statistical Inference	3
CDS 3533	Big Data Analytics	3
CDS 3543	Data visualization for Decision making	3
CDS 3613	Enterprise Solution Management	3
CDS 3623	Data Mining for Enterprise Solutions	3
CDS 3633	Machine Learning for Business Analytics	3
CDS 3643	Time Series Analysis and Forecasting	3
CIS 3503	Technopreneurship	3
CDS 4723	Capstone Project I	3
CDS 4733	Business Process Automation	3
CDS 4823	Capstone Project II	3
CDS 4833	IT and Data Strategy and Governance	3
CDS 4716	Apprenticeship I (*)	6
CDS 4816	Apprenticeship II (*)	6
*Apprenticeship Courses		

Code	Title	Credit Hours
Elective Courses		
Required Credits: 6		
CIB 4003	E Business Applications Development	3
CIB 4113	Accounting and Finance Analytics	3
CIS 4003	Green Computing	3
CSF 4613	Security Intelligence	3

Code	Title	Credit Hours
General Studies		
Required Credits: 18		
LSM 1013	Mathematics for Computing	3
LSC 1103	Professional Written Communication	3
LSS 1133	Critical Thinking and Research Skills	3
CIS 1703	Introductory Statistics and Probability	3
CIS 2603	Artificial Intelligence Foundations	3
AES 1003	Emirati Studies	3

Description	Data
Total Required Credits	120
Maximum Duration of Study	6 years
Minimum Duration of Study	4 years
Cost Recovery Program	No
Program Code	BADSC
Major Code	CDS

Ideal Study Plan
Recommended Sequence of Study

Year 1

Semester 1

		Credit Hours
CIS 1313	Introduction to Computer Systems and Networks	3
CIS 1203	Web Technologies	3
CIS 1603	Programming I	3
LSM 1013	Mathematics for Computing	3
LSC 1103	Professional Written Communication	3
	Credit Hours	15

Semester 2

CIS 1213	Introduction to Information Security	3
CIS 1303	Database Systems	3
CIS 1613	Programming II	3
CIS 1703	Introductory Statistics and Probability	3
LSS 1133	Critical Thinking and Research Skills	3
	Credit Hours	15

Year 2

Semester 3

CIS 2033	User Centered Design	3
CIS 2023	Applied Discrete Mathematics	3
CIS 2213	Full-stack Web Application Development	3
CIS 2113	Introduction to Software Engineering	3
CIS 2603	Artificial Intelligence Foundations	3
	Credit Hours	15

Semester 4

CDS 2413	Programming for Data Science	3
CDS 2433	Business Process Modeling and Optimization	3
CDS 2443	Advanced Database Systems	3
CSE 2623	Algorithms and Data Structures	3
AES 1003	Emirati Studies	3
	Credit Hours	15

Year 3

Semester 5

CDS 3513	Data Mining Techniques	3
CDS 3523	Statistical Inference	3
CDS 3533	Big Data Analytics	3
CDS 3543	Data visualization for Decision making	3
CIS 3603	Project Management	3
	Credit Hours	15

Semester 6

CDS 3613	Enterprise Solution Management	3
CDS 3623	Data Mining for Enterprise Solutions	3
CDS 3633	Machine Learning for Business Analytics	3
CDS 3643	Time Series Analysis and Forecasting	3
CIS 3503	Technopreneurship	3
	Credit Hours	15

Year 4

Semester 7

CDS 4716	Apprenticeship I	6
CDS 4723	Capstone Project I	3
CDS 4733	Business Process Automation	3
4000 Level Elective		3
	Credit Hours	15

Semester 8

CDS 4816	Apprenticeship II	6
CDS 4823	Capstone Project II	3
CDS 4833	IT and Data Strategy and Governance	3
4000 Level Elective		3
	Credit Hours	15
	Total Credit Hours	120

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