DATA SCIENCE AND ENGINEERING, MASTER OF SCIENCE

The Master of Science program in Data Science and Engineering aims to provide students with a strong foundation in data engineering, 'big data' science, and data analysis. The program integrates the knowledge, expertise and educational assets of HBKU and its research institutes in data collection, management and analytics, and scalable data-driven knowledge discovery, as well as the fundamental concepts behind these techniques.

For more information, click here (https://www.hbku.edu.qa/en/cse/ms-data-science-engineering/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
CSE 602	Statistics for Science and Engineering	3
DSEG 733	Advanced Data Management System	3
ICT 601	Research Methods and Ethics	3
ICT 705	Applied Data Analytics	3
Subtotal		12
Elective Courses		
Select four of the following:		12
Free elective: Students can take one course from any HBKU program		
CSEG 605	Convex Optimization for Large-Scale and Distributed Systems	
CSEG 710	Advanced Algorithms and Data Structures	
CSEG 780	Principles of Computer System Design	
CYSE 727	Wireless Networks & Security	
DSEG 660	Applied Deep Learning	
DSEG 682	Special Topics in Data Science and Engineering	
DSEG 735	Learning from Data	
DSEG 760	Machine Learning	
ICT 615	AI for Social Media and Multimedia Applications	
ICT 632	Advanced Applications of the Web and Internet	
ICT 621	Visual Computing	
ICT 660	Principles of Health Informatics	
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	
ICT 666	Computational Bioinformatics	
ICT 668	Medical Image Processing	
ICT 690	Special Topics	
ICT 706	Independent Studies	
ICT 716	Data Science Tools and Applications	
ICT 718	GenAI - Generative AI Foundations	
ICT 720	Cloud Computing	
ICT 725	Quantum Computing	
ICT 726	Quantum Machine Learning	
ICT 730	System Performance Modelling and Analysis	
ICT 736	Interactive Design for Health care	
Subtotal		12
Seminar		
Must pass one time		
ICT 701	Graduate Research Seminars	0
Subtotal		0
Thesis or Project		
Select one of the following:		
ICT 695	Master's Thesis Hours	
ICT 698	Industrial/ Project (+ One elective from list above)	
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

Project

First Year		
First Semester		**Hours**
CSE 602	Statistics for Science and Engineering	3
ICT 601	Research Methods and Ethics	3
ICT 701	Graduate Research Seminars	0
ICT 705	Applied Data Analytics	3
	Semester Hours	**9**
Second Semester		
DSEG 733	Advanced Data Management System	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
Elective 3		3
Elective 4		3
Elective 5		3
	Semester Hours	**9**
Second Semester		
ICT 698	Industrial/ Project	6
	Semester Hours	**6**
	Total Hours	**33**

Thesis

First Year		
First Semester		**Hours**
CSE 602	Statistics for Science and Engineering	3
ICT 601	Research Methods and Ethics	3
ICT 701	Graduate Research Seminars	0
ICT 705	Applied Data Analytics	3
	Semester Hours	**9**
Second Semester		
DSEG 733	Advanced Data Management System	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
ICT 695	Master's Thesis Hours	3
Elective 3		3
Elective 4		3
	Semester Hours	**9**

Second Semester		
ICT 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**