Program Viewbook

Bachelor of Science in Design and Artificial Intelligence (BScDAI)

Program Description

The Bachelor of Science in Design and Artificial Intelligence (BScDAI) is an interdisciplinary program that brings together design, artificial intelligence, and digital technologies. The program combines studio-based learning with courses in design, computing, mathematics, and emerging technologies to prepare students for creative and technology-supported design practice across different fields. Innovation and entrepreneurship, sustainability, research and critical thinking, digital fluency, and community engagement are integrated throughout the curriculum and explored through studios, computing courses, entrepreneurship courses, ethics, visualization, and AI applications.

The curriculum encourages students to think systemically, work collaboratively, and apply computational and AI-based approaches within design processes. Through progressive studio experiences and technical coursework, students build skills in visualization, interaction design, prototyping, and data-informed design development. The program also highlights the ethical, social, and environmental responsibilities connected to the use of emerging technologies in design practice.

The program promotes hands-on and interdisciplinary learning through studio projects, internships, and capstone experiences that connect design methods with contemporary digital and intelligent technologies.

Program Learning Outcomes (PLOs)

PLO 1: Demonstrate advanced knowledge of design, artificial intelligence, and human-computer interaction to frame and solve complex, real-world problems.

PLO 2: Apply advanced and innovative AI techniques and data-driven methods to support, inform, and optimize design processes and decision-making.

PLO 3: Develop human-centered, context-aware, and sustainable design solutions across spatial, product, and service domains using computational and algorithmic thinking.

PLO 4: Apply programming, computational tools, and digital fabrication techniques to prototype interactive, responsive, and innovative intelligent systems.

PLO 5: Critically evaluate and apply AI technologies with ethical, social, cultural, and environmental responsibility in professional and societal contexts.

PLO 6: Design adaptive digital-physical environments and systems that respond to user needs through data-driven and real-time interactions.

PLO 7: Collaborate effectively in multidisciplinary teams and communicate ideas and outcomes through visual, verbal, and data-driven formats to diverse stakeholders.

PLO 8: Develop AI-enabled design solutions for emerging and future contexts through speculative, entrepreneurial thinking, leadership, and lifelong learning.

Program Completion Requirements

The BScDAI degree shall be awarded to a student upon fulfillment of the following requirements:

- Successful completion of 128 credit hours.
- Achievement of a minimum cumulative GPA of 2.0 on a 4.0 scale.
- Completion of at least 50% of the total program credit hours at CUD.
- Completion of the Internship and Capstone Project while enrolled at CUD.

Program Structure

I.	**Core Courses**	**86 Cr. Hrs.**
II.	**Electives**	**12 Cr. Hrs.**
III.	**Practical experience and Projects**	**9 Cr. Hrs.**
IV.	**University Requirement and General Education**	**21 Cr. Hrs.**
Total		**128 Cr. Hrs.**

List of Courses:

Course			Prerequisite/Co-requisite*	Cr. Hrs.
I. Core Courses				
Mathematics, Statistics, and Computer Science Courses				**18**
MTH	112	Calculus 1	None	3
MTH	114	Linear Algebra	MTH 112	3
MTH	120	Discrete Mathematics	None	3
MTH	130	Probability and Statistics	MTH 112	3
SWS	110	Programming 1	None	3
SWS	111	Programming 2	SWS 110	3
Design Courses				**23**
DES	101	Studio 1- Introduction to Design	DES 110 and DES 113	4
DES	102	Studio 2- Design and the Human	DES 101, DES 110, DES 113, DES 120	4
DES	110	Design Theory	DES 101 and DES 113	3
DES	120	Human Factors	DES 102	3
DES	113	Drafting and Modeling	DES 101 and DES 110	3
DES	214	Computer Aided Design	DES 113	3
DES	381	Artificial Intelligence for Design Applications	DES 214	3
Design and Artificial Intelligence Courses				**30**
DAI	202	Product Design Studio	DES 102, BAI 201 and DES 214	6
DAI	223	Design History in the Age of Artificial Intelligence	None	3
DAI	301	Service Design Studio	DAI 202	6
DAI	302	Spatial Design Studio	DAI 301	6
DAI	311	Human Computer Interaction and AI	BAI 201 and DES 214	3
DAI	312	Artificial Intelligence and Computer Vision	DES 381 and BAI 301	3
DAI	402	Ethics, Society, and Futures of Artificial Intelligence	BAI 302	3
Artificial Intelligence Courses				**15**
BAI	201	Introduction to Artificial Intelligence	SWS 110 or BCS 101 and MTH 112	3

BAI	301	Introduction to Machine Learning	BAI 201 and MTH 130	3
BAI	302	Generative AI	BAI 201	3
BAI	304	Deep Neural Networks	BAI 201 and MTH 114	3
BAI	308	Introduction to Natural Language Processing	BAI 301	3

II. Elective Courses				
Elective Courses (12 Credits): Students are required to select four courses from the following courses.				
BAI	204	AI Project Management	BAI 201	3
DES	231	Sustainability of Buildings	DES 102	3
MCM	250	Digital Imaging	None	3
IDF	309	Sustainable Design	None	3
DAI	321	Designing Immersive Environments	DES 214	3
DES	372	Graphic Design and Portfolio for Architects and Interior Designers	DES 214	3
DES	382	Data Analytics in the Built Environment	MTH 112 and DES 214	3
BCS	401	Ethics for Computing Professionals	None	3
DES	440	Visualization	DES 214	3
RTA	402	Social Media	None	3
DAI	403	Digital Twins, Agents, and Smart Ecosystems	DAI 311 and BAI 301	3
DAI	404	Agentic AI and Multi-Agent Systems for Design	BAI 308	3

III. Practical Experience and Projects				
Practical Experience and Project				**9**
DAI	401	Capstone Project	DAI 302	**6**
DAI	400	Internship in Design and Artificial Intelligence	Completion of 90 Cr. Hrs. and CGPA ≥ 2	**3**

IV- University Requirement and General Education				
University Requirements Courses				**21**
Compulsory Courses				**18**
LNG	171	English I	None	3
LNG	172	English II	LNG 171	3
ENT	141	Fundamentals of Innovation and Entrepreneurship 1	None	2
ENT	142	Fundamentals of Innovation and Entrepreneurship 2	ENT 141	1
GED	190	Emirati Studies	None	3
GED	255	Critical Thinking and Problem Solving	LNG 172	3
ENT	241	Entrepreneurship 1	ENT 142	2
ENT	242	Entrepreneurship 2	ENT 241	1
Humanities Elective Courses (03 Credits): Students are required to select one course from the following courses				**3**
GED	110	Modern Art Appreciation	None	3
GED	196	Communication Skills in Arabic	None	3
GED	205	Psychology in Everyday Life	LNG 172	3
GED	272	Fundamentals of Public Speaking	LNG 172	3
GED	324	Ethical Reasoning for Today's World	LNG 172	3

** Co-requisites are underlined.*

NOTE: *Ethical awareness and responsible AI practices will be introduced throughout AI courses, including BAI 201 Introduction to Artificial Intelligence, BAI 301 Introduction to Machine Learning, and BAI 302 Generative AI. Students will progressively develop a deeper understanding of the ethical, social, and societal implications of AI technologies, which will be further explored in depth in DAI 402 Ethics, Society, and Futures of Artificial Intelligence through critical discussion and analysis of emerging AI challenges and future impacts*

Eight-Semester Study Plan

Semester	Course Code		Course Title	Prerequisite/ Co-requisite	Cr. Hrs.
1	LNG	171	English I	None	3
	DES	101	Studio 1- Introduction to Design	DES 110 and DES 113	4
	DES	110	Design Theory	DES 101 and DES 113	3
	DES	113	Drafting and Modeling	DES 101 and DES 110	3
	ENT	141	Fundamentals of Innovation and Entrepreneurship 1	None	2
	MTH	112	Calculus 1	None	3
	Total				**18**
2	SWS	110	Programming 1	None	3
	DES	102	Studio 2- Design and the Human	DES 101, DES 110, DES 113, DES 120	4
	DES	120	Human Factors	DES 102	3
	MTH	114	Linear Algebra	MTH 112	3
	MTH	120	Discrete Mathematics	None	3
	ENT	142	Fundamentals of Innovation and Entrepreneurship 2	ENT 141	1
	Total				**17**
3	DAI	223	Design History in the Age of Artificial Intelligence	None	3
	MTH	130	Probability and Statistics	MTH 112	3
	SWS	111	Programming 2	SWS 110	3
	BAI	201	Introduction to Artificial Intelligence	SWS 110 or BCS 101, MTH 112	3
	DES	214	Computer Aided Design	DES 113	3
	LNG	172	English II	LNG 171	3
	Total				**18**
4	DAI	202	Product Design Studio	DES 102, BAI 201, DES 214	6
	ENT	241	Entrepreneurship 1	ENT 142	2
	XXX	XXX	Program Elective 1		3
	GED	190	Emirati Studies	None	3
	GED	255	Critical Thinking and Problem Solving	LNG 172	3
	Total				**17**
5	DES	381	Artificial Intelligence for Design Applications	DES 214	3
	DAI	301	Service Design Studio	DAI 202	6
	BAI	301	Introduction to Machine Learning	BAI 201 and MTH 130	3
	DAI	311	Human Computer Interaction and AI	BAI 201 and DES 214	3
	ENT	242	Entrepreneurship 2	ENT 241	1
	Total				**16**
6	DAI	302	Spatial Design Studio	DAI 301	6
	BAI	302	Generative AI	BAI 201	3
	DAI	312	Artificial Intelligence and Computer Vision	DES 381 and BAI 301	3
	BAI	304	Deep Neural Networks	BAI 201 and MTH 114	3
	BAI	308	Introduction to Natural Language Processing	BAI 301	3
	Total				**18**
7	XXX	XXX	Program Elective 2		3
	XXX	XXX	Program Elective 3		3
	DAI	402	Ethics, Society, and Futures of Artificial Intelligence	BAI 302	3
	DAI	401	Capstone Project*	DAI 302	6
	Total				**15**
8	DAI	401	Capstone Project (Cont'd)		--
	XXX	XXX	Program Elective 4		3
	GED	XXX	GED Elective		3
	Total				**6**
DAI 400 (Internship in Design and Artificial Intelligence) The internship must be completed during the summer after completing 90 credit hours and achieving a CGPA of 2.0 or higher.					3
Total Credit Hours					**128**

**DAI 401 Capstone Project is a 6-credit capstone course delivered over Semesters 7 and 8. Students register for the course in Semester 7 only, and the work continues into Semester 8 without additional registration or credit.*

*** Students may enrol in DAI 400 (Internship in Design and Artificial Intelligence) and start their internship during the summer semester of Semester 7, provided they have successfully completed the prerequisite requirements, including completion of 90 Credit Hours and maintaining a CGPA ≥ 2.0. The internship may also be split across two summer semesters, subject to departmental approval.*