BS in Data Science and Engineering
Degree Plan

Year	Term	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
Preparatory Year	Term1	ENGL 01-xx	Prep. English I (First Quarter)	Required	None	4	Institution
		ENGL 02-xx	Prep. English II (Second Quarter)	Required	None	4	Institution
		MATH 001	Prep. Math I	Required	None	4	Institution
		PYP 001	Prep. Physical Science	Required	None	2	Institution
		PYP 003	Life Skills	Required	None	1	Institution
		PE 001	Prep. Health and Physical Educ. I	Required	None	1	Institution
			Total Credit Hours of Term 1			16	
	Term 2	ENGL 03-xx	Prep. English III (Third Quarter)	Required	None	4	Institution
		ENGL 04-xx	Prep. English IV (Fourth Quarter)	Required	None	4	Institution
		MATH 002	Prep. Math II	Required	None	4	Institution
		PYP 002	Introduction to Digital Technologies	Required	None	1	Institution
		PYP 004	Prep. Eng. Technology	Required	None	1	Institution
		PE 002	Prep. Health and Physical Educ. II	Required	None	1	Institution
			Total Credit Hours of Term 2			15	
First Year	Term 1	BUS 200	Business & Entrepreneurship	Required	None	3	DF
		ENGL 101	Introduction to Academic Discourse	Required	None	3	GS
		IAS 111	Belief and its Consequences	Required	None	2	GS
		ICS 104	Intro. to Programm. in Python & C	Required	None	3	DF
		MATH 101	Calculus I	Required	None	4	MS
		PE 101	Health & Physical Education I	Required	None	1	GS
			Total Credit Hours of Term 1			16	
	Term 2	ENGL 102	Introduction to Report Writing	Required	ENGL 101	3	GS
		IAS 121	Language Foundation	Required	None	2	GS
		ICS 108	Object-Oriented Programming	Required	ICS 104	4	CR
		MATH 102	Calculus II	Required	MATH 101	4	MS
		MATH 210	Intro. to Sets and Structures	Required	None	3	MS

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			Total Credit Hours of Term 2			16	
Second Year	Term 1	DATA 211	Intro. to Data Science	Required	ICS 104, MATH 102	3	DF
		ENGL 214	Academic & Prof. Communication	Required	ENGL 102	3	GS
		IAS 212	Ethics and Governance	Required	IAS 111	2	GS
		MATH 201	Calculus III	Required	MATH 102	3	MS
		MATH 208	Differential Equations & Linear Algebra	Required	MATH 102	3	MS
		STAT 201	Introduction to Probability and Statistics	Required	MATH 102	3	CR
			Total Credit Hours of Term 1			17	
	Term 2	COE 292	Intro. to Artificial Intelligence	Required	DATA 211	3	DF
		DATA 201	Probability for Data Science	Required	MATH 208, STAT 201	3	CR
		GS XXX	GS Elective	Elective		3	GS
		ICS 202	Data Structures and Algorithms	Required	ICS 108	4	CR
		SWE 206	Introduction to Software Engineering	Required	ICS 108	3	CR
			Total Credit Hours of Term 2			16	
Third Year	Term 1	DATA 301	Data, Inference, and Decisions	Required	DATA 201	3	CR
		DATA 311	Data Engineering	Required	DATA 211, ICS 202	3	CR
		DATA 321	Matrix Theory for Data Science	Required	MATH 208	3	CR
		DATA 361	Fundamentals of Database Systems	Required	ICS 202	3	CR
		DATA xxx	Data Science Elective I	Elective		3	CE
		IAS XXX	Islamic/Arabic Elective	Elective		2	GS
			Total Credit Hours of Term 1			17	
	Term 2	CGS 392	Career Essentials	Required		1	GS
		DATA 322	Mathematical Modeling for Data Science	Required	DATA 211, MATH 208	3	CR
		DATA 341	Statistical Methods for Data Science	Required	STAT 201	3	CR
		DATA 351	Human Contexts and Ethics of Data	Required	COE 292	3	CR
		DATA xxx	Data Science Elective II	Elective		3	CE

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		SWE 363	Web Engineering and Development	Required		3	CR
			Total Credit Hours of Term 2			16	
Summer	Summer	DATA 399	Summer Training	Required	ENGL 214, DATA 311	1	CR
			Total Credit Hours of Summer Training			1	
Fourth Year	Term 1	DATA 411	Senior Design Project I	Required		0	CR
		DATA 421	Optimization for Data Science	Required	DATA 311, MATH 201	3	CR
		DATA xxx	Data Science Elective III	Elective		3	CE
		ICS 485	Machine Learning	Required	COE 292, MATH208, STAT 201	3	CR
		XE xxx	Technical Elective I	Elective		3	TE
		XE xxx	Technical Elective II	Elective		3	TE
			Total Credit Hours of Term 1			15	
	Term 2	DATA 412	Senior Design Project II	Required	DATA 411	3	CR
		DATA 471	Big Data Analytics	Required		3	CR
		XE xxx	Technical Elective III	Elective		3	TE
		XE xxx	Technical Elective IV	Elective		3	TE
		STAT 460	Time Series (Analysis)	Required	DATA 341	3	CR
			Total Credit Hours of Term 2			15	
			Total Credit Hours			129	