Program Road Map

Applicable to Batch No. ____f2025266____ **Session** ____Fall 2025____

		1st Semester				2nd Semester	
Pre-Req	Course Code	Course	Cr. Hr.	Pre-Req	Course Code	Course	Cr. Hr.
	CC120	Application of Information & Communication Technologies	2		ISL104	Islamic Thought and Perspectives	2
	CC120L	Application of Information & Communication Technologies Lab	1	EN110	EN123	English-II	3
	CC141	Discrete Structures	3			Arts and Humanities Elective	2
	NS125	Applied Physics	2		CC111	Programming Fundamentals	3
	NS125L	Applied Physics Lab	1		CC111L	Programming Fundamentals Lab	1
	EN110	English-I	3	NS125, NS125L	CC121	Digital Logic Design	2
		Social Science Elective	3	NS125, NS125L	CC121L	Digital Logic Design Lab	1
	MA050	Algebra and Trigonometry (Only for Pre-medical Students)	3*		MA060	Pre-Calculus (Only for Pre-medical Students)	3*
					ITC111	Fehm- e- Quran- I	1
		Semester Total	15 (18*)			**Semester Total**	15 (18*)

3rd Semester				4th Semester			
Pre-Req	Course Code	Course	Cr. Hr.	Pre-Req	Course Code	Course	Cr. Hr.
CC111, CC111L	CC112	Object Oriented Programming	3		CC251	Computer Networks	2
CC111, CC111L	CC112L	Object Oriented Programming Lab	1		CC251L	Computer Networks Lab	1
EN123	EN225	Technical & Business Writing	3		CC230	Database Systems	3
	MA150	Probability and Statistics	3		CC230L	Database Systems Lab	1
C121, CC121L	CC222	Computer Organization and Assembly Language	2	MA107 MA108		Multivariable Calculus	3
CC121, CC121L	CC222L	Computer Organization and Assembly Language Lab	1	CC112, CC112L	CC213	Data Structures	3
	POL121	Pakistan: Ideology, Constitution and Society	2	CC112, CC112L	CC213L	Data Structures Lab	1
	MA107	Calculus and Analytic Geometry	3			Think AI	2
	ITC122	Fehm- e- Quran- II	1		CC281	Software Engineering	3
		Semester Total	19			Semester Total	19

5th Semester				6th Semester			
Pre- Req	Course Code	Course	Cr. Hr.	Pre- Req	Course Code	Course	Cr. Hr.
	CC323	Operating Systems	3		HU201	Professional Practices	2
	CC323L	Operating Systems Lab	1	CC213, CC213L	CC371	Artificial Intelligence	3
	CS341	Theory of Automata	3	CC213, CC213L	CC342	Analysis of Algorithms	3
CC222, CC222L	CS245	Computer Architecture	3			Technical Elective 3	3
		Technical Elective 1	3			Technical Elective 4	3
	MA210	Linear Algebra	3			Technical Elective 5	3
	SD100	English Immersion	0		SD210	Civics and Community Engagement	2
		Technical Elective 2	3				
		Semester Total	**19**			**Semester Total**	**19**

		7th Semester					8th Semester		
Pre- Req	Course Code	Course	Cr. Hr.		Pre- Req	Course Code	Course		Cr. Hr.
CC230, CC230L	CS431	Advance Database Management Systems	2		CS341	CS342	Compiler Construction		3
CC230, CC230L	CS431L	Advance Database Management Systems Lab	1				Technical Elective 7		3
CC323, CC323L	CC425	Parallel and Distributed Computing	3		CC491	CC492	Final Year Project II		4
	MG224	Innovation and Entrepreneurship	2				Pakistan Studies		2
	CC361	Information Security	3				COOP (Optional)		6*
	CS324	Human Computer Interaction	3						
	CC491	Final Year Project I	2						
		Technical Elective 6	3				Semester Total		12(18*)
		Semester Total	19				Total credit hours		137 *(143)

*COOP means FYP undertaken with the industry

List of Technical Electives

CS414	Advanced Programming	2+1
IT452	Cloud Computing	3
CS392	Computer Graphics	3
CS415	Competitive Programming	2+1
CS391	Computer Vision	2+1
CS426	Embedded Systems	3
CS493	Digital Image Processing	3
CS343	Information Retrieval	3
DS393	Data Mining	2+1
AI372	Machine Learning	2+1
AI391	Natural Language Processing	3
CS393	Mobile Application Development	2+1
IT291	Web Technologies	2+1
IT391	Advance Web Technologies	2+1
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Art and Humanities Elective (2 Chrs.)

Art and Humanities (3-Credit Hours) Min One Course	
SD221: Life and Learning	2
SD222: Foreign Language	2
SD223: Logical Reasoning	2
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Social Sciences Elective (3 Chrs.)

Social Sciences (3-Credit Hours) Min One Course	
HWB101: Health and Wellbeing	3
SOC102: Understanding Society and Sociocultural Dynamics	3
PSY110: Psychology of Mind and Behavior	3
ECO202: Economics	3
MK210: Principles of Marketing	3
MG120: Principles of Management	3
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Note:

The program BS(CS) is accredited by NCEAC. The roadmap must contain the courses provided by the NCEAC. Some of the courses we offer differ from those prescribed by UMT UG 2.0 but they are those that are mandated by NCEAC and do fulfill the requirement of the respective areas of UG 2.0. The roadmap is compliant with all the other courses proposed in UG 2.0.