

Bachelor of Science (Applied Computing) Program

Structure of the Program

Total Credit Hours: 132 Total Courses: 45 Semesters: 8 Duration: 4 Years **Category: Courses (Credit Hours)**

General Education: 13 (32)

Major courses: 25 (79)

Allied/interdisciplinary courses: 4 (12) Internship/field experience: 1 (3)

Capstone project: 2 (6)

Total: 45 (132)

SCHEME OF STUDIES

S #	COURSE CODES	CLASS	COURSE TITLE	CREDIT HOURS	PRE-REQ	CO-REQ	
	,		SEMESTER 1	1		•	
1	General Education	GER111	Application of Information & Communication Technologies	2 + 1			
2	General Education	GER131	Calculus and Analytical Geometry	3+0			
3	General Education	GER121	Functional English	3 + 0			
4	Computing Core	CMC111	Programming Fundamentals	3 + 1			
5	General Education	GER141	Islamic Studies	2+0			
6	General Education	GER112	Pak Studies	2 + 0			
			Total Semester Credit Hours	(15 + 2)			
SEMESTER 2							
1	Computing Core	CMC121	Digital Logic Design	2 + 1			
2	General Education	GER142	Ideology and Constitution of Pakistan	2+0	GER112		
3	General Education	GER151	Applied Physics	2 + 1			
4	General Education	GER122	Expository Writing	3+0	GER121		
5	Computing Core	CMC112	Object Oriented Programming	3 + 1	CMC111		
6	General Education	GER132	Discrete Structures	3+0			
			Total Semester Credit Hours	(15 + 3)			
			SEMESTER 3	<u> </u>		l .	
1	Computing Core	CMC251	Data Structures & Algorithms	3 + 1	CMC112		
2	Computing Core	CMC261	Computer Networks	2 + 1			
3	Computing Core	CMC222	Computer Organization & Assembly Language	2 + 1	CMC121		
4	General Education	GER261	Introduction to Management	2+0			
5	Mathematics Supporting	MTE221	Technical & Business Writing	3 + 0	GER122		

Total Semester Credit Hours SEMESTER 4 SEMESTER 4	6	Mathematics Supporting	MTE111	Multivariate Calculus	3+0	GER131
SEMESTER 4		Supporting		Total Semester Credit Hours	(15 + 3)	
Computing Core						
Computing Core	1	Computing Core	CMC331	Database Systems	3 + 1	CMC251
Mathematics Supporting MTE213 Linear Algebra and Differential Equations Supporting MTE214 Mathematics Supporting MTE212 Probability and Statistics 3+0	2			·		CMC261
Supporting MTE212 Probability and Statistics 3 + 0	3		MTE213		3 + 0	MTE111
Supporting Computing Core CMC371 Software Engineering 3 + 0		Supporting				
Software Engineering 3 + 0	4	Mathematics	MTE212	Probability and Statistics	3+0	
Total Semester Credit Hours SEMESTER 5						
SEMESTER 5	5	Computing Core	CMC371			
Computing Core CMC252 Analysis of Algorithms 3+0 CMC251					(14 + 2)	
2 Program Core CSC383 Game Programming Languages 3+0 CMC112 3 Program Core CSC382 Human and Computer Interaction 2+1 4 General GER443 Civics and Community Management Education Elective Specialization Elective I 2+1 5 Specialization Elect Specialization Elective II 2+1 6 Specialization Elect Specialization Elective II 2+1 Frogram Core CSC42 Parallel and Distributed Computing 3+0 CMC241 2 Program Core CSC442 Parallel and Distributed Computing 3+0 CMC241 2 Program Core CSC 443 Data Analysis and Visualization 3+0 CMC252 3 Computing Core CMC381 Artificial Intelligence 2+1 4 Specialization Elect Specialization Elective III 2+1 Elective Specialization Elect Specialization Elective IV 2+1 Elective Elective Specialization Elective IV 2+1 Elective Total Semester Credit Hours (14+4) Total Semester Credit Hours (14+4) Specialization Elect Specialization Elective V 2+1 Computing Core CMC491 Final Year Project - I 0+2 Computing Core CMC362 Information Security 2+1 3 Program Core CMC491 Final Year Project - I 0+2 Computing Core CMC491 Final Year Project - I 0+2 Computing Core CMC491 Final Year Project - I 0+2 Computing Core CMC492 Machine Learning 3+0 CMC381 Program Core CMC492 Machine Learning 3+0 CMC381 Program Core CMC492 Final Year Project - I 0+2 Computing Core CMC492 Machine Learning 3+0 CMC381 Elective Specialization Elective VI 2+1 Elective Specialization Elect Specialization Elective VI 2+1 Elective Specialization Elective VI					1	
3 Program Core CSC382 Human and Computer Interaction 2 + 1				, -	3 + 0	
General Education						CMC112
Education Specialization Elective Specialization Elective Specialization Elective Specialization Elective Specialization Elective Specialization Elective II Total Semester Credit Hours SEMESTER 6 Program Core CSC442 Parallel and Distributed Computing CMC241 Specialization Elective Specializa	3			·		
Elective Specialization Elect Specialization Elective II 2 + 1	4		GER443	Civics and Community Management	2 + 0	
Elective Total Semester Credit Hours (14+3)	5		Elect	Specialization Elective I	2 + 1	
Total Semester Credit Hours (14+3)	6	·	Elect	Specialization Elective II	2 + 1	
1 Program Core CSC442 Parallel and Distributed Computing 3 + 0 CMC241 2 Program Core CSC 443 Data Analysis and Visualization 3 + 0 CMC252 3 Computing Core CMC381 Artificial Intelligence 2 + 1 4 Specialization Elective Elect Specialization Elective III 2 + 1 5 Specialization Elective Specialization Elective V 2 + 1 6 Specialization Elective V 2 + 1 Elective Total Semester Credit Hours (14 + 4) SEMESTER 7 1 Computing Core CMC491 Final Year Project - I 0 + 2 2 Computing Core CMC362 Information Security 2 + 1 3 Program Core CSC423 Machine Learning 3 + 0 CMC381 4 Specialization Elective VI 2 + 1 Elective 2 + 1 5 BUS350 INTERNSHIP 3 + 0 CMC381 6 General Education GER462 Entrepreneurship 2 + 0 6 General Education <td></td> <td></td> <td></td> <td>Total Semester Credit Hours</td> <td>(14 + 3)</td> <td></td>				Total Semester Credit Hours	(14 + 3)	
2 Program Core CSC 443 Data Analysis and Visualization 3 + 0 CMC252 3 Computing Core CMC381 Artificial Intelligence 2 + 1 4 Specialization Elective Elect Specialization Elective IV 2 + 1 5 Specialization Elective Elect Specialization Elective V 2 + 1 6 Specialization Elective Elect Specialization Elective V 2 + 1 SEMESTER 7 1 Computing Core CMC491 Final Year Project - I 0 + 2 2 Computing Core CMC362 Information Security 2 + 1 3 Program Core CSC423 Machine Learning 3 + 0 CMC381 4 Specialization Elective VI 2 + 1 2 + 1 5 BUS350 INTERNSHIP 3 + 0 CMC381 6 General Education GER462 Entrepreneurship 2 + 0 Total Semester Credit Hours (12+ 4)				SEMESTER 6	<u>l</u>	<u> </u>
3 Computing Core CMC381 Artificial Intelligence 2 + 1 4 Specialization Elect Specialization Elective III 2 + 1 5 Specialization Elect Specialization Elective IV 2 + 1 6 Specialization Elect Specialization Elective V 2 + 1 6 Specialization Elect Specialization Elective V 2 + 1 7 Total Semester Credit Hours (14 + 4) SEMESTER 7 1 Computing Core CMC491 Final Year Project - I 0 + 2 2 Computing Core CMC362 Information Security 2 + 1 3 Program Core CSC423 Machine Learning 3 + 0 CMC381 4 Specialization Elect Specialization Elective VI 2 + 1 5 BUS350 INTERNSHIP 3 + 0 6 General Education GER462 Entrepreneurship 2 + 0 Formal Semester Credit Hours (12 + 4) Total Semester Credit Hours (12 + 4) SEMESTER 8	1	Program Core	CSC442	Parallel and Distributed Computing	3+0	CMC241
4 Specialization Elect Specialization Elective III 2+1 5 Specialization Elect Specialization Elective IV 2+1 6 Specialization Elect Specialization Elective V 2+1 Flective Total Semester Credit Hours (14+4) SEMESTER 7 1 Computing Core CMC491 Final Year Project - I 0+2 Computing Core CMC362 Information Security 2+1 3 Program Core CSC423 Machine Learning 3+0 CMC381 4 Specialization Elect Specialization Elective VI 2+1 Elective Specialization Elect Specialization Elective VI 2+1 General GER462 Entrepreneurship 2+0 Education Total Semester Credit Hours (12+4) SEMESTER 8	2	Program Core	CSC 443	Data Analysis and Visualization	3 + 0	CMC252
Elective Specialization Elect Specialization Elective IV Elective Total Semester Credit Hours Computing Core CMC491 Final Year Project - I Computing Core CMC362 Information Security Program Core CSC423 Machine Learning Specialization Elective VI Elective BUS350 INTERNSHIP General Education Education Total Semester Credit Hours (14 + 4) D + 2 CMC381 Elect Specialization Elective VI Elective Total Semester Credit Hours (12 + 4) EMESTER 8	3	Computing Core	CMC381	Artificial Intelligence	2 + 1	
Specialization Elect Specialization Elective IV 2+1 Specialization Elect Specialization Elective V 2+1 Total Semester Credit Hours (14+4) SEMESTER 7 Computing Core CMC491 Final Year Project - I 0+2 Computing Core CMC362 Information Security 2+1 Program Core CSC423 Machine Learning 3+0 CMC381 Specialization Elect Specialization Elective VI 2+1 Specialization Elect Specialization Elective VI 2+1 General GER462 Entrepreneurship 2+0 Education Total Semester Credit Hours (12+4) SEMESTER 8	4		Elect	Specialization Elective III	2 + 1	
Specialization Elect Specialization Elective V 2 + 1	5	·	Elect	Specialization Elective IV	2 + 1	
SEMESTER 7 1 Computing Core CMC491 Final Year Project - I 0 + 2 2 Computing Core CMC362 Information Security 2 + 1 3 Program Core CSC423 Machine Learning 3 + 0 CMC381 4 Specialization Elect Specialization Elective VI 2 + 1 5 BUS350 INTERNSHIP 3 + 0 6 General GER462 Entrepreneurship 2 + 0 Education Total Semester Credit Hours (12+ 4) SEMESTER 8	6	Specialization	Elect	Specialization Elective V	2 + 1	
1 Computing Core CMC491 Final Year Project - I 0 + 2 2 Computing Core CMC362 Information Security 2 + 1 3 Program Core CSC423 Machine Learning 3 + 0 CMC381 4 Specialization Elect Specialization Elective VI 2 + 1 Elective BUS350 INTERNSHIP 3 + 0 6 General GER462 Entrepreneurship 2 + 0 Education Total Semester Credit Hours (12+4)				Total Semester Credit Hours	(14 + 4)	
2 Computing Core CMC362 Information Security 2+1 3 Program Core CSC423 Machine Learning 3+0 CMC381 4 Specialization Elective VI 2+1 2+1 5 BUS350 INTERNSHIP 3+0 6 General Education GER462 Entrepreneurship 2+0 Total Semester Credit Hours (12+4)				SEMESTER 7	<u> l</u>	<u> </u>
3 Program Core CSC423 Machine Learning 3+0 CMC381 4 Specialization Elect Specialization Elective VI 2+1 5 BUS350 INTERNSHIP 3+0 6 General GER462 Entrepreneurship 2+0 Education Total Semester Credit Hours (12+4) SEMESTER 8	1	Computing Core	CMC491	Final Year Project - I	0 + 2	
4 Specialization Elect Specialization Elective VI 2+1 5 BUS350 INTERNSHIP 3+0 6 General GER462 Entrepreneurship 2+0 Education Total Semester Credit Hours (12+4) SEMESTER 8	2	Computing Core	CMC362	Information Security	2 + 1	
Elective	3		CSC423	-	3+0	CMC381
General GER462 Entrepreneurship 2 + 0 Education Total Semester Credit Hours (12+ 4) SEMESTER 8	4	·	Elect	Specialization Elective VI	2 + 1	
Education Total Semester Credit Hours SEMESTER 8 (12+ 4)	5		BUS350	INTERNSHIP	3+0	
Total Semester Credit Hours (12+ 4) SEMESTER 8	6		GER462	Entrepreneurship	2+0	
				Total Semester Credit Hours	(12+4)	
1 Computing Core CMC492 Final Year Project - II 0 + 4 CMC491				SEMESTER 8	. "	1
	1	Computing Core	CMC492	Final Year Project - II	0 + 4	CMC491

2	Specialization	Elect	Specialization Elective VII	2 + 1		
	Elective					
3	General	GER463	Professional Practices	2 + 0		
	Education					
4	Program Core	CSC432	Web Programming Languages	2 + 1		
			Total Semester Credit Hours	(6 + 6)		
	TOTAL CREDIT HOURS 132					

^{**}Campus will decide to offer a course.