












BACHELOR OF SCIENCE IN ARTIFICIAL INTELLIGENCE

Course Curriculum



Semester-1						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	CS-110	Fundamentals of Computer Programming	3+1	4,9		
2	MATH-101	Calculus & Analytical Geometry	3+0	4,8,9,16		
3	MATH-161	Discrete Mathematics	3+0	4,9		
4	HU-114	Functional English	3+0	4		
5	CS-108	Application of Information & Communication Technologies	2+1	4		
6		Total CHs	14+2=16			




Semester-2


No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	CS-220	Database Systems	3+1	4,9		
2	CS-212	Object Oriented Programming	3+1	1,2,4,9,16	CS-114 Fundamental of Programming	
3	MATH-222	Linear Algebra	3+0	4	MATH-101	
4	MATH-234	Multivariable Calculus	3+0	4,9	MATH-101	
5	EE-223	Digital Logic Design	2+1	4		
6		Total CHs	14+3=17			


Semester-3						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	MATH-361	Probability & Statistics	3+0	4,8,9,12,16		



2	CS-353	Information Security	2+1	4,8,9		
3	HU-101	Islamic Studies	2+0	4, 16		
4	CS-250	Data Structures & Algorithms	3+1	4,9	CS-110 Fundamental of Programming	
5	CS-272	Artificial Intelligence	2+1	4		
6	EE-347	Computer Networks	2+1	4		
7		Total CHs	14+4=18			

Semester-4						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	PHY-102	Applied Physics	2+1	4,9,12,15		
2	ENGL-104	Expository Writing	3+0	4	HU-114	

3	CS-234	Computer Organization and Assembly Language	2+1	4	EE-223	
4	CS-245	Machine Learning	2+1	4		
5	DS-201	Programming for AI	2+1	4		
6	CS-3XX	AI Elective-1	2+1			
7		Total CHs	13+5=18			

Semester-5						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	MGT-164	Introduction To Management	2+0	4,8,9		
2	CS-333	Operating Systems	2+1	4		
3	CS-348	Knowledge Representation & Reasoning	2+1	4,9		





4	DS-313	Artificial Neural Networks & Deep Learning	2+1	4,9		
5	CS-3XX	AI Elective-2	2+1			
6	CS-3XX	AI Elective-3	2+1			
7		Total CHs	12+5=17			


Semester-6						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	CS-474	Computer Vision	2+1	3,4,9		
2	SE-200	Software Engineering	3+0	4,9,11,12	CS-212 Object Oriented Programming	
3	CS-347	Parallel and Distributed Computing	2+1	4,9		
4	CS-3XX	AI Elective-4	2+1			
5	CS-3XX	AI Elective-5	2+1			

6	CS-3XX	AI Elective-6	2+1			
7		Total CHs	13+5=18			

Semester-7						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	CS-251	Design & Analysis of Algorithms	3+0	4,9,11,12	CS-250	
2	HU-210	Technical Writing	3+0	4,8		
3	MGT-271	Entrepreneurship	2+0	4,8,9		
4	DS-498	Final Year Project-1	0+2	1 to 17		
5	CS-4XX	AI Elective-7	2+1			
6		Total CHs	10+3=13			

Semester-8						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents




1	CCE-401	Civic and Community Engagement	1+1	4,11		
2	HU-102	Psychology	3+0	3,4		
3	HU-127	Ideology and Constitution of Pakistan.	2+0	1 to 17		
4	HU-222	Professional Ethics	2+0	1,3,4,5,8,9,10,11,12,15,16,17		
5	DS-499	Final Year Project-II	0+4		DS-498	
6		Total CHs	8+3=13			
7		Grand Total	133			



List of Electives						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	CS-321	Advanced Database Systems	3+0	9		
2	CS-352	Theory of Automata and Formal Languages	3+0	4,9		



3	CS-47 0	Machine Learning	3+0	9,11,12		
4	CS-47 1	Machine Learning	3+1	9		
5	CS-47 2	Natural Language Processing	3+0	9		
6	CS-47 5	Computer Vision	3+0	9,11,12		
7	SE-32 0	Formal Methods	3+0	4,9	SE-200	
8	CS-49 0	Advance Topics in Computing	3+0			
9	CS-36 1	Computer Graphics	3+1	9,11,12		
10	SE-31 5	Cloud Computing	2-1	4,9		
11	CS-40 4	Big Data Analytics	2-1	9		
12	CS-41 9	Deep Learning	2+1			
13	CS-47 6	Speech & Image Processing	2+1			

14	CS-41 6	Natural Language Processing	2+1			
15	CS-41 7	Artificial Neural Networks	3+0			
16	CS-41 8	Privacy Preservation	2+1			
17	CS-2X X	Machine Learning	2+1			
18	CS-XX X	Reinforcement Learning	3+0			
19	CS-3X X	Advanced Statistics	3+1			
20	CS-3X X	Theory of Automata	3 (3+0)			
21	CS-3X X	HCI & Computer Graphics	2+1			
22	CS-3X X	Speech Processing	2+1			
23	CS-3X X	Fuzzy Systems	3+0			
24	CS-3X X	Swarm Intelligence	2+1			
25	CS-3X X	Agent Based Modeling	2+1			

26	CS-3X X	Knowledge Based Systems	2+1			
27	CS-3X X	Data Mining	2+1			
28	CS-3X X	Virtual and Augmented Reality	2+1			

List of General Education Elective Supporting Courses						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	CS-309	Computing and Society	3+0	3,11		
2	HU-102	Psychology	3+0	3,4		
3	HU-104	English Literature	3+0	4		
4	HU-115	Principles of Sociology	3+0	3,5,11		
5	MGT-175	Intellectual Property Rights	3+0	8		
6	FIN-100	Principal of Accounting	3+0			

For Pre-Medical Students Only						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	MATH-162	Pre-Mathematics I (in lieu of MATH-161)	3+0	4		
2	MATH-163	Pre-Mathematics II (In lieu of MATH-101)	3+0	4		

Summer (1st Year Students)						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	MATH-101	Calculus & Analytical Geometry (in lieu of MATH-234)	3+0	4		
2	MATH-161	Discrete Mathematics (in lieu of MATH-222)	3+0	4		

Internship (Summer)						
No	Code	Title	Credit Hours	Related SDG	Pre Requisite	Contents
1	CS-488	Field Experience /Internship	0+3			

