

## First Semester, First Year (Semester – I)

S. No	Course Code	Course Title	Category	Pre-requisite	Credit Hours		Total
					Th	Pr	
1		Pre-Calculus-I	None	None	00	00	15
2		Introduction to ICT	General Education	None	03	01	
3		Programming Fundamentals	Computing Core	None	03	01	
4		Pakistan Studies	General Education	None	02	00	
5		English Composition and Comprehension	General Education	None	03	00	
6		Islamic Studies / Ethics	General Education	None	02	00	
Sub-Total					13	02	
Second Semester, First Year (Semester – II)							
1		Pre-Calculus-II	None	Pre-Calculus-I	00	00	18
2		Object Oriented Programming	Computing Core	Programming Fundamentals	03	01	
3		Computer Networks	Computing Core	None	03	01	
4		Digital Logic and Design	Computer Science	None	03	01	
5	CY121	Introduction to Cyber Security	Cyber Security Core	None	03	00	
6		Communication and Presentation Skills	General Education	English Composition & Comprehension	03	00	
Sub-Total					15	03	

## First Semester, Second Year (Semester – III)

S. No	Course Code	Course Title	Category	Pre-requisite	Credit Hours		Total
					Th	Pr	
1		Information Security	Computing Core	CY121	03	00	18
2		Data Structures and Algorithms	Computing Core	Programming Fundamentals	03	01	
3		Database Systems	Computing Core	None	03	01	
4		Calculus and Analytic Geometry	Mathematics and Science Foundation	None	03	00	
5		Artificial Intelligence	Computer Science	OOP	03	01	
Sub-Total					15	03	

## Second Semester, Second Year (Semester – IV)

S. No	Course Code	Course Title	Category	Pre-requisite	Credit Hours		Total
					Th	Pr	
1	CY221	Information Assurance	Cyber Security Core	None	03	00	18
2		Analysis of Algorithms	Computer Science	Data Structures	02	00	
3		Computer Organization & Assembly Language	Computer Science	Digital Logic Design	03	01	
4		Linear Algebra	Mathematics and Science Foundation	Cal & Anal. Geometry	03	00	
5		Software Engineering	Computing Core	None	03	00	
6	CY222	Network Security	Cyber Security Core	CY121	02	01	
Sub-Total					16	02	

## First Semester, Third Year (Semester – V)

S. No	Course Code	Course Title	Category	Pre-requisite	Credit Hours		Total
					Th	Pr	
1		Operating Systems	Computing Core	Data Structures & Algorithm	03	01	17
2		Discrete Structures	Computing Core	None	02	00	
3	CY311	Secure Software Design & Development	Cyber security core	CY121	03	01	
4		Differential Equations	Mathematics and Science Foundation	Cal & Anal. Geometry	02	00	
5		E-commerce	Uni-Elective-1	None	02	00	
6	CY312	Malware Analysis	Cyber Elective -2	CY121	03	00	
Sub-Total					15	02	

## Second Semester, Third Year (Semester – VI)

S. No	Course Code	Course Title	Category	Pre-requisite	Credit Hours		Total
					Th	Pr	
1	CY321	Vulnerability Assessment and Reverse Engineering	Cyber Security Core	CY121	03	01	18
2	CY322	Digital Forensics	Cyber Security Core	CY121	03	01	
3	CY323	Ethical Hacking and Penetration Testing	Cyber Elective -1	CY121	02	01	
4		Machine Learning	Uni-Elective-2	Artificial Intelligence	03	01	
5		Probability and Statistics	Mathematics and Science Foundation	None	03	00	
Sub-Total					14	04	

## First Semester, Final Year (Semester – VII)

S. No	Course Code	Course Title	Category	Pre-requisite	Credit Hours		Total
					Th	Pr	
1		Final Year Project - I	Computing Core	None	00	03	16
2		Parallel & Distributed Computing	Computer Science	Operating Systems	03	01	
3	CY411	Cryptanalysis	Cyber Elective -3	CY121	03	00	
4		Technical & Business Writing	General Education	Comm. & Present Skills	03	00	
5		Data Analytics	Uni-Elective-3	None	02	01	
Sub-Total					11	05	

## Second Semester, Final Year (Semester – VIII)

S. No	Course Code	Course Title	Category	Pre-requisite	Credit Hours		Total
					Th	Pr	
1		Final Year Project - II	Computing Core	FYP-1	00	03	11
2		Entrepreneurship	Uni-Elective-4	None	02	00	
3		Professional Practices	General Education	None	03	00	
4	CY421	Wireless and Mobile Security	Cyber Elective -4	CY121	03	00	
Sub-Total					08	03	
Grand-Total					107	24	131