

**SCHEME OF STUDIES
COMPUTER SCIENCE (SPECIALISATION IN CYBER SECURITY)**

Batch 2022					
FIRST YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2022	CT-175	Programming Fundamentals	3	1	4
	CT-174	Fundamentals of Information Technology	2	1	3
	MT-171	Differential & Integral Calculus	3	0	3
	PH-122	Applied Physics	3	1	4
	HS-205	Islamic Studies OR	2	0	2
	HS-209	Ethical Behaviour			
	MT-001	Mathematics-1 (for Pre-Medical)			NC
	CS-251	Logic Design & Switching Theory	3	1	4
	CT-162	Discrete Structures	3	0	3
	CT-260	Object Oriented Programming	3	1	4
SPRING 2023	HS-104	Functional English	3	0	3
	HS-105	Pakistan Studies OR	2	0	2
	HS-127	Pakistan Studies (for Foreigners)			
	HS-220	Chinese Language-I			NC
	HS-231	Turkish Language-II			NC
	HS-224	German Language-I			NC
	HS-226	French Language-I			NC
	MT-002	Mathematics-2 (for Pre-Medical)			NC
	New Specialisation vide Resolution No. SYN-200.6(b)(iv)				

Batch 2023					
FIRST YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2023	CT-175	Programming Fundamentals	3	1	4
	CT-174	Fundamentals of Information Technology	2	1	3
	*EA-104	Functional English	3	0	3
	PH-122	Applied Physics	3	1	4
	**ES-205	Islamic Studies OR	2	0	2
	**ES-209	Ethical Behaviour			
	MT-001	Mathematics-1 (for Pre-Medical)			NC
	CS-251	Logic Design & Switching Theory	3	1	4
	CT-162	Discrete Structures	3	0	3
	CT-260	Object Oriented Programming	3	1	4
SPRING 2024	*MT-171	Differential & Integral Calculus	3	0	3
	**ES-105	Pakistan Studies OR	2	0	2
	**ES-127	Pakistan Studies (for Foreigners)			
	**MT-002	Mathematics-2 (for Pre-Medical)			NC
	* Changed vide Resolution No. EMG-AC-1(A)				
	** Under Section 28(iv) Office Order Acad(42)(156)16991				
	*** Under Section 28(iv) Office Order Acad(42)(156)16909				

Batch 2022					
SECOND YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2023	CT-159	Data Structure Algorithms & Applications	3	1	4
	MT-227	Differential Equations	3	0	3
	**EA-115	Academic Reading and Writing	3	0	3
	**EA-219	Professional Ethics	2	0	2
	CT-259	System Analysis & Design	3	0	3
	**EA-232	Turkish Language-II			NC
	**EA-221	Chinese Language-II			NC
	**EA-225	German Language-II			NC
	**EA-227	French Language-II			NC
	CS-252	Computer Architecture & Organisation	3	1	4
SPRING 2024	CT-261	Database Management Systems	3	1	4
	**EA-218	Business Communications	2	1	3
	**EC-209	Financial & Cost Accounting	3	0	3
	MT-272	Linear Algebra & Geometry	3	0	3
	**EA-200	Community Service			NC
	New Specialisation vide Resolution No. SYN-200.6(b)(iv)				
	* Changed vide Resolution No. EMG-AC-1(A)				
	** Under Section 28(iv) Office Order Acad(42)(156)16909				

Batch 2023					
SECOND YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2024	CT-159	Data Structure Algorithms & Applications	3	1	4
	MT-227	Differential Equations	3	0	3
	EA-115	Academic Reading and Writing	3	0	3
	EA-219	Professional Ethics	2	0	2
	*MT-331	Probability & Statistics	3	0	3
	CS-252	Computer Architecture & Organisation	3	1	4
	CT-261	Database Management Systems	3	1	4
	EA-218	Business Communications	2	1	3
	EC-209	Financial & Cost Accounting	3	0	3
	MT-272	Linear Algebra & Geometry	3	0	3
SPRING 2025	EA-200	Community Service			NC
	* Changed vide Resolution No. AC-163.5(iv)				

Batch 2022					
THIRD YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2024	CT-363	Design & Analysis of Algorithms	3	0	3
	CT-365	Software Engineering	3	0	3
	CT-353	Operating Systems	3	1	4
	CT-4##	Cyber Security Elective-I	3	0	3
	CT-355	Information Security	3	0	3
	CT-371	Vulnerability Assessment & Reverse Engineering	3	1	4
	CT-361	Artificial Intelligence & Expert Systems	3	1	4
	*CT-476	Information Assurance	3	0	3
	CT-##	Cyber Security Elective-II	3	0	3
	*CT-376	Computer Communication Networks	3	1	4
SPRING 2025	New Specialisation vide Resolution No. SYN-200.6(b)(iv)				
	* Changed vide Resolution No. EMG-AC-1(A)				

Batch 2023					
THIRD YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2025	*CT-XXX	Cyber Security Elective-I			
	*CT-XXX	Cyber Security Elective-II			
	CT-363	Design & Analysis of Algorithms	3	0	3
	CT-365	Software Engineering	3	0	3
	*CT-476	Information Assurance	3	0	3
	CT-355	Information Security	3	0	3
	CT-##	Cyber Security Elective-III	3	0	3
	*MG-482	Organisational Behaviour	3	0	3
	CT-361	Artificial Intelligence & Expert Systems	3	1	4
	*CT-353	Operating Systems	3	1	4
SPRING 2026	CT-376	Computer Communication Networks	3	1	4
	*EA/ES	Foreign Language-I			NC
	* Changed Vide Resolution No. AC-163.5(iv)				
	* Changed vide Resolution No. AC-155.3(iii)				

Batch 2024					
THIRD YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2026	CT-XXX	Cyber Security Elective-I			
	CT-XXX	Cyber Security Elective-II			
	CT-363	Design & Analysis of Algorithms	3	0	3
	CT-365	Software Engineering	3	0	3
	CT-476	Information Assurance	3	0	3
	CT-355	Information Security	3	0	3
	CT-##	Cyber Security Elective-III	3	0	3
	MG-482	Organisational Behaviour	3	0	3
	CT-361	Artificial Intelligence & Expert Systems	3	1	4
	CT-353	Operating Systems	3	1	4
SPRING 2027	CT-376	Computer Communication Networks	3	1	4
	EA/ES	Foreign Language-I			NC

Batch 2025					
THIRD YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2027	CT-363	Design and Analysis of Algorithms	3	0	3
	CT-376	Computer Communication Networks	3	1	4
	CT-390	Web Applications and Services	2	1	3
	CT-##	Cyber Security Elective I			
	CT-##	Cyber Security Elective II			
	CT-353	Operating Systems	3	1	4
	CT-361	Artificial Intelligence and Expert Systems	3	1	4
	CT-476	Information Assurance	3	0	3
	CT-##	Cyber Security Elective III			
	MG-482	Organisational Behaviour	3	0	3
SPRING 2028	EA/ES	Foreign Language-I			NC
	Changed with vide Resolution No. AC-168.4(vii)				

Batch 2022					
FINAL YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2025	CT-499	Software Based Project	0	3	3
	*CT-486	Network & Information Security	3	1	4
	CT-##	Cyber Security Elective-III	3	0	3
	MG-482	Organisational Behaviour	3	0	3
	CS-428	Parallel & Distributed Computing	3	1	4
	CT-499	Software Based Project	0	3	3
	CT-477	Secure Software Design & Development	3	1	4
	CT-##	Cyber Security Elective-IV	3	0	3
	MG-481	Entrepreneurship	3	0	3
	CT-478	Digital Forensics	2	1	3
SPRING 2026	New Specialisation vide Resolution No. SYN-200.6(b)(iv)				
	* Changed vide Resolution No. EMG-AC-1(A)				

Batch 2023					
FINAL YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2026	**CT-499	Computer Science Project	0	3	3
	*CT-XXX	Cyber Security Elective-IV			
	CT-486	Network & Information Security	3	1	4
	CS-428	Parallel & Distributed Computing	3	1	4
	*CT-371	Vulnerability Assessment & Reverse Engineering	3	1	4
	*EA/ES	Foreign Language-II			NC
	**CT-499	Computer Science Project	0	3	3
	*CT-##	Cyber Security Elective-V			
	CT-477	Secure Software Design & Development	3	1	4
	MG-481	Entrepreneurship	3	0	3
SPRING 2027	CT-478	Digital Forensics	2	1	3
	* Changed Vide Resolution No. AC-163.5(iv)				
	** Changed Vide Resolution No. AC-165.4(iv)				
	* Changed vide Resolution No. AC-155.3(iii)				

Batch 2024					
FINAL YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2027	CT-499	Computer Science Project	0	3	3
	CT-XXX	Cyber Security Elective-IV			
	CT-486	Network & Information Security	3	1	4
	CS-428	Parallel & Distributed Computing	3	1	4
	CT-371	Vulnerability Assessment & Reverse Engineering	3	1	4
	EA/ES	Foreign Language-II			NC
	CT-499	Computer Science Project	0	3	3
	CT-##	Cyber Security Elective-V			
	CT-477	Secure Software Design & Development	3	1	4
	MG-481	Entrepreneurship	3	0	3
SPRING 2028	CT-478	Digital Forensics	2	1	3

Batch 2025					
FINAL YEAR ----- SEMESTER SYSTEM					
Course Code	Course Title	Crd Hrs			
		Th	Pr	T	
Computer Science (Specialisation in Cyber Security)					
FALL 2028	CT-486	Network and Information Security	3	1	4
	CT-499	Computer Science Project	0	3	3
	CT-##	Cyber Security Elective IV			
	CT-##	Cyber Security Elective V			
	CS-428	Parallel and Distributed Computing	3	1	4
	EA/ES	Foreign Language-III			NC
	CT-477	Secure Software Design and Development	3	1	4
	CT-478	Digital Forensics	2	1	3
	CT-499	Computer Science Project	0	3	3
	MG-481	Entrepreneurship	3	0	3
SPRING 2029	Changed with vide Resolution No. AC-168.4(vii)				

Elective-I and II				
CT-372	Wireless and Mobile Security	3	0	3
CT-373	Penetration Testing	3	0	3
CT-374	Cyber Security Laws and Regulations	3	0	3
CT-375	Cryptography and Cryptanalysis	3	0	3
Elective-III and IV				
CT-479	Hardware Security	3	0	3
CT-480	Malware Analysis	3	0	3
CT-482	Embedded Systems Security	3	0	3
CT-483	Quantum Security	3	0	3

Elective Courses:					
Elective-I	*CT-263	Object Oriented Analysis & Design	2	1	3
	*CT-264	Programming for Artificial Intelligence	2	1	3
	*CT-368	Fundamentals of Data Science	2	1	3
	*CT-266	Fundamentals of Cybersecurity	2	1	3
Elective-II	*CT-267	Fundamentals of Game Development	2	1	3
	CT-374	Cyber Security Laws and Regulations	3	0	3
	CT-375	Cryptography and Cryptanalysis	3	0	3
	CT-372	Wireless and Mobile Security	3	0	3
Elective-III	CT-373	Penetration Testing	3	0	3
	CT-479	Hardware Security	3	0	3
	**CT-403	Blockchain Technologies	2	1	3
	**CT-411	Introduction to Quantum Computing	3	0	3
Elective-IV	CT-482	Embedded Systems Security	3	0	3
	CT-480	Malware Analysis	3	0	3
	CT-483	Quantum Security	3	0	3
	* Changed vide Resolution No. EMG				