

M – 03

Director ~~Academics~~

Approved:

Dir Acad

Dean National Cyber Security Academy

Recommended for approval/endorsement.
21/9/26.

1. Keeping in view of the discussion held in the Academic Council Meeting (ACM) No. 07/2026 held on 17th August 2026, the curricula of the following BS level programs have been revised:

1	BS Cyber Security	Flag A
2	BS Embedded Systems Security	Flag B
3	BS Cyber Forensics and Security	Flag C

2. The minutes of the Departmental Board of Studies (DBS) (**Flag D**) and Faculty Board of Studies (FBS) (**Flag E**), pertaining to the above-mentioned curricula, are enclosed herewith.

3. Submitted for endorsement and approval, please.


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2 September 2026

Office of Dir Acad
Date: 4/9/26
Sr. No. 1752

BS Cyber Security Curriculum (Fall 2026 onwards)

Revision Date: 18th August 2026

1. Eligibility Criteria

- Higher Secondary School Certificate/A-levels (involving minimum 12 years of schooling) or an IBCC equivalent qualification with at least 50% marks and having studied Mathematics is the basic eligibility requirement for admission in BS Cyber Security Program.
- The students who have not studied Mathematics at intermediate level have to pass deficiency courses of Mathematics (06 credits) in first year including zero semester.

2. Program Duration

- The normal duration of BS CYS shall be four academic years. The maximum duration allowed to complete the Bachelor degree is six years. However, Vice Chancellor may approve extension till 7th Year on semester-to-semester basis under force majeure on the recommendations of Chair Dept. of Cyber Security, Dean NCSA, Director Academics and Registrar. The decision of Vice Chancellor would be final in dealing with extension applications.

3. Graduate Attributes

GA	Title	Description
01	Academic Education	Prepare graduates as cyber security professionals with a strong foundation in computing and cyber security.
02	Knowledge for Solving Cyber Security Problems	Apply knowledge of mathematics, computing, and cyber security to analyze and solve cyber security problems.
03	Problem Analysis	Identify, formulate, investigate relevant literature, and analyze complex cyber security problems, reaching well-justified conclusions using principles of mathematics, computing, and cyber security.
04	Secure Solutions Development	Design and develop solutions that meet specified requirements with appropriate consideration of security, legal, societal, environmental, and safety constraints.
05	Modern Tool Usage	Select, adapt, and apply appropriate cyber security techniques, methodologies, and modern tools for threat

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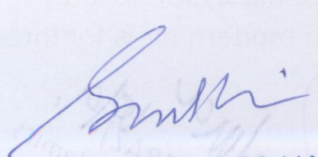
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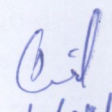
		analysis, modeling, monitoring, and mitigation of cyber security problems.
06	Individual and Team Work	Work effectively as an individual and as a member or leader of diverse and multidisciplinary teams in cyber security and related professional settings.
07	Communication	Communicate effectively on cyber security issues, risks, and solutions with technical professionals, stakeholders, and society at large using appropriate communication methods.
08	Professionalism and Society	Understand and evaluate societal, health, safety, and cultural issues related to cyber security, and recognize the responsibilities of cyber security professionals in local and global contexts.
09	Legal and Ethical Understanding	Demonstrate understanding of ethical principles, professional responsibilities, and legal obligations relevant to cyber security practice.
10	Lifelong Learning	Recognize the importance of continuous, self-directed learning in the rapidly evolving field of cybersecurity and demonstrate the ability to pursue ongoing professional development to remain current and effective.

4. Program Objectives (POs)

PO	Description
PO-1	Graduates will apply knowledge, technical skills, and analytical abilities to effectively address real-world cybersecurity challenges.
PO-2	Graduates will demonstrate ethical conduct, social responsibility, and professionalism in safeguarding digital assets.
PO-3	Graduates will engage in research, innovation, and the adoption of emerging technologies to develop sustainable cybersecurity solutions.
PO-4	Graduates will engage in lifelong professional development and collaborate with local and global stakeholders.


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5. PO-GA Mapping

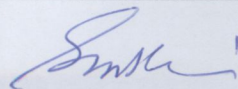
PO	GAs
PO-1	1, 2, 3
PO-2	8, 9
PO-3	4, 5
PO-4	6, 7, 10

6. Program Overview

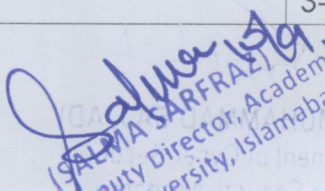
Area	No. of Courses	Credit Hours (Total)	Credit Hours (Theory)	Credit Hours (Lab)
Computing Core	8	30	22	8
Cyber Security Core	9	27	19	8
Specialization Electives	6	18	12	6
Interdisciplinary / Allied Courses	4	12	11	1
General Education Courses	14	34	30	4
Internship / Field Experience	1	3	0	3
Capstone Project / FYP	1	6	0	6
Professional Certification	1	3	3	0
Total:	44	133	97	36

7. Courses Details:

Category	Course Code	Course Title	Credit Hours
Computing Core	CS111	Programming Fundamentals	3-0-3
	CS111L	Programming Fundamentals Lab	0-1-1
	CS112	Object Oriented Programming	3-0-3
	CS112L	Object Oriented Programming Lab	0-1-1
	CS214	Data Structures and Algorithms	3-0-3
	CS214L	Data Structures and Algorithms Lab	0-1-1
	CS130	Database Systems	3-0-3
	CS130L	Database Systems Lab	0-1-1
	EE223	Digital Logic Design	3-0-3
	EE223L	Digital Logic Design Lab	0-1-1
	CS225	Operating Systems	3-0-3


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	CS225L	Operating Systems Lab	0-1-1
	CS260	Computer Networks	2-0-2
	CS260L	Computer Networks Lab	0-1-1
	CS229	Computer Organization and Architecture	2-0-2
	CS229L	Computer Organization and Architecture Lab	0-1-1
Cyber Security Core	CY104	Introduction to Cyber Security	2-0-2
	CY104L	Introduction to Cyber Security Lab	0-1-1
	CY222	Network Security	2-0-2
	CY222L	Network Security Lab	0-1-1
	CY305	Information Security Management	3-0-3
	CY257	Secure Software Development Life Cycle	2-0-2 ✓
	CY257L	Secure Software Development Life Cycle Lab	0-1-1
	CY333	Digital Forensics and Incident Response	2-0-2
	CY333L	Digital Forensics and Incident Response Lab	0-1-1
	CY212	Cryptography	2-0-2
	CY212L	Cryptography Lab	0-1-1
	CY311	Vulnerability Assessment and Penetration Testing	2-0-2
	CY311L	Vulnerability Assessment and Penetration Testing Lab	0-1-1
	CY335	Malware Analysis and Reverse Engineering	2-0-2
	CY335L	Malware Analysis and Reverse Engineering Lab	0-1-1
	CY452	Cloud and Application Security	2-0-2
	CY452L	Cloud and Application Security Lab	0-1-1
Specialization Electives	CYXXX	Domain Elective I	2-0-2
	CYXXX	Domain Elective I Lab	0-1-1
	CYXXX	Domain Elective II	2-0-2
	CYXXX	Domain Elective II Lab	0-1-1
	CYXXX	Domain Elective III	2-0-2
	CYXXX	Domain Elective III Lab	0-1-1
	CYXXX	Domain Elective IV	2-0-2
	CYXXX	Domain Elective IV Lab	0-1-1
	CYXXX	Domain Elective V	2-0-2
	CYXXX	Domain Elective V Lab	0-1-1
	CYXXX	Domain Elective VI	2-0-2
	CYXXX	Domain Elective VI Lab	0-1-1

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Interdisciplinary / Allied Courses (Students need to study 04 courses from this category, including the mandatory Artificial Intelligence)	CS344+L	Artificial Intelligence + Lab (Mandatory)	2-1-3
	XXXXX	Number Theory and Finite Fields	3-0-3
	PH112	Introduction to Environmental Science	3-0-3
	XXXXX	Introduction to Game Development	3-0-3
	MA225	Linear Algebra and Differential Equations	3-0-3
	EL300	Interpersonal Skills	3-0-3
	XXXXX	Media and Information Literacy	3-0-3
	MA301	Probability and Statistics	3-0-3
	BA252	Organizational Behavior	3-0-3
	BA464	Project Management	3-0-3
	HU113	Introduction to Psychology	3-0-3
	MK411	E-Commerce and Digital Marketing	3-0-3
	CS342	Digital Image Processing	3-0-3
	AF355	Fintech & Blockchain Technology	3-0-3
	XXXXX	Space Technology and Applications	3-0-3
	XXXXX	Internet Economics	3-0-3
	XXXXX	Smart Cities and Urban Informatics	3-0-3
	XXXXX	Technology and Sustainable Development	3-0-3
	XXXXX	Digital Media and Communication Studies	3-0-3
	HU316	International Relations	3-0-3
	EL400	Technical and Business Writing	3-0-3
General Education Courses	XXXXX	Arts and Humanities*	2-0-2
	PH111	Applied Physics (Natural Sciences)	2-0-2
	PH111L	Applied Physics Lab (Natural Sciences)	0-1-1
	CS470	Professional Practices (Social Sciences)	2-0-2
	EL170	Functional English	3-0-3
	EL271	Expository Writing	3-0-3
	MA216	Discrete Structure (Quantitative Reasoning - I)	3-0-3
	MA110	Calculus and Analytical Geometry (Quantitative Reasoning - II)	3-0-3
	HU124	Islamic Studies and Ethics	2-0-2
	HU405	Ideology and Constitution of Pakistan	2-0-2
	CS181	Applications of Information and Communication Technologies	2-0-2
	CS181L	Applications of Information and Communication Technologies Lab	0-1-1
	BA353	Entrepreneurship	2-0-2

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	HU411	Civics and Community Engagement	2-0-2
	HU115	Pakistan Studies	2-0-2
	FQ100	Fehm-e-Quran I	0-1-1
	FQ101	Fehm-e-Quran II	0-1-1

***List of Arts & Humanities Courses (2-0-2)**

S. No	Course Code	Course Title	Cr Hrs
1	BA152	Introduction to Management	2-0-2
2	PY115	Introduction to Psychology	2-0-2
3	XXXXX	Financial Management	2-0-2
4	XXXXX	Principles of Marketing	2-0-2

8. Semester-wise Scheme of Studies

Semester I

S No	Course Code	Course Title	Pre-req	Cr Hrs
1.	EL170	Functional English	-	3-0-3
2.	CY104	Introduction to Cyber Security	-	2-0-2
	CY104L	Introduction to Cyber Security Lab	-	0-1-1
3.	CS181	Applications of Information and Communication Technologies	-	2-0-2
	CS181L	Applications of Information and Communication Technologies Lab	-	0-1-1
4.	CS111	Programming Fundamentals	-	3-0-3
	CS111L	Programming Fundamentals Lab	-	0-1-1
5.	MA216	Discrete Structures (QR-I)	-	3-0-3
6.	FQ100	Fehm-e-Quran I	-	0-1-1
7.	MA114*	Foundational Mathematics (non-credit)	-	3-0-3
Total Cr Hrs				13-4-17
Total Contact Hours: 25				

* For students who have not studied Mathematics at Intermediate level

Semester II

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	HU115	Pakistan Studies	-	2-0-2
2.	CS112	Object Oriented Programming	CS111, CS111L	3-0-3
	CS112L	Object Oriented Programming Lab	CS111, CS111L	0-1-1
3.	HU411	Civics and Community Engagement	-	2-0-2

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4.	HU124	Islamic Studies and Ethics	-	2-0-2
5.	PH111	Applied Physics (Natural Sciences)	-	2-0-2
	PH111L	Applied Physics Lab (Natural Sciences)	-	0-1-1
6.	EE223	Digital Logic Design	-	3-0-3
	EE223L	Digital Logic Design Lab	-	0-1-1
7.	FQ101	Fehm-e-Quran II	FQ100	0-1-1
8.	MA118*	Pre-Calculus (non-credit)	-	3-0-3
Total Cr Hrs				14-4-18
Total Contact Hours: 26				

* For students who have not studied Mathematics at Intermediate level

Semester III

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	CS260	Computer Networks	-	2-0-2
	CS260L	Computer Networks Lab	-	0-1-1
2.	CS214	Data Structures and Algorithms	CS112, CS112L	3-0-3
	CS214L	Data Structures and Algorithms Lab	CS112, CS112L	0-1-1
3.	CS229	Computer Organization and Architecture	EE223, EE223L	2-0-2
	CS229L	Computer Organization and Architecture Lab	EE223, EE223L	0-1-1
4.	MA110	Calculus and Analytical Geometry (QR-II)	-	3-0-3
5.	CS344	Artificial Intelligence (IDS-I)	-	2-0-2
	CS344L	Artificial Intelligence Lab (IDS-I)	-	0-1-1
6.	XXXXX	Arts & Humanities Elective	-	2-0-2
Total Cr Hrs				14-4-18
Total Contact Hours: 26				

Semester IV

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	CS225	Operating Systems	-	3-0-3
	CS225L	Operating Systems Lab	-	0-1-1
2.	CY305	Information Security Management	-	3-0-3
3.	CY222	Network Security	CS260, CS260L	2-0-2

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	CY222L	Network Security Lab	CS260, CS260L	0-1-1
4.	XXXXX	Inter-Disciplinary Elective II (IDS-II)	-	3-0-3
5.	CS130	Database Systems	-	3-0-3
	CS130L	Database Systems Lab	-	0-1-1
Total Cr Hrs				14-3-17
Total Contact Hours: 23				

Summer Semester

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	CY 490	Internship/Field Experience (6-8 weeks)*	-	3-0-3

*Under exceptional circumstances, a student can undertake the internship after 5th, 6th or 7th semester (with approval from the Chair Dept.).

Semester V

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	CY333	Digital Forensics and Incident Response	-	2-0-2
	CY333L	Digital Forensics and Incident Response Lab	-	0-1-1
2.	CY311	Vulnerability Assessment and Penetration Testing	-	2-0-2
	CY311L	Vulnerability Assessment and Penetration Testing Lab	-	0-1-1
3.	CY257	Secure Software Development Life Cycle	-	2-0-2
	CY257L	Secure Software Development Life Cycle Lab	-	0-1-1
4.	CYXXX	Cyber Security Elective I	-	2-0-2
	CYXXX	Cyber Security Elective I Lab	-	0-1-1
5.	HU405	Ideology and Constitution of Pakistan	-	2-0-2
6.	EL271	Expository Writing	EL170	3-0-3
Total Cr Hrs				13-4-17
Total Contact Hours: 25				

Semester VI

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	CY212	Cryptography	-	2-0-2
	CY212L	Cryptography Lab	-	0-1-1
2.	CYXXX	Cyber Security Elective II	-	2-0-2
	CYXXXL	Cyber Security Elective II Lab	-	0-1-1
3.	CYXXX	Cyber Security Elective III	-	2-0-2
	CYXXXL	Cyber Security Elective III Lab	-	0-1-1

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4.	CY452	Cloud and Application Security	-	2-0-2
	CY452L	Cloud and Application Security Lab	-	0-1-1
5.	EL400	Technical and Business Writing (IDS-III)	-	3-0-3
6.	BA353	Entrepreneurship	-	2-0-2
7.	CY491	Final Year Project-I	List A*	0-1-1
Total Cr Hrs				13-5-18
Total Contact Hours: 28				

Semester VII

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	CY335	Malware Analysis and Reverse Engineering	-	2-0-2
	CY335L	Malware Analysis and Reverse Engineering Lab	-	0-1-1
2.	CYXXX	Cyber Security Elective IV	-	2-0-2
	CYXXXL	Cyber Security Elective IV Lab	-	0-1-1
3.	CYXXX	Cyber Security Elective V	-	2-0-2
	CYXXXL	Cyber Security Elective V Lab	-	0-1-1
4.	CYXXX	Cyber Security Elective VI	-	2-0-2
	CYXXXL	Cyber Security Elective VI Lab	-	0-1-1
5.	CY492	Final Year Project –II	CY491	0-2-2
Total Cr Hrs				8-6-14
Total Contact Hours: 26				

Semester VIII

S. No	Course Code	Course Title	Pre-req	Cr Hrs
1.	CS470	Professional Practices (Social Science)	-	2-0-2
2.	XXXXX	Inter-Disciplinary Elective IV	-	3-0-3
3.	CYXXX	Professional Certification		3-0-3
4.	CY493	Final Year Project – III	CY492	0-3-3
Total Cr Hrs				8-3-11
Total Contact Hours: 17				

Total No. of Credit Hours: 133

Total No. of Courses: 44

*List A: Pre-requisites for CY-491 Final Year Project-I

S No.	Course Code	Course Title	Pre-req	Cr Hrs
1.	CS214	Data Structures & Algorithms	CS112, CS112L	3-0-3
	CS214L	Data Structures & Algorithms Lab	CS112, CS112L	0-1-1
2.	CY104	Introduction to Cyber Security	-	2-0-2

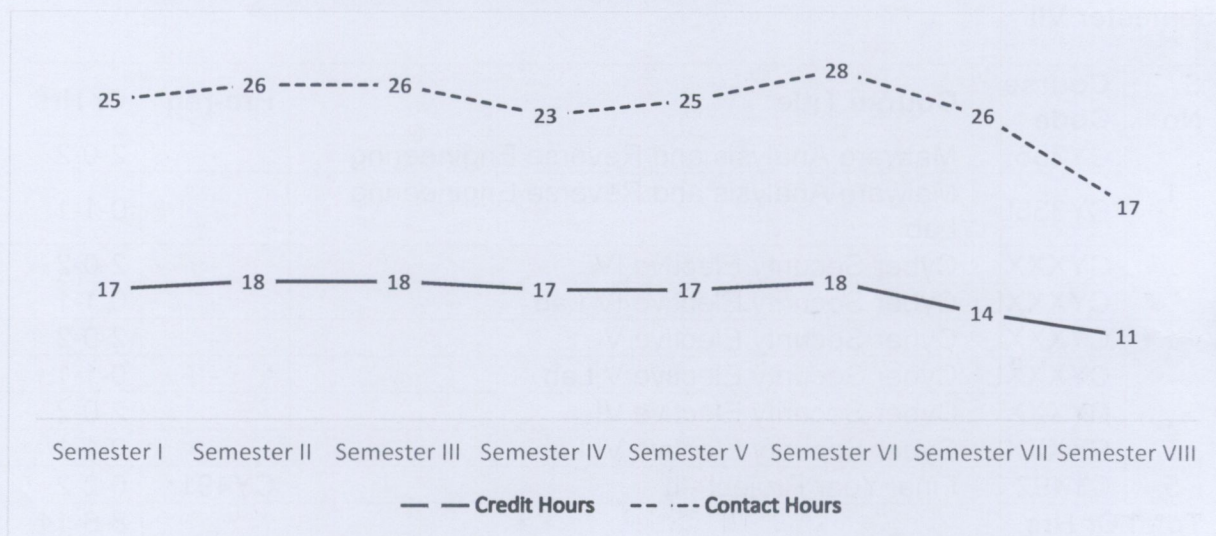
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	CY104L	Introduction to Cyber Security Lab	-	0-1-1
3.	CY257	Secure Software Development Life Cycle	-	2-0-2
	CY257L	Secure Software Development Life Cycle Lab	-	0-1-1

9. Student Workload (Semester-Wise)



10. Cyber Security Elective / Specialization Courses

- The elective courses for BS Cyber Security are broadly categorized into the following specialization clusters. Each specialization cluster provides a broad range of elective courses, from which students must select 6 courses to meet the requirement of 18 credit hours of elective courses.
- If a student opts to study the 6 elective courses from a single cluster then the specialization title shall appear on the degree, e.g., BS Cyber Security (Network and Infrastructure Security) as well as on the transcript. In case a student studies a mix of courses from different clusters then a generic BS Cyber Security degree shall be awarded.
- New courses may be added to any cluster as and when required.
- This list is applicable to BS CYS Fall 22 batch onwards.**

S. No	Course Code	Course Title	Cr Hrs
Group A: Network and Infrastructure Security			
1.	CY431	Cloud Security	2-0-2
	CY431L	Cloud Security Lab	0-1-1
2.	CY337	Data Center Security	2-0-2
	CY337L	Data Center Security Lab	0-1-1
3.	CY309	Network and System Administration	2-0-2

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	CY309L	Network and System Administration Lab	0-1-1
4.	CY350	Machine Learning in Cyber Security	2-0-2
	CY350L	Machine Learning in Cyber Security Lab	0-1-1
5.	CY349	Machine Learning for Network Security	2-0-2
	CY349L	Machine Learning for Network Security Lab	0-1-1
6.	CY406	Virtualization Security	2-0-2
	CY406L	Virtualization Security Lab	0-1-1
7.	CY347	Endpoint Security	2-0-2
	CY347L	Endpoint Security Lab	0-1-1
8.	CY336	Network Security Monitoring	2-0-2
	CY336L	Network Security Monitoring Lab	0-1-1
9.	CY338	Security Automation for Network Operations	2-0-2
	CY338L	Security Automation for Network Operations Lab	0-1-1
10.	CY339	Security Operations Center (SOC) and Threat Monitoring	2-0-2
	CY339L	Security Operations Center (SOC) and Threat Monitoring Lab	0-1-1
11.	CY322	Network Forensics	2-0-2
	CY322L	Network Forensics Lab	0-1-1
12.	CY330	Ethical Hacking and Defense	2-0-2
	CY330L	Ethical Hacking and Defense Lab	0-1-1
13.	CY349	Mobile and Wireless Network Security	2-0-2
	CY349L	Mobile and Wireless Network Security Lab	0-1-1
14.	CY434	Business Infrastructure and Security	2-0-2
	CY434L	Business Infrastructure and Security Lab	0-1-1
15.	CY435	Internet Security	2-0-2
	CY435L	Internet Security Lab	0-1-1
16.	CY437	Privacy-Enhancing Technologies	2-0-2
	CY437L	Privacy-Enhancing Technologies Lab	0-1-1
17.	CY405	Operating System Security	2-0-2
	CY405L	Operating System Security Lab	0-1-1
18.	CY359	Space Systems Cyber Security	2-0-2
	Cy359L	Space Systems Cyber Security Lab	0-1-1

Group B: Cryptography

1.	CY310	Information Privacy and Security	3-0-3
2.	CY315	Symmetric Key Cryptography	2-0-2
	CY315L	Symmetric Key Cryptography Lab	0-1-1
3.	CY316	Asymmetric Key Cryptography	2-0-2
	CY316L	Asymmetric Key Cryptography Lab	0-1-1
4.	CY411	Cryptographic Protocols and Key Management	2-0-2
	CY411L	Cryptographic Protocols and Key Management Lab	0-1-1
5.	CY412	Data Security and Privacy Engineering	2-0-2
	CY412L	Data Security and Privacy Engineering Lab	0-1-1
6.	CY213	Cryptology	2-0-2
	CY213L	Cryptology Lab	0-1-1
7.	CY210	Number Theory	2-0-2
	CY210L	Number Theory Lab	0-1-1

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8.	CY313	Cryptanalysis	2-0-2
	CY313L	Cryptanalysis Lab	0-1-1
9.	CY314	Cryptomining	2-0-2
	CY314L	Cryptomining Lab	0-1-1
10.	CY414	Blockchain Security	2-0-2
	CY414L	Blockchain Security Lab	0-1-1
11.	CY460	Steganography	2-0-2
	CY460L	Steganography Lab	0-1-1
12.	CY461	Quantum Cryptography	2-0-2
	CY461L	Quantum Cryptography Lab	0-1-1
13.	CY419	Post-Quantum and Emerging Cryptography	2-0-2
	CY419L	Post-Quantum and Emerging Cryptography Lab	0-1-1
14.	CY364	Secure Systems and Applied Cryptography	2-0-2
	CY364L	Secure Systems and Applied Cryptography Lab	0-1-1
15.	CY365	Advanced Cryptography	2-0-2
	CY365L	Advanced Cryptography Lab	0-1-1

Group C: Digital Forensics and Incident Response

1.	CY421	Cloud Forensics and Log Analysis	2-0-2
	CY421L	Cloud Forensics and Log Analysis Lab	0-1-1
2.	CY422	Open-Source Intelligence Techniques	2-0-2
	CY422L	Open-Source Intelligence Techniques Lab	0-1-1
3.	CY423	Incident Response Orchestration and Automation	2-0-2
	CY423L	Incident Response Orchestration and Automation Lab	0-1-1
4.	CY329	Multimedia Forensics	2-0-2
	CY329L	Multimedia Forensics Lab	0-1-1
5.	CY424	eDiscovery Forensics and Moot Courts	2-0-2
	CY424L	eDiscovery Forensics and Moot Courts Lab	0-1-1
6.	CY425	AI-Driven Digital Forensics	2-0-2
	CY425L	AI-Driven Digital Forensics Lab	0-1-1
7.	CY321	Computer Forensics	2-0-2
	CY321L	Computer Forensics Lab	0-1-1
8.	CY322	Network Forensics	2-0-2
	CY322L	Network Forensics Lab	0-1-1
9.	CY420	Smart Devices and IoT Forensics	2-0-2
	CY420L	Smart Devices and IoT Forensics Lab	0-1-1
10.	CY326	Social Media Forensics	2-0-2
	CY326L	Social Media Forensics Lab	0-1-1
11.	CY429	Cyber Threat Intelligence	2-0-2
	CY429L	Cyber Threat Intelligence Lab	0-1-1
12.	ES362	Embedded Systems Forensics	2-0-2
	ES362L	Embedded Systems Forensics Lab	0-1-1

Group D: IoT and Embedded Systems Security

1.	ES432	IoT Security	2-0-2
	ES432	IoT Security Lab	0-1-1
2.	CY344	Mobile Device Security	2-0-2
	CY344L	Mobile Device Security Lab	0-1-1

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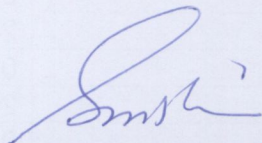
3.	CY441	Industrial IoT and Critical Infrastructure Security	2-0-2
	CY441L	Industrial IoT and Critical Infrastructure Security Lab	0-1-1
4.	ES372	Avionics Security	2-0-2
	ES372L	Avionics Security Lab	0-1-1
5.	CY420	Smart Devices and IoT Forensics	2-0-2
	CY420L	Smart Devices and IoT Forensics Lab	0-1-1
6.	CY343	Hardware Design Security	2-0-2
	CY343L	Hardware Design Security Lab	0-1-1
7.	CY348	Embedded Operating System Security	2-0-2
	CY348L	Embedded Operating System Security Lab	0-1-1
8.	CY340	Embedded Systems Security	2-0-2
	CY340L	Embedded Systems Security Lab	0-1-1
9.	CY341	Smart and Autonomous Vehicle Security	2-0-2
	CY341L	Smart and Autonomous Vehicle Security Lab	0-1-1
10.	CY342	OT Security	2-0-2
	CY342L	OT Security Lab	0-1-1
11.	CY443	Cyber Physical System Security	2-0-2
	CY443L	Cyber Physical System Security Lab	0-1-1
12.	CY444	UAV Security	2-0-2
	CY444L	UAV Security Lab	0-1-1
13.	CY445	Distributed Control System Security	2-0-2
	CY445L	Distributed Control System Security Lab	0-1-1
14.	CY346	Applied Physical Attacks and Hardware Pen testing	2-0-2
	CY346L	Applied Physical Attacks and Hardware Pen testing Lab	0-1-1
15.	CY349	Mobile and Wireless Networks Security	2-0-2
	CY349L	Mobile and Wireless Networks Security Lab	0-1-1
Group E: Governance, Risk and Compliance			
1.	CY357	Cyber Laws, regulations and Ethics	3-0-3
2.	CY318	Compliance Standards and Frameworks	3-0-3
3.	CY319	Cyber Security Audit and Assurance	3-0-3
4.	CY358	Financial Systems Security	2-0-2
	CY358L	Financial Systems Security Lab	0-1-1
5.	CY320	Data Security and Privacy Engineering	3-0-3
6.	CY410	Third-Party and Supply Chain Risk Management	3-0-3
7.	CY302	Human Behaviors in Cyber Security	3-0-3
8.	CY413	Cyber Security Economics, Policy & Strategy	3-0-3
9.	CY300	Cyber Security Management	2-0-2
	CY300L	Cyber Security Management Lab	0-1-1
10.	CY299	Cyber Security Risk Management	2-0-2
	CY299L	Cyber Security Risk Management Lab	0-1-1
11.	CY366	Cyber Governance	3-0-3
12.	CY407	Compliance and Auditing in Defense Systems	3-0-3
13.	CY404	Cyber Warfare	3-0-3
14.	CY356	Cyber Security Analytics	2-0-2
	CY356L	Cyber Security Analytics Lab	0-1-1
Group F: Software and Application Security			
1.	CY327	Database Security	2-0-2
	CY327L	Database Security Lab	0-1-1

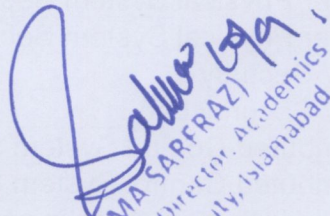
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2.	CY306	Secure Web Development	2-0-2
	CY306L	Secure Web Development Lab	0-1-1
3.	CY351	Web Application Security	2-0-2
	CY351L	Web Application Security Lab	0-1-1
4.	CY353	Cyber Security Tool Development	2-0-2
	CY353L	Cyber Security Tool Development Lab	0-1-1
5.	CY308	Generating Software Security Tests	2-0-2
	CY308L	Generating Software Security Tests Lab	0-1-1
6.	CY409	Automated Debugging	2-0-2
	CY409L	Automated Debugging Lab	0-1-1
7.	CY455	Usable Security and Privacy	2-0-2
	CY455L	Usable Security and Privacy Lab	0-1-1


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