Associate Degree in Cybersecurity

1) Program Description

The program aligned to the Cisco and Linux certifications that introduce the core security concepts and skills needed to monitor, detect, analyze, and respond to cybercrime, cyberespionage, insider threats, advanced persistent threats, regulatory requirements, and other cybersecurity issues facing organizations. It emphasizes the practical application of the skills needed to maintain and ensure security operational readiness of secure networked systems.

It is structured to focus on theoretical and practical skills, backed by industry-relevant partnerships, ensuring the program develops the relevant skills in pace with rapidly changing ICT industry and filling the demand for cybersecurity-related jobs in Bahrain. Courses can lead to globally recognized Cisco and Linux certifications like the Cisco Certified Entry Network Technician, Cisco Certified Network Associate (CCNA), Linux Professional Institute Certification (LPIC-1), CompTIA A+.

The program's curriculum consists of 70 credit hours, distributed as follows:

- 5 credit hours for University Requirements (UR)
- 9 credit hours for College Requirements (CR)
- 53 credit hours for Major Requirements (MR)
- 3 credit hours for Training Requirements (TR)

2) Program Objectives

The graduates of the associate degree in cybersecurity are expected to have the ability to:

1) Apply their technical cybersecurity operations skills to pursue successful positions in cybersecurity, networking, and ICT related fields.
2) Work well in teams, communicate effectively, and meet the social and ethical responsibilities of their profession.
3) Pursuing lifelong learning to their profession, including earning advanced degrees based on their background or completing professional training.
4) Become a highly skilled network professional that will be able to integrate the local and global workforce and contribute to the economy of Bahrain.

3) Learning Outcomes

Upon completion of the associate degree in cybersecurity, graduates will be able to:

1) Explain advanced concepts and theories of cybersecurity operations and apply them to assess risk and develop policies and procedures to secure an organizational information system.
2) Apply professional practices related to ethics, legal, security and social issues.
3) Apply advanced key management skills, effective work habits, teamwork, leadership, adhering to deadlines and communicating effectively with a range of audiences.
4) Recognize the need for and engage in continuing professional development by pursuing international industry certifications and or higher education.
5) Demonstrate hands-on experience on how to detect and respond to security incidents.
6) Recognize how organizations deal with cybercrime, cyberespionage, insider threats, advanced persistent threats, regulatory requirements, and related issues.
7) Apply job-ready practical skills for in-demand job roles in cybersecurity operations.

4) Admission Requirements

The program is offered for learners who have obtained school graduate qualifications such as secondary school certificate or high school from scientific and vocational major with 70% and above GPA to provide them with tertiary education prior to employment of further education.

The program targets students at the following secondary school streams:

- Scientific stream
- Technical stream
- Technical stream (Advanced/Apprenticeship)
- Unified stream
- Nasser Vocational Training Center (Technical/Vocational)

Learners of this program are people with an interest in technology, computer systems, and data security. They may have a background in information technology or computer science and wish to specialize in cybersecurity.

Accepted students will undergo an orientation program before coming to the program.

5) Graduation Requirements

Students must achieve the following requirements to graduate with an associate degree in cybersecurity:

- Successfully complete all courses required for graduation (70 credit hours).
- Achieving not less than the minimum CGPA required for graduation (1.67 out of 4.0).
- Spending the minimum period required to obtain the degree (4 semesters) and not exceeding the maximum (8 semesters)
- Validate a professional internship before graduation (minimum of 8 weeks)

6) Program Duration

The standard duration to complete the program completely (70 credit hours) is 4 semesters, and the maximum duration is 8 semesters.

7) Language of Instruction

The associate degree in cybersecurity program is offered in English.

8) Career Opportunities and Graduate Destinations

The possible careers that students can pursue upon graduation are as follows:

- Security Analyst
- Security Auditor
- Network Administrator
- Network Security Engineer
- Cybersecurity Consultant
- Threat Intelligence Analyst
- Ethical Hacker/Penetration Tester
- Incident Responder

Graduates will be able to work in the related departments of public and private sector organizations.

9) Attendance and Learning Mode

The College follows an in-person, full-time attendance model while integrating e-learning methodologies as essential supportive tools in teaching and learning.

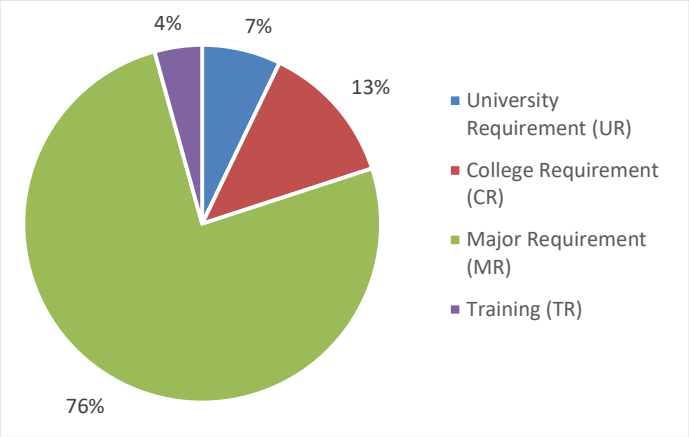
10) Study Mechanism

The curriculum covers all core topics outlined in the academic specification form of each course, with student assessment conducted according to approved evaluation methods that align with the nature of each subject.

Associate Degree in Cybersecurity (2025/2026 Study Plan)

Program Components

University Requirement (UR)	**5**
College Requirement (CR)	**9**
Major Requirement (MR)	**53**
Training (Internship) (TR) Yes	**3**
Total Credit (CRD)	**70**



Detailed Study Plan

Year 1 - Semester 1

Course Code	Course Title	Course Hours			Course Type	Pre requisite	Major GPA
		LEC	PRAC	CRD			
ENGL 154	Language Development I	3	0	3	CR	-	N/A
MATHA 111	Applied Mathematics	3	0	3	CR	-	N/A
HIST 122	Modern History of Bahrain and Citizenship	3	0	3	UR	-	N/A
CYSA 116	Programming Essentials	2	2	3	MR	-	N/A
CYSA 120	Computer Hardware and Software	3	2	4	MR	-	N/A

Year 1 - Semester 2

Course Code	Course Title	Course Hours			Course Type	Pre requisite	Major GPA
		LEC	PRAC	CRD			
ENGL 155	Language Development II	3	0	3	CR	ENGL154	N/A
CYSA 121	Cybersecurity Essentials	2	2	3	MR	-	N/A
CYSA 125	Introduction to Networks	3	2	4	MR	CYSA120	N/A
CYSA 126	Introduction to Server Operating Systems	2	2	3	MR	CYSA120	N/A
CYSA 128	Advanced Programming	3	2	4	MR	CYSA116	N/A

Year 2 - Semester 3

Course Code	Course Title	Course Hours			Course Type	Pre requisite	Major GPA
		LEC	PRAC	CRD			
CYSA 230	Cybersecurity: Skills And Practices	3	2	4	MR	CYSA121	N/A
CYSA 233	Linux Essentials	3	2	4	MR	CYSA120	N/A
CYSA 235	Routing and Switching Essentials	3	2	4	MR	CYSA125	N/A
HRLC 107	Human Rights	2	0	2	UR	-	N/A
CYSA 236	Entrepreneurship and Innovation	3	0	3	MR	Passing 30 Credits	N/A

Year 2 - Semester 4

Course Code	Course Title	Course Hours			Course Type	Pre requisite	Major GPA
		LEC	PRAC	CRD			
CYSA 237	IT Career Development	3	0	3	MR	Passing 34 Credits	N/A
CYSA 240	Cybersecurity Ethics	3	0	3	MR	Passing 34 Credits	N/A
CYSA 241	Linux Administration	3	2	4	MR	CYSA233	N/A
CYSA 243	Ethical Hacking	2	2	3	MR	CYSA116 & CYSA233	N/A
CYSA 290	Applied Cybersecurity Design and Development	3	2	4	MR	Passing 50 Credits	N/A

Training Requirement (TR)

Course Code	Course Title	Course Hours			Course Type	Pre requisite	Major GPA
		LEC	PRAC	CRD			
CYSA 298	Professional Internship	0	6	3	TR	Passing 67 Credits	N/A

Course Description

Course Code: CYSA116 **Course Title:** Programming Essentials
This course introduces fundamental programming concepts and techniques implemented by a high-level programming language. Topics include primitive and compound data types, syntax, semantics, expressions, assignment, input, output. conditional and iterative control structures, and functions.

Course Code: CYSA120 **Course Title:** Computer Hardware and Software
The course covers the fundamentals of computer hardware and software. Students who complete this course will be able to determine the internal components of a computer, explain the assembly of a computer system, and interpret the process of troubleshooting and maintenance of computers. Additional topics covered include laptops, portable devices, computer networks, operating systems, and emerging technologies.

Course Code: CYSA121 **Course Title:** Cybersecurity Essentials
The course develops a foundational understanding of cybersecurity and how it relates to information and network security. The course introduces students to characteristics of cybercrime, security principles, technologies, and procedures to defend networks. Through interactive, multimedia content, lab activities, and multi-industry case studies, students build technical and professional skills to pursue careers in cybersecurity.

Course Code: CYSA125 **Course Title:** Introduction to Networks
This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing, and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

Course Code: CYSA126 **Course Title:** Introduction to Server Operating Systems
The focus of this course is on the use of network operating systems particularly Windows Server Operating Systems in a business environment. Topics include business analysis, matching systems needs within appropriate network configuration, data and systems security measures for user groups sharing files and resources, print services, network interconnectivity and related network management issues.

Course Code: CYSA128 **Course Title:** Advanced Programming
This course covers advanced programming concepts. Topics include importing libraries and installation of modules, object-oriented programming classes, objects, and methods additional topics include concepts of inheritance, polymorphism, and encapsulation.

Course Code: CYSA230 **Course Title:** Cybersecurity: Skills and Practices
The course provides a comprehensive study of essential cybersecurity topics. including ACLs, firewalls, cloud security, cryptography, network protocols, Incident response, and digital forensics. Through lectures, hands-on exercises, and real-world case studies, students develop critical thinking and problem-solving skills to effectively manage cybersecurity risks and ensure network and data security.

Course Code: CYSA233 **Course Title:** Linux Essentials
The course, developed and supported by Networking Academy partner NDG, teaches students the fundamentals of the Linux operating system and command line, and basic open source concepts. Students learn how to install & configure a computer running Linux, perform maintenance tasks with the command line, manage hardware and disks, maintain the file system and edit text files.

Course Code: CYSA235 **Course Title:** Routing and Switching Essentials
This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with virtual LANS and interVLAN routing in both IPv4 and IPv6 networks.

Course Code: CYSA236 **Course Title:** Entrepreneurship and Innovation
The course is designed to equip IT students with the knowledge and skills necessary to navigate the landscape of entrepreneurship and innovation through a combination of theoretical frameworks, case studies, and practical exercises to help students develop an entrepreneurial mindset. Topics include entrepreneurship; entrepreneurial frameworks, opportunities, and challenges; business startup, market research, business plan, and marketing plan.

Course Code: CYSA237 **Course Title:** IT Career Development
This course consists of a series of readings, exercises, and presentations designed to prepare students to succeed in their IT careers. Topics include resume writing, personal networking, job search resources, interviewing, compensation negotiation, career development, and professional certifications.

Course Code: CYSA240 **Course Title:** Cybersecurity Ethics
The course is designed to equip students with a comprehensive knowledge about the ethical considerations and responsibilities associated with the field of cybersecurity, and the skills needed to make ethical decisions to ensure the protection of information, privacy, and digital assets.

Course Code: CYSA241 **Course Title:** Linux Administration
This course equips students with a comprehensive understanding of Linux administration by exploring system architecture, installation and package management, shell commands, filesystems, permissions, and ownerships. It provides hands-on exercises and activities to help students develop practical skills for managing Linux systems. It is fully aligned with the Linux Professional Institute Certification Level-1 (LPIC-1).

Course Code: CYSA243 **Course Title:** Ethical Hacking
This course aims to equip students with the knowledge and skills necessary to become an ethical hacker and give them a strong foundation in offensive security. Student will be proficient in the art of scoping, executing, and reporting vulnerability assessments, while recommending mitigation strategies.

Course Code: CYSA290 **Course Title:** Applied Cybersecurity Design and Development
Capstone course for the curriculum providing application of skills acquired in a "Real World" networking environment applying cybersecurity solutions. Students test their ability to organize and interpret data, develop and apply cybersecurity operations solutions to problems and submit thorough documentation of the task including but not limited to network design and prototype.

Course Code: CYSA298 **Course Title:** Professional Internship
The course is the application of the skills acquired in a real-world work-based environment. The Internship will provide students with real-life experience applying skills learned in a classroom. Employers work closely with the students and teachers to ensure an environment that will enhance student's education, provides experience and introduces the student to the ICT Business environment.

University Requirements Courses Descriptions

Course Code: HIST 122 **Course Title:** Modern History of Bahrain and Citizenship
Spatial identity of Bahrain: Brief history of Bahrain until the 18th century; the historical roots of the formation of the national identity of Bahrain since the 18th century; the modern state and evolution of constitutional life in Bahrain; the Arabic and Islamic dimensions of the identity of Bahrain; the core values of Bahrain's society and citizenship rights (legal, political, civil and economic); duties; responsibilities and community participation; economic change and development in Bahrain; Bahrain's Gulf, Arab and international relations.

Course Code: HRLC 107 **Course Title:** Human Rights
This course deals with the principles of human rights in terms of the definition of human rights, scope, sources with a focus on the International Bill of Human Rights; The Charter of the United Nations; Universal Declaration of Human Rights; The International Covenant on Economics, Social and Culture rights; Convention against Torture and other Cruel, Inhuman or Degrading Treatment or Punishment; Mechanics and the Constitutional Protection of Rights and Public Freedoms in Kingdom of Bahrain.

College Requirement Courses Descriptions

Course Code: ENGL 154 **Course Title:** Language Development I
The first of a series of three integrated language courses designed specifically for IT/CS and CE majors. Special attention is given to IT related vocabulary, reading texts and writing.

Course Code: ENGL 155 **Course Title:** Language Development II
ENGL 155 is the second of three integrated language courses designed for IT students. The level is upper- intermediate.

Course Code: MATHA 111 **Course Title:** Applied Mathematics
The number system, Basic Algebra, Expansion, factorization, Transposition of formula, Solving Equations, Function, Definitions, Sequence and Series Relations, Differentiation, Standard Derivative, Integration and Applications, Matrices.