Associate Degree in Cybersecurity (2025 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
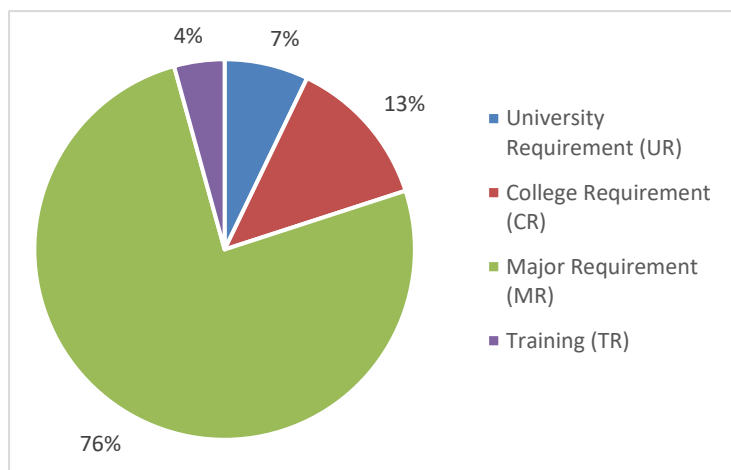
Detailed Study Plan

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.