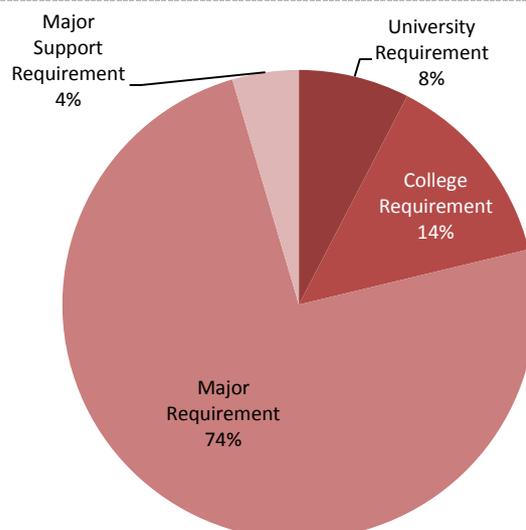


# Associate Diploma in Networks Administration

## Program Components

Course Type	CRD
University Requirement (UR)	5
College Requirement (CR)	9
Major Requirement (MR)	49
Major Support Requirement (MSR)	3
Training (Internship) No	0
<b>Total Credit (CRD)</b>	<b>66</b>



## Detailed Study Plan

### Year 1 - Semester 1

Course Code	Course Title	Course Hours			Course Type	Pre requisite
		LEC	PRAC	CRD		
ENGLA 111	English Language Development I	3	0	3	CR	-----
MATHA 111	Applied Mathematics	3	0	3	CR	-----
HIST 122	Modern History of Bahrain and Citizenship	3	0	3	UR	-----
HRLC 107	Human Rights	2	0	2	UR	-----
CSA 101	Introduction to IT	2	3	3	MR	-----
CSA 106	Programming Fundamentals	2	3	3	MR	-----

### Year 1 - Semester 2

Course Code	Course Title	Course Hours			Course Type	Pre requisite
		LEC	PRAC	CRD		
ENGLA 112	English Communications Skills	3	0	3	CR	-----
CEA 121	Computer Hardware and Software	3	3	4	MR	CSA 101
CEA 122	Networks Fundamentals	2	3	3	MR	CSA 101
CEA 123	Introduction to Routing and Switching	3	3	4	MR	CSA 106
CEA 124	Enterprise Network Services	2	3	3	MR	CSA 101

### Year 2 - Semester 3

Course Code	Course Title	Course Hours			Course Type	Pre requisite
		LEC	PRAC	CRD		
CEA 231	Routing Protocols	3	3	4	MR	CEA 123
CEA 232	Lan Switching	2	3	3	MR	CEA 123
CEA 233	Introduction to Network Security	2	3	3	MR	CEA 122
CEA 234	Wireless Networks	2	3	3	MR	CEA 123
CSA 250	Seminars	1	0	1	MR	Completion of 34 CRD
BAA 220	Customer Relationship Management	2	3	3	MSR	-----

### Year 2 - Semester 4

Course Code	Course Title	Course Hours			Course Type	Pre requisite
		LEC	PRAC	CRD		
CEA 241	Wan Technologies	2	3	3	MR	CEA 231
CEA 242	Server Operating Systems Administration	2	3	3	MR	CEA 122 & CEA 124
CEA 243	Advanced Routing	2	3	3	MR	CEA 231
CEA 244	Building and Supporting Computer Networks	2	3	3	MR	CEA 234
CEA 290	Technical Project	0	6	3	MR	Completion of 45 CRD

## Course Description

**Course Code:** CEA 121      **Course Title:** Computer Hardware and Software

The course covers the fundamentals of computer hardware and software as well as advanced concepts. Students who complete this course will be able to describe the internal components of a computer, assemble a computer system, install an operating system, and troubleshoot using system tools and diagnostic software. Additional topics covered include laptops and portable devices, wireless connectivity and basic implementation and troubleshooting skills.

**Course Code:** CEA 122      **Course Title:** Networks Fundamentals

The course introduces you to the different standard networking components, devices and media. You will learn network models and topologies, physical and logical addressing, and will plan and install a small network connecting to the Internet, share resources in a network environment, configure an integrated wireless access point and client and troubleshoot network and Internet connectivity.

**Course Code:** CEA 123      **Course Title:** Introduction to Routing and Switching

The course introduces the basics of router and switch technologies. You will learn how to perform basic router and switch configuration and verification, configure a switch with VLANs, build a simple Ethernet network using routers and switches, employ basic cabling and network planning to connect devices and perform basic LAN, WAN and VLAN troubleshooting using a structured methodology.

**Course Code:** CEA 124      **Course Title:** Enterprise Network Services

The course covers the concepts and skills required for successful planning, installation, configuration and administration of an operating system in an enterprise environment such as Microsoft Windows Server. You will build the skills starting from the administration of standalone Windows servers in a workgroup environment to the level required to administer domain based enterprise networks.

**Course Code:** CEA 231      **Course Title:** Routing Protocols

The course is designed to develop the knowledge and skills required to implement different types of routing protocols such as RIP, EIGRP and OSPF. Understand the concept of distance vector and link-state routing protocols and know how a router learns routes and selects the best path to remote networks. A detailed study of classless inter-domain routing and the implementation of variable length subnet masking are also included.

**Course Code:** CEA 232      **Course Title:** Lan Switching

The course covers the concepts and techniques of LAN switching in wired and wireless network environment. It covers features of layer 2 switches, and how a switch interconnects and communicates with other switches and routers in a small or medium sized network. The course includes theory and practical implementation of switching concepts and protocols. You will learn how to perform and verify initial switch configuration tasks, configure, verify, and troubleshoot VLANs, interVLAN routing, VTP and RSTP operation.

**Course Code:** CEA 233      **Course Title:** Introduction to Network Security

The course provides you with an introduction to the principles of designing, developing and managing secure networks in the face of the increase in number and sophistication of prevailing security threats in the modern networking and communications environment. An in depth exposure to the management of network security including threat identification, risk analysis, risk management and risk avoidance will be included. You will learn the concepts and techniques required to configure routers and switches to prevent network attacks. In particular, you will learn how to configure Access Control Lists (ACLs), Firewalls and Virtual Private Networks.

**Course Code:** CEA 234      **Course Title:** Wireless Networks

The course introduces the fundamental concepts of wireless network administration including the various wireless standards, equipment and the relevant organizations. You will learn the terminologies and behavior associated with wireless technologies such as: radio frequencies, basic measurements techniques and antenna concepts used in the planning and design of wireless networks. You will apply the skills learned and the basic parameters to configure a wireless network, planning and building of wireless networks and techniques for securing and troubleshooting common wireless implementation issues as well as administration.

**Course Code:** CEA 241      **Course Title:** Wan Technologies

The course will provide you with the capability to implement Wide Area Network (WAN) connectivity and associated network management techniques. You will gain a broad understanding of the various WAN technologies used to connect small to medium sized networks, including PPP, Frame relay and DSL. WAN security is also discussed including methods for analyzing network vulnerabilities and mitigating common security threats. The course covers configuration and implementation of IP addressing in an Enterprise network including NAT, DHCP and IPV6. The principles of traffic control using access control lists (ACLs) are explained.

**Course Code:** CEA 242      **Course Title:** Server Operating Systems Administration

The course will provide you with the necessary knowledge and skills to enable you to perform advanced server administration tasks in a network operating system environment, specifically in a Microsoft Windows network. The course covers administrative tasks to manage a large number of system users and computers. You will learn to implement and administer the Windows active directory services infrastructure in an enterprise environment. It describes key decision points for naming, delegation of authority, and domain designs.

**Course Code:** CEA 243      **Course Title:** Advanced Routing

This course teaches advanced skills for configuring and implementing enterprise wide networks. Using interior and exterior gateway protocols such as EIGRP, OSPF and eBGP, students learn how to determine network resources, and create implementation and verification plans for both interior and exterior gateway routing protocols. The course also includes extensive information on the configuration and implementation of IPv6, as well as the configuration of interoperation of IPv6 with IPv4. It also analyzes the concepts of layer 3 path control and discusses basic teleworker and branch service using technologies such as broadband and VPN.

**Course Code:** CEA 244      **Course Title:** Building and Supporting Computer Networks

The course consolidates many of the concepts and introduces elements of network building, equipment selection and configuration and LAN and WAN addressing. An integrated case study presents critical thinking scenarios to help you develop skills such as understanding business objectives, determining technical requirements and constraints, planning timelines and resources and preparing and delivering customer presentations.

**Course Code:** CEA 290      **Course Title:** Technical Project

This capstone course will integrate knowledge and skills gained throughout the major and lead students, to analyze, and build an actual network infrastructure in an enterprise environment. Students will experience the ownership of an idea from concept to solution. They will act as consultants, to elicit and articulate enterprise network requirements, then work through the full development cycle.

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## College Requirement and Major Support Courses Descriptions

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**Course Code:** ENGLA 111                      **Course Title:** English Language Development

This course emphasizes on developing the English language skills of students in the Applied programs. The course focuses mainly on improving the language skills of basic grammar, writing and vocabulary. A major component of this introductory course will be listening, speaking and reading skills necessary in understanding others in working environment.

**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.

**Course Code:** ENGLA 112                      **Course Title:** English Communications Skills

This course emphasizes the development of English Language skills of students enrolled in the Applied Studies Programmes. The course focuses mainly on improving reading comprehension and accuracy, building vocabulary skills and improving listening comprehension.

**Course Code:** ENGLA 120                      **Course Title:** English Language Development II

The emphasis in this course is on further development of grammar and writing skills. Task build on the skills developed in the first course and increase in length, complexity and variety, writing simple business communication materials, producing business correspondence and documents, including graphs, is an increasingly important part of the course.

**Course Code:** ENGLA 210                      **Course Title:** Technical Report Writing

The main purpose of this course is to utilize the knowledge gained from the previous ENGLA courses to teach students how to write technical and professional documents, especially technical reports needed in work environments. Special reinforcement would be done of the career skills of job advertisements, writing resumes, writing job application letters, drafting forwarding letters with resumes, and filing in job application forms and preparations for job interviews.

**Course Code:** STATA 231                      **Course Title:** Applied Statistics

Frequency distribution, Measures of central tendency and dispersion, Probabilities and some rules of probability. Binomial and normal probability distributions. Correlation and Regression.

**Course Code:** CHEMYA 101                      **Course Title:** General Chemistry

The course is designed to help students to provide a firm foundation in chemical concepts and to instill in students an appreciation of the vital part chemistry plays in our daily life . The topics covered in the course include a brief introduction to the study of chemistry , measurements and scientific methods , states of matter , atomic theory , chemistry of metals, non-metals .

**Course Code:** PHYCSA 101                      **Course Title:** General Physics

Non-calculus based introductory course covering the basics of mechanics, electricity, and magnetism. Units and measurement; vectors; motion in one and two dimensions; Newton's laws; work and energy; momentum; electric fields and forces; electric potential and energy; current and resistance; DC circuits; magnetic fields and forces.

**Course Code:** EEDA 109                      **Course Title:** Electrical Technology

Introduction to basic circuit of Electrical and Electronic Engineering. Provide the basic tools of circuit analysis and design, basic measurements, simple modeling.

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## University Requirements Courses Descriptions

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**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 Principles

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.