NATIONAL BOARD FOR TECHNCIAL EDUCATION KADUNA

NATIONAL INNOVATION DIPLOMA

IN

NETWORKING & SYSTEM SECURITY

CURRICULUM AND COURSE SPECIFICATIONS

2007

PLOT 'B' BIDA ROAD, P.M.B. 2239, KADUNA-NIGERIA

NATIONAL INNOVATION DIPLOMA IN NETWORKING & SYSTEM SECURITY

1.0 **Programme Nomenclature**

National Innovation Diploma in Networking & System Security

Goal and Objectives

Goal: To produce technically competent manpower to meet the National requirements in the areas of designing, installation, maintenance and management of local, wide area and wireless network environment.

Objectives: A product of NIED in Networking & System Security should be able to:

i.	Diagnose and correct faults on different networks;
ii.	Implement network security and handle back up and recovery;
iii.	Install, configure and troubleshoot all types of network hardware devices;
iv.	Set up and upgrade a computer network;
v.	Start a small and medium scale enterprise that would provide solutions to organizations' networks;
vi.	Manage and administer computer network for optimum utilization;
vii.	Update the performance and baseline of a network using network monitoring tools.

3.0 **Entry requirements for National Innovation Diploma in Networking & System Security**

The general entry requirements for the NIED programme are:

i. Post Secondary School Leavers with 5 Credits level passes in SSCE or equivalent, who are desirous of acquiring relevant employable skills

ii. Unemployed or under-employed graduates looking for requisite employable skills

iii. Employed graduates who desire relevant or additional working skills

iv. Those out of school for a long time, in line with Government desire for open access to re-skilling and up-skilling of the nations workforce as part of Life Long Learning (LLL)

v. Post NVC Final (articulation from the VEIs)

CURRICULUM TABLE FOR NIED IN NETWORKING & SYSTEM SECURITY

1st SEMESTER

COURSE CODE	COURSE TITLE	L	T	P	CU	CH	Prerequisite
	Communication Skills I	2	-	-	2	2	
	Mathematics	2	2	-	3	3	
NSS111	Basic Computing Skills	2	-	3	5	5	
NSS112	Computer Application Packages	1	-	3	4	4	
NSS113	Introduction to Networking	2	-	3	5	5	
NSS114	Network Operating Systems	2	-	3	5	5	
Total		**11**	**2**	**12**	**19**	**19**	

2nd SEMESTER

COURSE CODE	COURSE TITLE	L	T	P	CU	CH	Prerequisite
	Communication Skills II	2	-	-	2	2	
	Citizenship Education	2	-	-	2	2	
	Mathematics	2	2	-	4	4	
NSS121	Network Design Topology and Network Protocols	2	-	3	5	5	
NSS122	Network Cabling	2	-	3	5	5	
NSS123	Introduction to Networking Devices	2	-	3	5	5	
Total		**12**	**2**	**9**	**13**	**13**	

3rd SEMESTER

COURSE CODE	COURSE TITLE	L	T	P	CU	CH	Prerequisite
	Entrepreneurship	1	-	2	5	5	
	Technical Report Writing	2	-	-	2	2	
NSS231	Introduction to WAN Technologies	2	-	3	5	5	
NSS232	Network Security	2	-	3	5	5	
NSS233	Power and Network Management	2	-	3	5	5	
NSS234	Data Security	2	-	3	5	5	
Total		**11**	**0**	**14**	**27**	**27**	

4th SEMESTER

COURSE CODE	COURSE TITLE	L	T	P	CU	CH	Prerequisite
NSS241	Web Server Fundamentals	2		3	5	5	
NSS242	Fundamentals of Wireless LANs	2	-	3	5	5	
NSS243	Project Management	2	-	3	5	5	
NSS244	Final Year Project	-	-	3	5	5	
Total		**6**	**0**	**12**	**20**	**20**	

FIRST SEMESTER

PROGRAMME:	NIED IN NETWORKING AND SYSTEM SECURITY
COURSE:	BASIC COMPUTING SKILLS
CODE:	**NSS 111**
DURATION:	**HOURS/WEEK** Lecture: 2hrs Tutorial: 0 Practical: 3hrs
UNITS:	**5 Units**
GOAL:	This course is designed to enable students acquire adequate skills in ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0   Understand the concept of operating systems and the various types in use.

2.0   Know how to perform the basic operating system settings and system management.

3.0   Know how to share documents and folders and set security features.

4.0   Know basic storage management across the various Operating System platforms.

5.0   Know how to create user accounts and manage user accounts.

6.0   Know basic hardware and software add-ons on a system.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Basic Computing Skills			COURSE CODE: NSS 111		CONTACT HOURS: 2-0-3
Course Specification: Theoretical & Practical Content					
WEEK	General Objective: 1.0 Understand the concept of operating systems and the various types in use.				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Learning Resources
1-5	1.1 Explain the concept of operating system. 1.2 Explain the functions, operations and classifications of the various operating systems e.g. (DOS, UNIX, LINUX, Windows) 1.3 Describe the features of Windows 2000, (Multi-tasking, Multiprocessing, Security, Protocols, Supported file system). 1.4 Describe the features of Windows XP and (Multi-tasking, Multiprocessing, Security, Protocols, Supported file system). 1.5 Describe the features of Linux and (Multi-tasking, Multiprocessing, Security, Protocols, Supported file system).	Explain the following features: Multi-tasking, Multi-processing, memory management, single user features, protocols supported etc. Describe Windows 2000 versions. Compare and contrast Windows 2000 Professional, Windows 2000 Server.	Maker and Board. OHP. PC.	✓ Install operating system. ✓ Customize Operating System to suit the environment. ✓ Run the Operating System at optimal level considering on board resources.	Guide the students in conducting the practical.	Various types of Operating Systems (Windows & 2000, Linux, Unix, DOS) and their installation disks.
	General Objective: 2.0 Know how to perform the basic operating system settings and system management.				
6-8	2.1 Describe Microsoft Management Console. 2.2 Explain the following sub menus under Control Panel. (a) Change system settings (b) Add/Remove Hardware (c) Add/Remove Software (d) Display property. 2.3 Demonstrate creating and	Describe Microsoft Management Console. Explain the Control Panel (a) Add/Remove Hardware (b) Add/Remove Software (c) Display property.	Maker and Board. OHP. PC.	Carryout Operating System's setting. Carryout practical on the control panel application and management. Conduct system management.	Guide students on the conduct of the exercise.	PCs. Operating System.

	managing shortcuts. 2.4 Describe how to create shortcuts in a folder. 2.5 Describe how to create shortcuts on the desktop. 2.6 Demonstrate how to rename shortcuts. 2.7 Describe how to change shortcut icon. 2.8 Describe how to change shortcut target. 2.9 Describe how to delete shortcut/rarely used shortcuts with desktop cleanup wizard.					
General Objective: 3.0: Know how to share documents and folders and set security features.						
9-10	3.1 Describe sharing documents and folders. 3.2 Describe how to share files on the network. 3.3 Describe how to share printer on the network. 3.4 Describe how to connect to a network printer. 3.5 Describe how to disable simple file sharing. 3.6 Describe how to set up access. 3.7 Describe how to change file permission or NTFS permissions. 3.8 Explain how to set security options to a shared folder.	Explain the importance of file sharing. Explain the concept of sharing facilities by multiple users. Explain the terms file permission and NTFS.	Maker and Board. OHP. PC.	Create multiple accesses to users on a single P.C. Perform practicals on security features on the control panel. Carryout management of users on a networked access.	Set procedures for the conduct of the exercises. Guide students on the conduct of the exercise.	PCs.
General Objective: 4.0: Know basic storage management across the various Operating System platforms						
11-12	4.1 Explain the following Windows 2000 disk storage management: ▪ Basic and dynamic storage ▪ Managing disks and volumes	Explain windows 2000, XP and Linux Disks/ storage management. (a) Basic and dynamic storage (b) Managing disks and	Maker and Board. OHP. PC.	Conduct disk storage management on: • Windows 2000 O.S.; • Windows XP; • Linux O.S.	Guide students on the conduct of the exercise.	PCs. Windows 2000 O.S., Windows XP and Linux Operating Systems.

	▪ Compressing Files and Folders ▪ Encryption (Files and folders). 4.2 Explain the following Windows XP disk storage management: ▪ Basic and dynamic storage ▪ Managing disks & volumes ▪ Compressing Files & Folders ▪ Encryption (Files & folders). 4.3 Explain the following with respect to Linux disk storage management: ▪ Basic and dynamic storage ▪ Managing disks and volumes ▪ Compressing Files and Folders ▪ Encryption (Files and folders).	volumes (c) Compressing Files and Folders (d) Encryption (Files and Folders).				
General Objective: 5.0: Know how to create user accounts and manage user accounts.						
13-14	5.1 Explain creating user accounts in Windows XP and Windows 2000. 5.2 Explain the management of users accounts in Windows operating system. 5.3 Explain modifying user accounts in Windows XP and Windows 2000. 5.4 Explain deleting user accounts Windows XP and Windows 2000. 5.5 Describe the implementation of Domain and Workgroups in Windows 2000 and	Explain the term user account. Describe the difference in creating user accounts in Windows 2000 and XP. Explain the management of workgroups in Windows 2000 and XP.	Maker and Board. OHP. PC.	Carryout exercises on the creation and management of user accounts in Windows 2000 and XP Operating Systems.	Guide the students in conducting the practical.	PCs. Windows 2000 Operating System. Windows XP Operating System.

	Windows XP.					
General Objective: 6.0: Know basic hardware and software add-ons on a system.						
14-15	6.1 Describe the installation of new add-on hardware; ▪ Network Interface Cards (NICs) ▪ Multimedia cards ▪ Sound cards ▪ Memory modules ▪ Hard disk ▪ Floppy disk drive 6.2 Describe the process of the installation of driver software for: ✓ NICs ✓ Multimedia cards ✓ Sound cards ✓ Hard disk 6.3 Describe the process of removing hardware on a computer system for: ✓ NICs ✓ Multimedia cards ✓ Sound cards ✓ Hard disk 6.4 Describe the process of removing software drivers for specific hardware: ▪ NICs ▪ Multimedia cards ▪ Sound cards ▪ Hard disk	Explain the concept of hardware/software addition on the P.C. Explain the application of the following accessories: ▪ Network Interface Cards (NICs) ▪ Multimedia cards ▪ Sound cards ▪ Memory modules ▪ Hard disk ▪ Floppy disk drive	Maker and Board. OHP. PC.	Carryout hardware and its corresponding software application on a P.C.	Guide students on the conduct of the exercise.	PCs. Network Interface Cards (NICs). Multimedia cards. Sound cards. Memory modules. Hard disk. Floppy disk drives.

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: COMPUTER APPLICATION PACKAGES

CODE: **NSS 112**

DURATION: **HOURS/WEEK**   Lecture: 1hr   Tutorial: 0   Practical: 3hrs

UNITS: **4 Units**

GOAL: This course is designed to enable students acquire adequate skills in
………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Know creation, saving and basic formatting of MS Word document.

2.0:   Know pasting, moving, copying and applying styles on MS Word document.

3.0:   Know graphics, table and list creation in MS Word

4.0:   Know spellchecking, page formatting and printing in MS Word.

5.0:   Understand basic spreadsheet operations

6.0:   Know cell formatting, formula application and sorting in MS Excel

7.0:   Know page formatting and printing in MS Excel

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Computer Application Packages			COURSE CODE: NSS 112		CONTACT HOURS: 1-0-3
Course Specification: Theoretical & Practical Content					
WEEK	General Objective 1.0: Know creation, saving and basic formatting of MS Word document.				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 Explain the application of MS Word. 1.2 Describe how to begin accessing menus. 1.3 Explain the use of shortcut menus. 1.4 Explain the uses of toolbars. 1.5 Describe how to customise toolbars. 1.6 Describe how to work with files through: ✓ Creating and opening documents; ✓ Saving documents ; ✓ Renaming documents; ✓ Working on multiple documents; ✓ Close a document. 1.7 Carryout typing, editing and inserting texts exercises. 1.8 Demonstrate the art of: ✓ Selecting text ✓ Deleting text ✓ Undo formatting ✓ Formatting toolbar. 1.9 Describe the uses of format painter	Explain word processing. Give examples of the various word processing applications. Describe the working environment of MS Word. Explain the term formatting. Describe formatting of toolbar.	Maker and Board. OHP. PC.	Conduct practicals in MS Word application software.	Guide students on the conduct of the exercise.	PCs. M.S. Word Package.
	General Objective 2.0: Know pasting, moving, copying and applying styles on MS Word document.				
	2.1 Describe the process of formatting paragraphs	Explain text editing. Describe the various types	Maker and Board.	Carryout text formatting using various types of styles.	Guide students on the conduct of the exercise.	PCs. M.S. Word

		of style formatting. Explain how to create new style from a model.	OHP. PC.			Package.
	with respect to: ✓ Paragraph attributes ✓ Moving, copying, and pasting text ✓ The clipboard ✓ Columns ✓ Drop caps 2.2 Demonstrate the use of style formatting. 2.3 Apply a style to a selected text file. 2.4 Apply a style from the style dialog box. 2.5 Describe how to create new styles from a model. 2.6 Create a simple style from the style dialog box. 2.7 Modify or rename a style. 2.8 Describe how to delete a style.						
General Objective 3.0: Know graphics, table and list creation in MS Word						
	3.1 Explain the function of Lists. 3.2 Access bulleted and numbered Lists. 3.3 Differentiate between nested lists, bulleted and numbered. 3.4 Demonstrate formatting Lists. 3.5 Explain the uses of tables. 3.6 Differentiate between Insert Table and Draw a table button. 3.7 Demonstrate how to Inserting rows and columns from a table.	Explain list formatting. Explain table formatting. Describe graphic formatting in word application.	Maker and Board. OHP. PC.	o Carryout exercises on list formatting. o Conduct practicals on table formatting. o Carry out exercises on graphic clip arts.	Guide the students in conducting the practical.	PCs. M.S. Word Package.

	3.8 Describe how to move and resize a table. 3.9 Describe how to access tables and borders toolbar. 3.10 Explain the use of table properties. 3.11 Explain the use of graphics formatting. 3.12 Demonstrate how to add clip art. 3.13 Demonstrate how to add an image from a file. 3.14 Demonstrate editing graphic images. 3.15 Explain auto shapes.				
General Objective 4.0: Know spellchecking, page formatting and printing in MS Word.					
	4.1 Explain Spelling and Grammar. 4.2 Explain the following: ✓ AutoCorrect ✓ Spelling and grammar check ✓ Synonyms ✓ Thesaurus 4.3 Explain page formatting. 4.4 Describe how to adjust page margins. 4.5 Describe how to adjust page size and orientation. 4.6 Edit headers and footers. 4.7 Insert page numbers to a text file. 4.8 Perform Print preview and printing	Explain the features of word editing. Describe page formatting with respect to page margins, headers/footers, page size etc. Explain pre-printing and printing of files/document.	Maker and Board. OHP. PC.	o Carryout exercises on grammar checking, page formatting and printing.	Guide students on the conduct of the exercise.	PCs. M.S. Word Package. Printer. Papers.
General Objective 5.0: Understand basic spreadsheet operations					
	5.1 Explain the use of spreadsheet. 5.2 Describe the basic	Explain the application differences of M.S. Word and Excel.	Maker and Board. OHP.	o Carryout exercises in Excel spreadsheet.	Guide students on the conduct of the exercise.	PCs. Excel Package.

	spreadsheets screen elements.	Describe the application environment of Excel Office application.	PC.			
	5.3 Describe adding and renaming worksheets.	Describe the spreadsheet toolbar.				
	5.4 Describe the operations under the standard toolbar e.g. opening, closing, saving.	Explain spreadsheet editing.				
	5.5 Explain how to customise excel/spreadsheet menus.					
	5.6 Demonstrate how to customise toolbars in excel.					
	5.7 Describe the act of modifying a worksheet by:					
	o Moving through cells					
	o Adding worksheets, rows, and columns					
	o Resizing rows and columns					
	o Selecting cells					
	o Moving and copying cells.					
	5.8 Describe how to freeze panes.					
General Objective 6.0: Know cell formatting, formula application and sorting in MS Excel						
	6.1 Explain formatting Cells.	Explain the uses of formulae in spreadsheet.	Maker and Board.	o Carryout spreadsheet formatting.	Guide students on the conduct of the exercise.	PCs. Excel Package.
	6.2 Carryout the following in excel:	Explain file formatting in Excel.	OHP. PC.	o Assign formulae to various spreadsheet computations.		
	✓ Formatting toolbar	Explain the uses of various formula characters in Excel.				
	✓ Format Cells dialog box	Explain sorting and filling in Excel.				
	✓ Dates and time					
	✓ Styles					
	✓ Style dialog box					
	6.3 Create a new style using:					
	✓ Format Painter					
	✓ AutoFormat					

	6.4 Describe the application of formulas and functions. 6.5 Carryout exercise on how to perform: ✓ Formulas assigning ✓ Linking worksheets ✓ Relative, absolute, and mixed referencing ✓ Basic functions. ✓ Function Wizard. ✓ Auto sum 6.6 Use excel to perform sorting and filling in: ✓ Basic ascending and descending sorts ✓ Complex sorts ✓ Auto-fill ✓ Alternating text and numbers with auto-fill 6.7 Carryout auto-filling of functions				
General Objective 7.0: Know page formatting and printing in MS Excel					
	7.1 Explain the concept of page properties and printing in excel. 7.2 Describe how to insert page breaks in excel. 7.3 Demonstrate how to alternate: ✓ Page orientation Margins ✓ Headers, footers, and page numbers 7.4 View spreadsheet print preview. 7.5 Carryout spreadsheet Printing.	Explain page properties in Excel. Explain page break in Excel. Describe printing of spreadsheets.	Maker and Board. OHP. PC.	o Carryout printing in spreadsheet.	Guide students on the conduct of the exercise.	PCs. Excel Package. Printers. Papers.

PROGRAMME:	NIED IN NETWORKING AND SYSTEM SECURITY
COURSE:	INTRODUCTION TO NETWORKING
CODE:	NSS 113
DURATION:	**HOURS/WEEK** Lecture: 2hrs Tutorial: 0 Practical: 3hrs
UNITS:	**5 Units**
GOAL:	This course is designed to enable students acquire adequate skills in ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understand The General Over View of a Network.

2.0   Know Types of Network.

3.0:   Know OSI Model

4.0:   Know IP   Addresses.

5.0:   Know Types Of Network.

6.0:   Know Networking Devices

PROGRAMME: National Innovation Diploma in Networking & System Security				
COURSE: Introduction to Networking		**COURSE CODE: NSS 113**		**CONTACT HOURS: 2-0-3**
Course Specification: Theoretical & Practical Content				
WEEK	**General Objective 1.0: Understand The General Over View of a Network.**			

	Course Specification: Theoretical Content			**Practical Content**		
	Specific Learning Outcomes	**Teacher's Activities**	**Resources**	**Specific Learning Outcomes**	**Instructor's Activities**	**Resources**
	1.1 Define: ▪ Network; ▪ LAN; ▪ WAN 1.2 Explain the terms Client and Server. 1.3 State the advantages of a network. 1.4 Describe the difference between Router and Gateway. 1.5 Explain the advantages of WAN over LAN. 1.6 Explain the importance of network.	▪ Explain the various terms used in a network system. ▪ Describe the difference between LAN and WAN. ▪ Describe the functions of Router and Gateway. ▪ Identify the types of cables used in LAN and WAN. ▪ Identify the types of connectors used in LAN and WAN.	Maker and Board. OHP. PC.	o Carry out a network plan design on board and NIC installation.	Guide students on how to plan design.	LAN cables (Cart 5e)
	General Objective: 2.0 Know Types of Network.					
	2.1 Define: ▪ point to point network; ▪ peer to peer network; ▪ Client/Server based network. 2.2 Identify point to point network, peer to peer network and client server based network. 2.3 Explain the three (3) in 2.1 above. 2.4 State advantages of client/server based networks over point to point and peer to peer networks. 2.5 Discuss the following:	Identify the types of Cable termination used in 2.1. Explain why such cable should be used. Explain the working principles of the different types of servers. Explain the concepts of data integrity, warning (hardware failures), MTBF, SMART & RAID. Discuss server scalability, SMP, Parallel Processing and server clustering.	Maker and Board. OHP. PC.	o Design a typical point to point network. o Design a typical point to point network. o Carryout functionality test.	Develop test procedures. Develop test procedures. Present test result to users. Compile reports.	Test Software. Network Diagram.

	▪ Server reliability; ▪ Server high availability.				
General Objective: 3.0 Know OSI Model					
	3.1 Define OSI Model. 3.2 List the various layers of OSI. 3.3 State the various functions of OSI.	Explain OSI models. Give examples.		Inspect client to server link. Test Connectivity. Test data flow. Perform network system documentation.		Operating System.
General Objective: 4.0 Know IP Addresses.					
	4.1 Explain the concept of IP IP addressing. 4.2 Explain the term IPV 4. 4.3 State and describe the classes of IP addresses. 4.4 List and explain the range of IP address classes. 4.5 Describe VLSM/Subnetting IPPV4 4.6 Explain IPV6.	Using binary, hexadecimal and decimal conversion explains IP addresses. Explain the terms: ▪ Segment; ▪ Broadcast; ▪ Loop-back.	Maker and Board. OHP. PC.	o Manually assign a static IP Address on NIC. o Carryout functionality test.		
General Objective: 5.0 Know Types Of Network.					
	5.1 Define Intranet. 5.2 Define Extranet. 5.3 Define Internet. 5.4 Difference between Intranet and Extranet. 5.5 List the various types of internet connectivity.	Identifying the Dial-up, wireless and Broad band Internet access. Explain the Advantages of Broad band Over Dial-up and Wireless Access Network.	Maker and Board. OHP. PC.	o Prepare a functional network. o Identify network components.		Network Analyser Test and Commissioned Computer.
General Objective: 6.0: Know Networking Devices					
	6.1 Explain hub. 6.2 Describe the types and application of hubs. 6.3 Explain repeaters. 6.4 Explain the importance of repeaters. 6.5 Explain the use of bridges and switches 6.6 Explain the use of routers. 6.7 Describe the function of a NIC.	Describe with respect to routing data, traffic, remote connections etc the application of a bridge in a network system.	Maker and Board. OHP. PC.			

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: NETWORK OPERATING SYSTEM

CODE: NSS 114

DURATION: **HOURS/WEEK**   Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understand Network Operating System (Win XP and 2003) & LINUX.

2.0:   Understand Managing; Implementing and Configuring Win XP and 2003 Server.

3.0:   Know Configuration of DHCP Using Win XP and 2003 Server, Linux.

4.0:   Know Configuration of DNS Using Win XP and 2003 Server.

5.0:   Know Configuration of Proxy Using Win XP and 2003 Server.

COURSE: Network Operating Systems			COURSE CODE: NSS 114		CONTACT HOURS: 2-0-3
Course Specification: Theoretical & Practical Content					
WEEK	**General Objective: 1.0 Understand Network Operating System (Win XP and 2003) & LINUX**				
	Theoretical Content			**Practical Content**	
	Specific Learning Outcomes	**Teacher's Activities**	**Resources**	**Specific Learning Outcomes**	**Instructor's Activities**	**Resources**
	1.1 Define Network Operating System. 1.2 Types of NOS (windows Novel, Linux) UMX), APPLE	Identifying Win XP Identifying Win 2003 server. Identify other Operating System.	Maker and Board. OHP. PC.	Install operating system.	Explain installation procedure.	Operating System.
	General Objective: 2.0 Understand Managing; Implementing and Configuring Win XP and 2003 Server.				
	2.1 Installing and configuring Win XP. 2.2 Install and configure Window 2003. 2.3 Install and configure Linux O.S..	Identity the various steps taking in confirmation and installation of win XP. Identity the various steps taking in confirmation and installation of win 2003.	Maker and Board. OHP. PC.	Conduct installation of Win XP. Conduct installation of Win 2003.	Explain installation procedure.	Operating System.
	General Objective: 3.0 Know Configuration of DHCP Using Win XP and 2003 Server, Linux.				
	3.1 List the steps involving configuring DHCP in win XP and Linux 3.2 Outline the steps involve in configuring DHCP in Win 2003.	Identity the various steps taking in configuration of DHCP win XP and Linux. Identity the various steps taking in configuration of DHCP win 2003 server.	Maker and Board. OHP. PC.	Carryout DHCP installation using Win XP & Linux Carryout DHCP installation using Win 2003.	Explain installation procedures.	Operating System.
	General Objective: 4.0 Know Configuration of DNS Using Win XP and 2003 Server.				
	4.1 Install DNS server using Win XP. 4.2 Configure DNS server using Win XP. 4.3 Install DNS server using Win 2003. 4.4 Configure DNS server using Win 2003. 4.5 Install DNS server using Linux. 4.6 Configure DNS server using Linux.	Explain DNS server. Describe the configuration of DNS server using Windows XP, Windows 2003 and Linux servers.	Maker and Board. OHP. PC.	Carryout DNS configuration using Windows XP and 2003 server.	Guide the students in conducting the practical.	Operating System.
	General Objective: 5.0 Know Configuration of Proxy Using Win XP and 2003 Server.				

5.1 Define and explain Proxy server. 5.2 Outline the Steps in enabling Proxy server in win XP. 5.3 List the steps involved in configuring proxy server in win XP. 5.4 Outline the steps in enabling Proxy server in win 2003 server. 5.5 List the steps involved in configuring proxy server in win 2003 server. 5.6 Implement Proxy server on Linux.	Illustrate the steps in enabling and installing proxy server in Win XP and Win 2003 server.	Maker and Board. OHP. PC.	Carryout proxy software installation in Win XP server. Carryout proxy software installation in Win 2003 server.	Explain installation procedures.	Operating System.

SECOND SEMESTER

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: NETWORK DESIGN TOPOLOGY AND NETWORK PROTOCOLS

CODE: NSS 121

DURATION: HOURS/WEEK   Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in
………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understand Network Design, Deployment and Implementation.

2.0:   Know The Various Types Of Network Topology.

3.0:   Understand The Difference Between BUS, RING, STAR, MESH, FULL MESH and Wireless Network Topologies.

4.0:   Know The Most Fault-tolerant Topology.

5.0:   Understand Data Link Layer Protocols.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Network Design Topology and Network Protocols		COURSE CODE: NSS 121		CONTACT HOURS: 2-0-3	
Course Specification: Theoretical & Practical Content					
WEEK	General Objective: 1.0 Understand Network Design, Deployment and Implementation.				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
1.0	1.1 Defining Network Design and Implementation. 1.2 State the characteristics of Network Design. 1.3 Differentiate between Network Design and topology.	Identifying the basic internet working basic. Identifying and selecting internetworking models. Sketch a typical network design.	Maker and Board. OHP. PC.			
	General Objective 2.0: Know The Various Types Of Network Topology.					
2.0	2.1 Define Network topology. 2.2 List the various types of Network topology. 2.3 State the topology that is used for the internet. 2.4 Differentiate between the token ring and token bus	Describe the difference between various network topologies. Identifying the types of topology. Use diagrams to illustrate the various network topologies.	Maker and Board. OHP. PC.	o Carryout a simple design layout.	Guide students on the conduct of the exercise.	PCs.
	General Objective: 3.0 Understand The Difference Between BUS, RING, STAR, MESH, FULL MESH and Wireless Network Topologies.					
3.0	3.1 Differences between Bus and Ring Topology. 3.2 Difference between Star and Mesh topology 3.3 Describe wireless topology. 3.4 Defining Mesh network topology. 3.5 Differentiate between Full mesh and Perfidies Mesh. 3.6 Define Full mesh. 3.7 Differences between Full Mesh and Star Topology.	Identifying Star, Ring, Bus, Mesh and Full mesh Network topology. Identify Full mesh and Perfidies network topology. Identifying Full mesh and Star topology.	Diagrams. Charts. Maker and Board. OHP. PC.	o Carryout site survey. o Determine the optimum plan layout. o Design a typical network topology. o Assign IP and work group name. o Assign IP and work group name	Test network connection. Test network connection	Sketches. Cables. Crimping Tools. PC. Insertion tool. Registered Jack (RJ45). Hubs. Cart 5e. NIC. Network Tester. LAN Tester.
	General Objective: 4.0 Know The Most Fault-tolerant Topology.					
4.0	4.1 Define Fault tolerance as	Identifying the most fault	Maker and	Carryout performance test.	Guide students.	LAN Tester.

		tolerant Network topology. Identifying the least fault tolerant Network topology.	Board. OHP. PC.	Identify network bottle necks. Record performance (Test log). Carryout performance test. Conduct remote trouble shooting.		Network Performance Software. Communication Software.
	related to networking. 4.2 Explain the most fault tolerance as related to networking. 4.3 Define Fault tolerant as related to networking. 4.4 Explain the least and the most fault tolerant as related to networking.					
General Objective: 5.0 Understand Data Link Layer Protocols.						
5.0	5.1 Explain the function of data link layer protocol. 5.2 Describe Ethernet. 5.3 Explain the different DIX/IEEE standards/specification of Ethernet in terms of speed, type, cable type etc. 5.4 Explain ring basic. 5.5 Explain FDDI basics. 5.6 Differentiate between Ethernet, ring basics and FDDI basics.	Demonstrate with examples 8.1 – 8.6.	Maker and Board. OHP. PC.			

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: NETWORK CABLING

CODE: NSS 122

DURATION: **HOURS/WEEK** Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Know the IEEE Standard in Cabling Network.

2.0:   Know Ethernet network 802.3

3.0:   Understand Fibber Optic Cable.

4.0:   Know Coaxial Cable.

5.0:   Know UTP (Unshelled Twisted Pair) and STP (Shelled Twisted Pair) Cable.

6.0:   Understand Emi (Electromagnetic Influence).

7.0:   Know IEEE 802.11 Wireless Standards.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Network Cabling			COURSE CODE: NSS 122		CONTACT HOURS: 2-0-3
Course Specification: Theoretical & Practical Content					
WEEK	General Objective: 1.0:Know the IEEE Standard in Cabling Network				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 State the meaning of IEEE. 1.2 List out the various IEEE standard for network cabling	Identify Networking media by IEEE trade marks.	Manuals. Maker and Board. OHP. PC.	Carryout identification of cable rubber coats. Identify network media.	Guide students in carrying out practicals.	
	General Objective: 2.0: Know Ethernet network 802.3					
	2.1 Define Ethernet network. 2.2 State the advantages of Ethernet network over Bus topology.	Identify Ethernet network.	Maker and Board. OHP. PC.	Carryout network activation. Identify service status. Check cable connectivity.	Guide students in carrying out practicals.	
	General Objective: 3.0 Understand Fibber Optic Cable.					
	3.1 Explain Fibre optic cable. 3.2 List types of fibre optic cables according to their mode of transmission. 3.3 State the Advantages of fibre optic cable over copper cabling.	Identify Fibre optic cable and the difference between LED and LASER fibre cables.	Diagrams. Maker and Board. OHP. PC.	Carryout site survey. Conduct civil work. Conduct lying of fibre optic cable.	Explain the term Hardware License. Explain installation procedure.	Multi Mode Fibre Cable. Single Mode Fibre Cable. Fibre Optic Connectors (SC, ST, LC, MT-RJ).
	General Objective: 4.0 Know Coaxial Cable					
	4.1 Explain coaxial cable. 4.2 List types of coaxial cables. 4.3 State the Advantages of fibre optic cable over coaxial cabling.	Identify coaxial cable	Diagrams. Maker and Board. OHP. PC.	Identify the various types of coaxial cable. Compare the physical characteristics of coaxial and fibre optic cables.		Assortments of Fibre Cables. Assortments of Coaxial Cables.
	General Objective: 5.0 Know UTP (Unshelled Twisted Pair) and STP (Shelled Twisted Pair) Cable.					
	5.1 Explain UTP. 5.2 Explain STP. 5.3 List types of UTP cable. 5.4 Differentiate between UTP and STP.	Identify UTP and STP cable. Describe the various modes of cable termination.	Maker and Board. OHP. PC.	Carryout lying of cable termination. Conduct lying of UTP cable.	Explain installation procedure. Supervise students in carrying out the exercise.	(Registered Jack) RJ45 Plug. CART 5E. Crimper. Insertion tube.

General Objective: 6.0 Understand Emi (Electromagnetic Influence)					
6.1 Define EMI. 6.2 Explain the effects of EMI on network cables.	Understanding the effects of EMI on Networking media	Charts. Maker and Board. OHP. PC.	Conduct experiment on the effect of EMI. Carryout cable installation.	Guide students in carrying out practicals. Monitor Installation processes.	Copper Cable. Fibre Optic Cable. Multi-meter. Spectrum Analyser.
General Objective: 7.0 Know IEEE 802.11 Wireless Standards.					
7.1 Define wireless network 7.2 Differentiate between wireless and wired network. 7.3 Define Bluetooth. 7.4 Define IrDA. 7.5 Difference between Bluetooth and IrDA.	Identifying Bluetooth and IrDA devices. Explain the effect of sound, microwave devices and other structures on wireless devices.	Maker and Board. OHP. PC.	Analyse user/operation manual. Carryout survey on device range.	Guide students in carrying out practicals.	Infrared (IrDA)) Bluetooth.

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: INTRODUCTION TO NETWORKING DEVICE

CODE: NSS 123

DURATION: **HOURS/WEEK** Lecture: 2hrs Tutorial: 0 Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0: Understand Various Networking Devices.

2.0: Understand The Interrelationship Between Networking Devices and OSI.

3.0: Know the Advantages of Router Over Other Networking Devices.

4.0: Know The Difference Between Gateway and Routers.

5.0: Understand The Relationship Between Switches and Bridges.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Introduction to Networking Devices		COURSE CODE:NSS 123		CONTACT HOURS: 2-0-3	
Course Specification: Theoretical & Practical Content					
WEEK	**General Objective: 1.0 Understand Various Networking Devices**				
	Theoretical Content			**Practical Content**	
	Specific Learning Outcomes	**Teacher's Activities**	**Resources**	**Specific Learning Outcomes**	**Instructor's Activities**	**Resources**
	1.1 Define Switch 1.2 Define Hub 1.3 Differentiate between switch and hub.	Identifying switch and hub as networking devices.	Diagrams. Maker & Board. OHP. PC.	Identify network peripherals. Setup a simple network. Identify network work-stations.	Explain installation procedure. Supervise students in carrying out the exercise.	NIC Drivers. WiFi Drivers. Manuals.
	General Objective: 2.0 Understand The Interrelationship Between Networking Devices and OSI.				
2.0	2.1 Explain the type of OSI layer on which switch operate. 2.2 Explain the type of OSI layer on which hub operate. 2.3 Explain the technology in repeater. 2.4 Explain the technology in hub. 2.5 Explain the type of OSI layer on which a repeater operates. 2.6 Describe the difference between repeaters and hubs.	Knowing the seven layer of OSI and their functions. Identify the differences between repeater and hub. Describe how Repeater and Hub works.	Maker and Board. OHP. PC. Diagrams/Charts.	Carryout data transfer on a simple network. Carryout a simple network design to deploy Repeater and Hub. Monitor network performance.	Check inflow and outflow of data.	
	General Objective: 3.0 Know the Advantages of Router Over Other Networking Devices				
	3.1 Define Router. 3.2 Differentiate between router and Switch	Identifying routing Protocols.	Maker and Board. OHP. PC.	Identify Cisco equipment/devices. Carryout lab setup on Cisco equipment.		IOS Operating System.
	General Objective: 4.0 Know The Difference Between Gateway and Routers.				
	4.1 Define Gateway. 4.2 List examples of software gateways. 4.3 List examples of hardware gateways. 4.4 Differentiate between gateways and routers.	Identifying gateways, both software and hardware alike.	Maker and Board. OHP. PC.	Identify proxy software. Carryout configuration and installation of proxy software. Setup a simple proxy server.		Network Operating System.
	General Objective: 5.0 Understand The Relationship Between Switches and Bridges.				
	5.1 Explain the technology in	Identifying the differences	Diagrams/Charts.	Carryout a simple network	Conduct network	

	Switch. 5.2 Explain the technology in bridge. 5.3 Explain the type of OSI layer on which a bridge operates. 5.4 Describe the difference between switch and bridge.	between switch and bridges. Explain how a switch works. Describe how a bridge works.	Maker and Board. OHP. PC.	design to deploy Switch and Bridge. Monitor network performance.	monitoring and implementation	

THIRD SEMESTER

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: INTRODUCTION TO WAN TECHNOLOGIES

CODE: NSS 231

DURATION: **HOURS/WEEK** Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in
…………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understand Wide Area Network (WAN).

2.0:   Know Very Small Aperture Terminal (V-sat).

3.0:   Understand KU and C band.

4.0:   Understand Inter-Networking Operating System (IOS).

5.0:   Understand Base Station and Repeater Station.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Introduction to WAN Technologies			COURSE CODE: NSS 231		CONTACT HOURS: 2-0-3
Course Specification: Theoretical & Practical Content					
WEEK	General Objective: 1.0 Understand Wide Area Network (WAN).				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 Define WAN. 1.2 Define scaling. 1.3 Define PPP. 1.4 Explain ATM. 1.5 Define ISDN. 1.6 Explain Frame relay.	Identify PPP and Frame Relay network. State the advantages of each type of WAN technology.	Maker and Board. OHP. PC.	Carry out an inspection to any fixed telecommunication carrier (e.g. NITEL). Identify Hardware Modems.	Lead the students to the telecoms operators.	
	General Objective: 2.0 Know Very Small Aperture Terminal (V-sat).				
	2.1 Describe the technology behind V-sat. 2.2 Define BUC. 2.3 Define LNB. 2.4 Distinguish the various types of V-sat.	Identify V-sat and its associated components.	Maker and Board. OHP. PC.	Identify V-sat equipment. Carryout site layout and description documentation. Conduct site installation instruction.	Explain the procedure for site inspection documentation.	Installation Schedule.
	General Objective: 3.0 Understand KU and C band.				
	3.1 Explain the technology in KU band. 3.2 Define the technology in C band. 3.3 List the advantages of C band over Ku band in Sub Saharan Africa.	Identifying Ku and C Band. Explain the performances of KU and C band.	Maker and Board. OHP. PC.	Carryout site inspection. Conduct site layout. Carryout equipment installation.	Supervise students in carrying out the exercise.	Plan Layout.
	General Objective: 4.0 Understand Inter-Networking Operating System (IOS).				
	4.1 Define Internetworking operating system. 4.2 State an example of vendors that uses IOS. 4.3 Differentiate between IOS and Server. Operating System.	Identify hardware device that use IOS. Identify the IOS software. CISCO Roulers IDS and CISCO catalyst switches.	Maker and Board. OHP. PC.	Conduct minimum specification tests for server. Perform network operating system installation.	Guide students.	Network Operating System.
	General Objective: 5.0 Understand Base Station and Repeater Station.				
	5.1 Explain the term base station. 5.2 Explain the term	Identifying Base station and repeater station.	Diagrams. Maker and Board.	Identify the kind of hardware to use. Carryout base station setup.	Layout objectives for the practical. Carryout testing	

			OHP.	Carryout repeater station	procedures.	
	Repeater station.		PC.	setup.	Test the Base Station	
	5.3 Differentiate between				and Repeater Station.	
	Repeater station and base					
	station.					

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: NETWORK SECURITY

CODE: NSS 232

DURATION: **HOURS/WEEK**   Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in
                                                  ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understanding the Internet and the Internet Protocol (IP).

2.0:   Know types and sources of network threats.

3.0:   Understand Protective and Recovery Strategies.

4.0:   Know Fire-walling for networks defence.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Network Security			COURSE CODE: NSS 232		CONTACT HOURS: 2-0-3
Course Specification: Theoretical & Practical Content					
WEEK	**General Objective 1.0 Understanding the Internet and the Internet Protocol (IP)**				
	Theoretical Content			**Practical Content**	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 Explain the World Wide Web (Internet). 1.2 Explain TCP/IP Basics. 1.3 Explain the Internet Protocol (IP) and how it works. 1.4 Describe how IP is being attacked. 1.5 Describe the following and how they impact network performance: ▪ TCP ▪ Guaranteed Packet Delivery ▪ UDP ▪ Lower Overhead than TCP	Explain the IP protocol as the protocol of the Internet. Explain how packets travel over the internet. Describe how packets are intercepted.	Maker and Board. OHP. PC.	o Configure IP addressing systems.	Guide students in carrying out practicals.	PCs.
	General Objective 2.0: Know types and sources of network threats				
	2.1 Describe the following types of network threats: ▪ Denial-of-Service ▪ Unauthorized Access ▪ Executing Commands Illicitly ▪ Confidentiality Breaches ▪ Destructive behaviour 2.2 Identify the sources of these network threats: ▪ Denial-of-Service ▪ Unauthorized Access ▪ Executing Commands Illicitly ▪ Confidentiality Breaches. ▪ Destructive behaviour	Explain with cases/examples 2.1 – 2.2.	Maker and Board. OHP. PC.	Analyse a given network and list possible threats to it.	Guide students in carrying out practicals.	PCs. WWW Access.

General Objective 3.0 Understand Protective and Recovery Strategies.

3.1 Explain various Protective and Recovery Strategies as listed below: ✓ Backups of data. ✓ Avoiding systems with single points of failure. ✓ Updating Operating System patches. ✓ Heeding to Relevant Security Advisories. ✓ Appointing a Security Administrator. 3.2 Explain the advantages of each of the bullets in 3.1.	Explain with cases/examples 3.1 – 3.2.	Maker & Board. OHP. PC.	Analyse a given network and carryout protective and recovery strategies.	Guide students in carrying out practicals.

General Objective 4.0: Know Fire-walling for networks defence.

4.1 Define Firewall. 4.2 Describe the types of firewalls available for network defence ▪ Application Gateways ▪ Packet Filtering ▪ Hybrid Systems	List the various types of firewall. List advantages of firewall in 4.2.	Maker and Board. OHP. PC.	Carryout network breach to appreciate the effectiveness of a given firewall.	Guide students in carrying out practicals.

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: POWER AND NETWORK MANAGEMENT

CODE: NSS 233

DURATION: **HOURS/WEEK** Lecture: 2hrs Tutorial: 0 Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in
            ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0: Understand Power Ratings on Networking Media.

2.0: Understand The Concept of A/C and D/C Current.

3.0: Understand The Importance of Power Protection and Back-up.

4.0: Understand the concept of upgrade

5.0: Know how To Upgrade From LAN Intranet to Extranet network.

6.0: Understand Network Management and Implementation.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Power and Network Management			COURSE CODE:NSS233		CONTACT HOURS: 2-0-3
Course Specification: Theoretical & Practical Content					
WEEK	General Objective: 1.0 Understand Power Ratings on Networking Media.				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 Define power. 1.2 Define current 1.3 Explain intensity and voltage. 1.4 Define voltage. 1.5 Define ampere. 1.6 Differentiate between voltage and ampere	Explain with examples current, resistance, voltage and power calculations.	Diagrams/Charts. Maker and Board. OHP. PC.	Conduct Ohm's law experiment. Conduct experiment on Faraday's Law.	Supervise students in carrying out the exercise.	Copper Wires. Bulb. Dry Cell. Volt meter. Amp meter. Ohm meter.
	General Objective: 2.0 Understand The Concept of A/C and D/C Current.				
	2.1 Explain alternating current AC. 2.2 Explain a direct current DC. 2.3 Differentiate between an DC and a AC.	The teacher should be able to differentiate between simple AC and DC current.	Diagrams/Charts. Maker and Board. OHP. PC.	Carryout DC to AC conversion experiment.	Guide students.	Rectifiers.
	General Objective: 3.0 Understand The Importance of Power Protection and Back-up.				
	3.1 Define back up 3.2 Explain surge protectors 3.3 List the various ways in baking up. 3.4 Explain the upgrade. 3.5 Explain the need for hard/software upgrade.	Identify the various types of back-up. Explain the importance of Licensing Agreement.	UPS. Alkaline/Dry Cells. Inverters. AVR. Maker and Board. OHP. PC.	Identify the components in: ✓ UPS. ✓ Alkaline/Dry Cells. ✓ Inverters. ✓ AVR.	Guide students in carrying out practicals.	
	General Objective: 4.0 understand the concept of upgrade				
	4.1 Explain the process of network upgrade. 4.2 Explain the reason for upgrade our network. 4.3 List the merits and demerit of network upgrade.	Identify fact why we must upgrade our network	Maker and Board. OHP. PC.	Carryout site survey/analysis. Check documentation on previous network plan. Determine an action plan. Carryout site relaying of cables.	Guide students in carrying out practicals.	Network and Power Cables.

	General Objective: 5.0 Know how To Upgrade From LAN Intranet to Extranet network.				
	5.1 State the prerequisite needed to upgrade from LAN intranet to extranet. 5.2 List merits and demerits of LAN upgrade to extranet	Identify the difference between LAN and internet.	Maker and Board. OHP. PC.	Carryout system specification upgrade.		Network and Power Cables.
	General Objective: 6.0 Understand Network Management and Implementation.				
	6.1 Explain network with respect to society. 6.2 Explain the application and importance of network in an organisation and society as whole.	Identify proper network management	Maker and Board. OHP. PC.			

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: DATA SECURITY

CODE: NSS 234

DURATION: **HOURS/WEEK**   Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in
                                  ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understand System Security and Challenges.

2.0:   Know Types of Threats and Attacks to data security.

3.0:   Understand security breach and the types of Security Breaches.

4.0:   Understand hacking and the types of hacking.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Data Security			COURSE CODE: NSS234		CONTACT HOURS: 2-0-3
Course Specification: Theoretical & Practical Content					
WEEK	General Objective 1.0: Understand System Security and Challenges				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 Define Security. 1.2 Enumerate the importance of security of data to an organisation. 1.3 Describe the challenges faced in securing data in an organisation.	Discuss the factors faced when implementing security on an organisation's which may include: ▪ Cost of equipment ▪ Acquisition of equipment ▪ Security goals of an organisation ▪ System Usability.	Maker and Board. OHP. PC.	o Carryout survey on the implementation of security to a given organisation.	Guide students in carrying out practicals.	
	General Objective 2.0: Know Types of Threats and Attacks to data security.				
	2.1 Explain threats to data security. 2.2 Describe the different types of threats and attacks: ▪ System integrity loss ▪ Denial of service ▪ Computer viruses ▪ Trojan horses ▪ Data manipulation ▪ Data fraud ▪ Data theft ▪ Data destruction ▪ Program manipulation	Explain with cases/examples 2.1 – 2.2.	Maker and Board. OHP. PC.	Analyse the effect of a given type virus/worm to a system. Synthesise a fault on the network vis-à-vis the connection to the form of attack.		
	General Objective 3.0: Understand security breach and the types of Security Breaches.				
	3.1 Identify security breaches to a network 3.2 Explain the types of security breaches. ▪ Packet Sniffing ▪ Spoofing ▪ Jamming ▪ Code Injection	Explain with cases/ examples 3.1 – 3.2.	Maker and Board. OHP. PC.	Analyse a given network and identify possible breaches to it.	Guide students in carrying out practicals.	

	▪ Exploiting Flaws ▪ Password and Key Cracking				
General Objective 4.0: Understand hacking and the types of hacking.					
	4.1 Explain the term hacking. 4.2 Describe who a hacker is. 4.3 Explain the various types hacking: ▪ Political Hacking ▪ Commercial Hacking ▪ Social Hacking ▪ Financial Hacking ▪ Individual Hacking	Explain with cases/examples 4.1 – 4.3.	Maker and Board. OHP. PC.	o Surf the internet for cases of internet hacking.	Guide students in carrying out practicals.

FOURTH SMESTER

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: WEB SERVER FUNDAMENTALS

CODE: NSS 241

DURATION: **HOURS/WEEK**   Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in
                                      ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understand The Concept of Web Server.

2.0:   Know How To Install Internet Information Service (IIS) for Windows XP.

3.0:   Understand Protocol Ports For Web Server.

4.0:   Understand The Difference Between Web Server and Intranet.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Web Server Fundamentals		COURSE CODE: NSS 241		CONTACT HOURS: 2-0-3	
Course Specification: Theoretical Content					
WEEK	General Objective: 1.0 Understand The Concept of Web Server				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 Explain web server. 1.2 List the procedure involve in configuring web server. 1.3 Differentiate between web server and DNS server	Identify web server	Windows XP Professional on a PC.	Install IIS on win XP & DNS server.	Guide students in carrying out practicals.	PCs with win XP Prof.
	General Objective: 2.0 Know How To Install Internet Information Service (IIS) for Windows XP.				
	2.1 Explain Microsoft Windows Operating System. 2.2 List the steps in installing IIS. 2.3 State the disadvantages of IIS over enterprise server.	Identify personal web server in win XP	Maker and Board. OHP. PC.	Implement IIS on win XP.	Guide students in carrying out practicals.	
	General Objective: 3.0 Understand Protocol Ports For Web Server.				
	3.1 Explain port numbers. 3.2 State why we must use port numbers as fire walling instead of anti virus.	Identify port number.	Maker and Board. OHP. PC.	Carryout port numbering exercise.	Guide students in carrying out practicals.	
	General Objective: 4.0 Understand The Difference Between Web Server and Intranet.				
	4.1 Differentiate between web server and intranet. 4.2 State how IIS web server could be relate to the intranet.	Identify web server and intranet	Maker and Board. OHP. PC.			

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: FUNDAMENTALS OF WIRELESS LANS

CODE: NSS 242

DURATION: **HOURS/WEEK**   Lecture: 2hrs   Tutorial: 0   Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0:   Understand the wireless LAN standards

2.0:   Know the anatomy of a radio LAN.

3.0:   Know the radio modem.

4.0:   Understand the MAC (Data Link) Layer.

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Fundamentals of Wireless LANs		COURSE CODE: NSS 242		CONTACT HOURS: 2-0-3	
Course Specification: Theoretical & Practical Content					
WEEK	General Objective 1.0 Understand the wireless LAN standards				
	Theoretical Content			Practical Content	
	Specific Learning Outcomes	Teacher's Activities	Resources	Specific Learning Outcomes	Instructor's Activities	Resources
	1.1 Describe Wireless LAN. 1.2 Describe wireless LAN's standards as defined by IEEE 802.11 standard. ▪ 802.11a ▪ 802.11b ▪ 802.11g	Explain with examples 1.1 – 1.2.	Maker and Board. OHP. PC.	○ Connect to wireless LAN and test its strength and reach.	Guide students in carrying out practicals.	
	General Objective 2.0: Know the anatomy of a radio LAN.				
	2.1 Explain the radio modem. 2.2 Describe the MAC controller. 2.3 Describe the host interface. 2.4 Describe the driver.	Describe radio action of a modem.	Maker and Board. OHP. PC.	○ Identify the parts of a radio LAN.	Guide students in carrying out practicals.	
	General Objective 3.0: Know the radio modem.				
	3.1 Explain ISM frequency bands (900 MHz & 2.4 GHz) 3.2 Describe the 5 GHz frequency bands 3.3 Describe the Spread Spectrum techniques 3.4 Describe Diversity of a radio modem. 3.5 Describe Directional antennas and their usage 3.6 Explain range issues in antennas 3.7 Describe frequency modulations 3.8 Describe Interferences	Explain with examples 3.1 – 3-8	Maker and Board. OHP. PC.	○ Carryout exercises on frequency band allocation and designation.	Guide students in carrying out practicals.	Radio Modem.

	and noise in wireless networks					
General Objective 4.0: Understand the MAC (Data Link) Layer.						
	4.1 Describe the main channel access mechanisms 4.2 Describe MAC techniques 4.3 Describe the Network topology 4.4 Explain throughput considerations	Explain with examples 4.1 – 4.4.	Maker and Board. OHP. PC.	o Carryout exercise on channel surfing.	Guide students in carrying out practicals.	

PROGRAMME: NIED IN NETWORKING AND SYSTEM SECURITY

COURSE: PROJECT MANAGEMENT

CODE: NSS 243

DURATION: **HOURS/WEEK** Lecture: 2hrs Tutorial: 0 Practical: 3hrs

UNITS: **5 Units**

GOAL: This course is designed to enable students acquire adequate skills in ………………………..

GENERAL OBJECTIVES: On completion of this course the students should be able to:-

1.0: Know how to plan a project

2.0: Understand how to schedule a project and make budgetary analysis

3.0: Know Controlling and Closing a Project

PROGRAMME: National Innovation Diploma in Networking & System Security					
COURSE: Project Management		COURSE CODE: NSS 243		CONTACT HOURS: 2-0-3	
Course Specification: Theoretical & Practical Content					
WEEK	**General Objective 1.0: know how to plan a project**				
	Theoretical Content			**Practical Content**	
	Specific Learning Outcomes	**Teacher's Activities**	**Resources**	**Specific Learning Outcomes**	**Instructor's Activities**	**Resources**
	1.1 Defining the Project 1.2 Sequencing Activities and Dependencies. 1.3 Analyzing the Project's Activities	✓ Identify ways participants influence a project. ✓ Identify project participants. ✓ Identify the benefit of project planning. ✓ Identify types of project constraints. ✓ Prioritize project constraints. ✓ Identify steps for creating a work breakdown structure.	Maker and Board. OHP. PC.			
	General Objective 2.0: understand how to schedule a project and make budgetary analysis					
	2.1 Describe how to develop the project schedule. 2.2 Explain how to keep to the schedules of the project. 2.3 Describe how to manage financial issues.	▪ Identify the types of arrow charting that can be used to create a project network diagram. ▪ Identify features of network diagrams. ▪ Identify the benefits of schedule development. ▪ Identify features of the Critical Path Method. ▪ Identify the historical data sources you can use to estimate cost. ▪ Identify common issues related to cost estimating. ▪ Identify the organizational financial	Maker and Board. OHP. PC.	○		

		- issues that can affect project costs. - Identify project costs. - Identify the actions that can help you make the most of available funds. - Identify actions that can help you optimize the project budget.			
General Objective		**3.0: Know Controlling and Closing a Project**			
	3.1 Controlling Project Change. 3.2 Measuring Project Performance. 3.3 Reporting Project Performance.	- Identify the characteristics of a good change control system. - Identify the steps for accommodating a change. - Identify the steps for controlling project cost. - Identify the various elements of schedule and cost control. - Identify the classifications of performance reports. - Identify the actions a project manager can take to avoid common progress reporting problems. - Identify the characteristics of project reports. - Identify the steps for closing a project. - Identify the items that should be included in a final project report. - Sequence the steps for closing a project.	Maker and Board. OHP. PC.	Case study of an IT Project: A comprehensive IT Project should be undertaken in other to make students understand the various processes in IT project management.	Guide the trainees on site survey, planning, costing, and execution of project efficiently. This could be achieved by taking students to sites where actual networks are being deployed and if possible making them participate in such projects.

LIST OF MINIMUM EQUIPMENT/ITEMS

S/No.	Item Description	Number
1	PC/Laptops with Windows/Linux	15
2	Computer Server	2
3	LAN Cable Testers	15
4	Strippers	15
5	Insertion Tools	15
6	RJ 45 Clips	5 packets
7	Crimping Tools	15
8	Cat 5e UTP Cable	2 Cartons
9	Network Interface Cards (NICs)	10 Cards
10	Hubs	Two 16-Port Hubs
11	Cisco Switches with Console cables (or any alternative)	Two 24 Port Switches
12	Cisco Routers Console cables (or any alternative)	One Cisco Router
13	Coaxial Cables	One roll
14	Trunks of various sizes	5 Assorted types
15	Wall Jacks	30 Pieces
16	Wireless Access Points	3

LIST OF PARTICIPANTS

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