

KINGDOM OF SAUDI ARABIA
Ministry of Higher Education
AL-Imam Muhammad Ibn Saud
Islamic University
Deanery of The University Centre
For Community Service & Continuing
Education



المملكة العربية السعودية
وزارة التعليم العالي
جامعة الإمام محمد بن سعود الإسلامية
عمادة المركز الجامعي
لخدمة المجتمع والتعليم المستمر

KINGDOM OF SAUDI ARABIA

Ministry of Higher Education

AL-Imam Muhammad Ibn Saud Islamic University

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COMPUTER SCIENCES

Department of Computer Science

"Diploma of Network Techniques"

"Study plan and Course Description"

AL IMAM MOHAMMAD IBN SAUD ISLAMIC UNIVERSITY
1405 - 1406 A . D.
COMMUNITY SERVICE AND CONTINUING EDUCATION CENTRE



**First Year- First semester
(Network and Programming)**

| Title | | | Course Credit Hours | | | Prerequisite |
|-------|-----------|---------------------------------------|---------------------|-------------|-----------|--------------|
| No. | Code | Course | Accredited | Theoretical | Practical | |
| 1 | Math. 101 | Computer Math | 3 | 3 | | None |
| 2 | Eng.101 | English Language | 3 | 3 | 0 | None |
| 3 | CSC .102 | Basics of Programming | 3 | 2 | 2 | None |
| 4 | CSC .101 | Introduction to Computer Applications | 4 | 2 | 4 | None |
| 5 | NW .101 | Network Fundamentals | 4 | 3 | 2 | None |
| Total | | | 17 | 12 | 10 | |

**First Year- Second semester
(Network and Programming)**

| Title | | | Hours | | | Prerequisite |
|-------|----------|-----------------------------------|------------|-------------|-----------|--------------|
| No. | Code | Course | Accredited | Theoretical | Practical | |
| 1 | CSC. 103 | Java Programming | 3 | 2 | 2 | CSC .102 |
| 2 | Eng. 102 | English for Special Purposes | 2 | 2 | 0 | CSC .101 |
| 3 | CSC .104 | Computer Maintenance | 3 | 2 | 2 | CSC .101 |
| 4 | NW .102 | Introduction to Router Technology | 4 | 2 | 4 | NW. 101 |
| 5 | CSC .105 | Advanced Computer applications | 2 | 0 | 4 | CSC .101 |
| Total | | | 14 | 8 | 12 | |

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**Second Year- First semester
(Network and Programming)**

| No. | Title | | Hours | | | Prerequisite |
|-------|----------|---|------------|-------------|-----------|--------------|
| | Code | Course | Accredited | Theoretical | Practical | |
| 1 | NW .203 | local networkSetting | 4 | 2 | 4 | NW .101 |
| 2 | NW.204 | Routing and switching | 4 | 2 | 4 | NW .102 |
| 3 | CSC .206 | Internet Applications | 2 | 1 | 2 | NW .102 |
| 4 | NW .205 | Network wiring | 3 | 2 | 2 | CSC .104 |
| 5 | NW .207 | Network monitoring and troubleshooting | 3 | 2 | 2 | CSC .104 |
| Total | | | 16 | 9 | 14 | |

**Second Year- Second semester
(Networks and Programming)**

| No. | Title | | Hours | | | Prerequisite |
|-------|---------|-------------------------------|------------|-------------|-----------|--------------------|
| | Code | Course | Accredited | Theoretical | Practical | |
| 1 | NW .210 | Network operating systems | 3 | 1 | 4 | NW .203 |
| 2 | NW .212 | wide area network protocol | 3 | 1 | 4 | NW .204 |
| 3 | CS .214 | Job Ethics | 1 | 1 | 0 | None |
| 4 | NW .216 | Network Security | 3 | 2 | 2 | NW .204 |
| 5 | NW .218 | Elective Course | 3 | 2 | 2 | NW .203 |
| 6 | NW .220 | Project | 2 | 1 | 2 | End of semester |
| Total | | | 15 | 8 | 14 | |

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1st : Course Description for the courses given at the 1st semester of the
First Year
Diploma program (Network and Programming)

| | | | | | | |
|--------------|---------------------|-------|-------------------------|--|--|--|
| Department | Computer Technology | Major | Network and Programming | | | |
| Course | Computer Math | Code | Math. 101 | | | |
| Prerequisite | None | | | | | |

Course Description:

This course will examine issues that represent theoretically the basics of programming. It includes various "counting systems" and its importance for "data representation". It also includes "logical operations" that represent the base of computer operation in data processing. Further the course will cover "logical expressions", which in turn plays an important role in "forming statements" inside the program. In addition, the course will deal with "Discrete mathematics" that helps converting verbal descriptions into algorithm formula that can be converted into a program.

| Semester | | 1 | 2 | 3 | 4 |
|--------------------------------------|-----------|---|---|---|---|
| Accredited | | 3 | | | |
| Communication hours (hour / week) | Lecture | 2 | | | |
| | Practical | 2 | | | |

The general theme of the course :

The course aims to establish the theoretical basics of computer programming.

Objectives:

The student should be able to:

- 1- Convert from one counting system into another.
- 2- Understand various logical operations that represent the base of computer operation.
- 3- Write logical expressions.
- 4- Formulate verbal description into algorithmic formula.





Topics (theoretical and practical)

- Counting systems
- Logical operations
- Logical expressions.
- Fundamentals of Discrete mathematics

Contents (theoretical and practical)

Counting systems

- Decimal counting system
- Hexadecimal counting system.
- Binary counting system.
- System conversion.

Logical operations

- AND operation
- OR operation
- NOT operation
- XOR operation
- NOR operation
- Logical gates

Logical expressions

- Truth table
- Logical expression formulation
- De Morgan's laws
- Simplification of logical expressions

Fundamentals of Discrete mathematics

- Sets
- Functions
- Algorithms

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References:

- 1- Discrete mathematics and its application- by Kenneth H. Rosen.
- 2- Essence of Discrete Mathematics – by Neville Dean
- 3- Handbook of Discrete and Combinatorial Mathematics—by Kenneth H. Rosen.
(Editor)and et al.

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| | | | |
|--------------|---------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | English Language | Code | Eng. 101 |
| Prerequisite | | | |

Course Description:

The course is designed to consolidate student's previous knowledge of English, and bring it up to an intermediate level which enables them to enroll in ESP Courses related to their respective majors.

| Semester | | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|---|---|---|---|
| Accredited | | 3 | | | |
| Communication hours (hour / week) | Lecture | 3 | | | |
| | Practical | 2 | | | |

The general theme of the course :

To teach the four skills of listening, speaking, reading, and writing, as well as improving student's pronunciation and vocabulary knowledge, with main emphasis on teaching communication competence in English.

Objectives :

students will be able to:

- Read with reasonable comprehension various types of authentic texts using a variety of reading skills such as skimming, scanning, reading for details, and making inferences.
- Write medium length English composition using correct grammar, spelling, style, punctuation, and suitable vocabulary.
- Engage in various types of simple conversations with appropriate fluent and intelligible English, and correct comprehension.

| | |
|--|--|
| Textbook: | Opportunities 1. M. Harris, D. Mower, and A. Sikorzynska. 1. Student's book |
| Additional Readings and Teaching Aids. | 1. Workbook. 1 2. Audio Cassette or CD. 3. Teacher's Manual. |
| References: | Oxford Word Power Dictionary. |



SYLLABUS

| Hrs | Contents | Instructional Objectives |
|--|---|---|
| 4 | Introduction: Learning to Learn | Students will learn and practice the following Language functions and grammar rules: 1. Introduce course book. 2. Introduce learning strategies. 3. Revise grammar, vocabulary, and reading skills. 4. Give instructor a chance to know student proficiency level. |
| Module 1: Life Styles module objectives | | Introduce overall |
| 4 | Unit 1: Alternatives Eco-Protest Ex: 1, 2, 3, 4, 5, 11 Suggested Powerbook (PB) H Ex: 1, 2, 3 | 1. Use: Discuss regular activities 2. Grammar: Revise Present Simple & Present Continuous. 3. Reading: Read for specific information |
| 2 | Unit 3: Changing Rooms Ex: 1, 2, 3, 4 Suggested PB H Ex: 1, 2, 4 | 1. Grammar: Revise Present Perfect 2. Use Present Perfect to express reasons |
| 2 | Unit 4: Life on Alpha Home in Space. Ex: 1, 3, 4, 6, 7, 8 Suggested PB H Ex: 1 & 3 | 1. Reading: Use reading prediction strategies. 2. Vocabulary: increase knowledge of words that go together. 3. Discussion: Express opinions and give reasons. 4. Speaking: Talk and write about routines |
| 2 | Communication workshop Ex: 1 & 2 Suggested PB H Ex: 1, 2, 4 | 1. Reading: Read informal personal letters. 2. Writing: Write personal letters using informal expressions. 3. Listening: listen for specific information. 4. Pronunciation: Recognize and produce correct question intonation. 5. Use of present Simple: Talk about routines. |
| 2 | Review All activities on p. 18 PB pp. 9-12 Quiz 1 | Review materials presented in this module. |



Module 2: Heroes

Introduce overall module objectives

| | | |
|---|---|---|
| 4 | Unit 5: Local Heroes True Life Drama Ex. 1, 2, 3, 4, 5, 6, 7, 8, 9, 11 Suggested PB H Ex: 1, 2, 3, 5 | 1. Reading: Extensive reading for main ideas and intensive reading to guess the meaning of new vocabulary. 2. Grammar: • Use adverbs of time to link two actions in one sentence. • Use Past Simple and Past Continuous. |
| 2 | Unit 7: Sports Stars Ex: 1, 2, 4, 6, 7, 9, 11 Suggested PB H Ex: 1, 2, 3, 5 | 1. Reading: Read for specific information. 2. Usage - Use Present Perfect and Past Simple tenses appropriately. - Use positive and negative adjectives. |
| 2 | Communication Workshop Speaking: Discussion Writing: A storey | 1. Communication skills: Practice taking notes for discussion. 2. Communication skills: Participate in a discussion. 3. Listening: listen to expressions of agreement and disagreement. 4. Writing: Write a storey. |
| 4 | Review All activities on p. 30 PB: Focus on Writing: All Activities on p. 21 | 1. Review materials presented in this module. 2. Writing: Practice writing: Sequence words, Punctuation, and Spelling. |

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| Module 3: Celebration | | |
|--|--|--|
| Introduce overall module objectives | | |
| 4 | Unit 9: Ramadan Memories of Ramadan. Ex: 1, 2, 3, 4, 5, 6. Suggested PB H Ex: 2 & 3 | 1. Reading: Comprehend narrative texts, Develop reading strategies. 2. Vocabulary: Build vocabulary associated with Ramadan. 3. Usage: Use <i>do</i> and <i>have</i> appropriately. |
| 2 | Unit 10: Weddings Living in Indonesia. Ex: 1, 2, 3, 4, 5, 6 Suggested PB H Ex: 1, 3, 4 | 1. Reading: Read for specific and new information. 2. Grammar: Practice using modals: <i>have to, can/can't, etc.</i> |
| 2 | Unit 12: Seasonal Festivals Ex: 1, 2, 3, 4, 5, 6, 7, 8 Suggested PB H Ex: 1, 2, 3, 5 | 1. Vocabulary: Use pictures and context to understand new vocabulary. 2. Reading: Skim-read for specific information. 3. Grammar: Practice Present Simple Passive and Past Simple Passive. |
| | Review All activities on p. 44 Suggested PB H Ex: 1, 2, 3 p. 36 Quiz 2 | 1. Review materials presented in this module. 2. Review Passive structure and use. 3. Revise vocabulary associated with celebrations. |

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Module 4: Money

Introduce overall module objectives

| | | |
|---|--|---|
| 4 | Unit 13: A Material World Who Wants to be a Millionaire? Ex: 1, 2, 3, 5, 6, 8 Suggested PB H Ex: 1, 2 | 1. Reading: Read for specific information. 2. Grammar: using count and mass nouns. 3. Usage: the use of multi-part verbs, Use quantity words and expressions. |
| 2 | Unit 15: Your Money How Careful are you with Money Ex: 1, 2, 3, 4, 6, 9, 12 Suggested PB H Ex: p. 2 & 3 | 1. Grammar: Practice the use of determiners; <i>all, none, both, another, etc.</i> 2. Communication skills: Ask and answer questions. |
| 2 | Unit 16: Adverts Ex. 1, 2, 3, 4, 5, 6, 7 Suggested PB H Ex: 1, 3, 4 | 1. Reading: Distinguish fact from opinion, use linking words. 2. Grammar: Use <i>-ed -</i> and <i>-ing</i> adjectives |
| 4 | Review All activities on p. 56 PB: Focus on Writing: All Activities p.45 | 1. Review materials presented in this module. 2. Writing skills revisited: linking words, punctuation, and spelling. |

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Module 5: Cyberspace

Introduce overall module objectives

| | | |
|---|---|--|
| 4 | Unit 17: Tomorrow's World. The Future of Cyberspace. Ex: 1, 2, 3, 4, 5 Suggested PB H Ex: 4 | 1. Reading: Use title to predict reading content. 2. Vocabulary: Use cyberspace vocabulary. 3. Writing: Write about the future. |
| 2 | Unit 18: Websites Ex: 1, 2, 3, 4, 5, 6, 7, 8, 9 Suggested PB H Ex: 3 | 1. Listening: Practice extensive and intensive listening skills. 2. Reading: Find information from a website. 3. Vocabulary: Focus on prominently stressed words. 4. Communication skills: Make plans and suggestions over the phone. |
| 2 | Unit 19: Virtual Reality Ex: 1, 2, 3, 4, 5, 6, 7, 8, 10 Suggested PB H Ex: 1 & 2 | 1. Grammar: Practice first and second conditionals. 2. Communicative skills: Discuss VR possibilities. |
| 2 | Unit 20: Virtual Tourism Auckland: New Zealand; A guide Ex: 1, 2, 3, 4, 5, 6, 7, 8 Suggested PB H Ex: 1 & 2 | 1. Reading: • Practice intensive/extensive reading skills. • Develop reading strategies. • Use linking words. 2. Vocabulary: • Identify important words. • Practice words that are used with <i>do</i> and <i>make</i> . |
| 2 | Review All activities on p. 70 PB: Focus on Writing: All Activities on p. 57 | 1. Review materials presented in this Module . 2. Writing skills revisited: linking words, punctuation: possession, and spelling. |



| | | | |
|--------------|-----------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Basics of Programming | Code | CSC .102 |
| Prerequisite | None | | |

Course Description:

This course includes a group of issues that represent an approach to study programming. It includes exploring the identity of programming and its role in IT. It also includes thinking styles using computer to solve different problems. In addition, this course deals with the basics of sequential programming that represent the core of any program units. This course deals with algorithms as well.

| Semester | | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|---|---|---|---|
| Accredited | | 3 | | | |
| Communication hours (hour / week) | Lecture | 2 | | | |
| | Practical | 2 | | | |

The general theme of the course :

The course aims to provide the student **with the basics of programming** to be able to find out solutions for the problems such that they are valid for formulation as a computer program. In addition, it aims to let the student be able to use JAVA for writing programs and solving problems.

Objectives:

The student should be able to:

- 1- Think of an applicable solution for certain issue that can be applied on PC.
- 2- Formulate algorithms for simple programs.
- 3- Understand data representation system on PC.

Contents (theoretical and practical)

- General introduction on programming.
- Problem solving by PC.
- Setting up Algorithms.
- Basics of sequential programming.
- Binary Representation System.

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Contents (theoretical and practical)

Introduction:

- computer programming.
- programming language
- Types of programming languages.
- The importance of programming as a profession.
- Software industry.

Problem solving:

- Problem formulation.
- Solution-based on algorithm.

Setting up algorithms:

- Examples of algorithms.

Binary system:

- Representing binary system.
- Examples of conversions of data representation systems.

Exercises on conversion of data representation systems.

Exercises on problem solving.

Exercises on writing algorithms.

JAVA Program Environment Identification

Algorithms Conversion to JAVA program.

References:

Simple Program Design, L. Robertson, Course Technology, 2000





| | | | |
|--------------|---------------------------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Introduction to computer Applications | Code | CSC. 101 |
| Prerequisite | None | | |

Course Description:

This course includes a group of issues that enable the student to identify computer and its components. In addition, it will enable the student to identify the operating system used in personal PCs, and manage files as well. The student will also be able to recognize most well-known office applications that are needed to accomplish the given missions. .

| Semester | | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|---|---|---|---|
| Accredited | | 3 | | | |
| Communication hours (hour / week) | Lecture | 2 | | | |
| | Practical | 2 | | | |

The general theme of the course :

The course aims to train the student on operating and using personal PC, and using the most well-known office applications.

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Objectives:

The student should be able to:

- 1- Identify various computer components.
- 2- Deal with operating systems.
- 3- Manage files systems.
- 4- Use word processing programs.
- 5- Use electronic tables preparation programs.
- 6- Use presentation preparation programs.
- 7- Use internet browsing programs.

Contents (theoretical and practical)

- | | |
|------------------------------|-------------------------------------|
| 1- Introduction | 5- Electronic tables program. |
| 2- Operating systems. | 6- presentation preparing programs. |
| 3- File system. | 7- Internet browsers. |
| 4- Word processing programs. | |

Contents (theoretical and practical)

Introduction:

- Computer Definition.
- Computer Components.
- Computer Programs
- Hardware.

Operating system:

- Functions of operating system.
- Using the Mouse.
- Dealing with ICONS.
- Components of the window.
- Running the programs.

File system:

- The concept of " Files"
- Types of files.
- The concept of " folders"
- Tree structure of file system.
- Dealing with files.



Electronic tables programs:

- Definition of Electronic tables programs.
- Basic skills (loading the program environment – description of the program elements – Workbook –using the lists - closing the program).
- Editing basic tables (entering texts – entering numbers – cell extent – selecting cells – fast data entry - fast data entry – data editing – saving workbooks – opening & closing previous workbooks – printing preview – printing the table).
- Writing mathematical formula (components of formula – creating a formula – Auto summation – Auto calculating – functions).
- Data organization (cut, copy & paste – Drag & Drop – changing font type – Text alignment – formatting numbers – formatting dates – changing line position- borders & Shading – Auto formatting).
- Creating charts (components of a chart – using chart wizards – moving the chart – changing size – updating data – deleting charts – naming charts – formatting charts).

Presentation programs:

- Definition of presentation programs.
- Basic skills (loading the program environment – describing the program elements – creating a new presentation – saving a presentation – Slide show – closing a presentation – opening a previous presentation – closing the program).
- Preparing the presentation (adding new slide – slide preview – changing slide color)
- Improvements (adding clip art – automatic forms –templates designs)
- Slide show (printing the presentation – slide show – scrolling- using animations)

Internet browsers:

- Functions of the program.
- Internet browsing.
- Navigation & searching through the web.
- E-mail.

References:

- Sams Teach Yourself Microsoft Windows XP in 24 hours by Greg M.Perry.
- The 2000 stable, An introduction to Microsoft Office 2000 by Hawking, B.McCarthy& C. Nikakis, Prentice Hall, 2000.
- Microsoft Office XP 8 in 1, Joe Haprakin, Jarir Bookstore, 2002.
- Teach Yourself Microsoft Office XP in 24 hours , Lebanon Bookstore, 2002.
- Microsoft Windows XP : inside & outside, Ed Boot & Carl Zaicht, Arab Science publishers, 2002.
- Simplification of Office XP, Jarir Bookstore, 2002.



| | | | |
|--------------|----------------------|-------|-------------------------|
| Department | Computer technology | Major | Network and Programming |
| Course | Network Fundamentals | Code | NW. 101 |
| Prerequisite | None | | |

| | | | | | |
|--|-----------------------------------|---------|---|---|---|
| Course description: This course aims to teach the student the basic fundamentals of computer network and its major components through rehabilitation of student to work on and install network components. | Semester | 1 | 2 | 3 | 4 |
| | Accredited | 4 | | | |
| | Communication hours (hour / week) | Lecture | 3 | | |
| Practical | | 2 | | | |

The general theme of the course :
 This course aims to provide the student with basic skills to identify network components and install them.

Objectives:
 The student should be able to:

- 1- Participate in determination of Network type.
- 2- Identify the nature of Network location.
- 3- Extend network cables.
- 4- Check network connections.
- 5- Use network check devices.
- 6- Discuss the design with decision- makers.
- 7- Participate in determination of PC specifications.
- 8- Participate in development of network design.
- 9- Initialize and change network card and test the work of the network devices.

Contents (theoretical & practical)

- Computer Basics.
- OSI model
- TCP/ IP
- LAN devices and connection medias.
- Standard specifications & LAN technology.
- Routers.
- Addressing.

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| Contents (theoretical) | Objectives |
|---|---|
| <ul style="list-style-type: none"> • Computer Basics. • Computer hardware. • Computer software. • Decimal, binary and hexadecimal counting systems. • Calculating speed of data transfer. • Defining Windows O.S. • Requirements of Windows to deal with network. | <ul style="list-style-type: none"> • Review of PC hardware. • Identification of some counting systems. |
| <ul style="list-style-type: none"> • OSI model (Open System interconnection). • Defining main functions of OSI model & the importance of the 7 layers. • Defining the function of each layer in the 7 layers. • Data encapsulation process. | <ul style="list-style-type: none"> • Identification of OSI model properties. |
| <ul style="list-style-type: none"> • TCP/IP model (Transport Control Protocol / Internet Protocol). • Defining main functions of TCP/IP. • Defining tasks of TCP/IP layers to make connection. • Defining some protocols that use this model. | <ul style="list-style-type: none"> • Identification of how to initialize the operating System to work on the network. |
| <ul style="list-style-type: none"> • LAN devices and media of connection. • Major types of connection. • Devices used to build LAN and its function. • IP addressing of devices. • Types of cables used in LAN and its specifications. | <ul style="list-style-type: none"> • Identification of LAN components. • Identification of how devices are connected in LAN. • Identification on types and specifications of cables used in LAN's. |
| <ul style="list-style-type: none"> • Standard and technical specifications of LAN's. • Idea of Data link. • Various technologies to use data link. • Hexadecimal IP addressing, IP addressing devices, and IP addressing levels. • MAC address (Media Access Control address). • Processing frames. | <ul style="list-style-type: none"> • Identification of how messages are routed in networks. • Identification of how sub-netting occurs. • Identification of routing protocols. |
| <ul style="list-style-type: none"> • Packet routing within networks. • Introduction to routers and its function. • IP addressing of devices and sub-netting. • Routing protocols within networks. | |

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| Contents (theoretical) | Objectives |
|---|--|
| <ul style="list-style-type: none"> Local LANs Preparation. IP addressing and initialization of devices. Network planning. Choosing the devices. | <ul style="list-style-type: none"> Training on IP addressing and initialization of devices. Training on identification of network devices and its advantage. |
| <ul style="list-style-type: none"> Using measuring devices. Using measuring devices of electric voltage and current intensity. Using devices of cable testing. Using devices to measure specifications of signals through network cables. | <ul style="list-style-type: none"> Training on signal testing. Training on using various electrical measuring devices. |
| <ul style="list-style-type: none"> Preparation and testing the cables. Preparations of multistage cable systems. Standard specifications of cables. Preparation of different network cables. | <ul style="list-style-type: none"> Training on preparation of cables. Identification on standard systems of network cables. |
| <ul style="list-style-type: none"> Testing the signal through cables. Testing signal quality. Testing signal decay level. Testing and identification of signals using protocols and network analysis programs. | <ul style="list-style-type: none"> Training on using network-testing devices. Identification of some network-testing programs. |

References:

- CCNA: Cisco Certified Network Associate Study Guide, Deluxe Edition by Todd Lammle, December 2001, Sybex; ISBN: 0782140483.

-CNAP: First Semester Companion Guide, Cisco





2nd : Course Description for the courses given at the 2nd semester of the
First Year
Diploma program (Network and Programming)

| | | | | | | |
|---|--------------------------------------|-----------|-------------------------|---|---|--|
| Department | Computer Technology | Major | Network and Programming | | | |
| Course | JAVA Programming | Code | CSC.103 | | | |
| Prerequisite | CSC.102 | | | | | |
| Course Description: This course covers the basics of object oriented programming . It deals with the subject of “Classes” as software structure that encapsulates data and data codes in one easy standardized format. The course also addresses the subject of “inheritance among classes” to achieve an organized mechanism for software best reusability. The course further deals with using “arrays” as an example of complex architecture for Data. There is an integrated “case study” through the whole 2 nd semester through which all the previous tools are implemented along with the experience acquired through the relevant courses to build an integrated project. | Semester | 1 | 2 | 3 | 4 | |
| | Accredited | | 3 | | | |
| | Communication hours (hour / week) | Lecture | | 2 | | |
| | | Practical | | 2 | | |

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The general theme of the course :

The course aims to empower the student with more advanced programming skills to be able to find solutions for problems in new ways, formulate these solutions as a program (software), and use JAVA to encode such software.

Contents (theoretical and practical)

- Methods.
- Arrays.
- Classes and objects.
- Inheritance.

Contents (theoretical and practical)

Methods:

- Methods operands.
- "RETURN" statement.
- Calling method.
- Methods types.

Arrays:

- The concept of Array.
- Array declaration.
- Multi-dimensional array.

Classes and objects:

- Object Oriented programming (OOP).
- Class declaration statement.
- Determination of class properties and class methods.
- Object creation.
- Style of accessing properties and methods.

Inheritance:

- The concept of Inheritance.
- Accessing Inherited methods.
- Method overloading.
- Overriding inherited methods.

References:

- 1- Java how to programming – By Deitel and Deitel
- 2- Beginning Java 2 SDK 1.4 Edition – by Ivor Horton
- 3- Effective Java Programming Language Guide – By Joshua Bloch



| | | | |
|--------------|------------------------------|-------|-------------------------|
| Department | Computer technology | Major | Network and Programming |
| Course | English for Special Purposes | Code | Eng.102 |
| Prerequisite | None | | |

Course Description

The course is for students of hotel and tourist industry. It introduces and helps students practice the language skills necessary for workers to deal with guests through the medium of English.

| | | | | | | |
|-----------------------------|---|---|---|---|--|--|
| Semester | 1 | 2 | 3 | 4 | | |
| Accredited | | 2 | | | | |
| Communication (hour / week) | | 2 | | | | |

The general theme of the course

The course aims at training students in English required by the hotel and tourism job market. It provides them with the necessary language skills to perform their duties in English wherever required.

Objectives :

Students should be able to :

- Gain a satisfactory mastery of English for travel and tourism at a pre-intermediate level.
- Give descriptions, instructions and explanations about topics in travel and tourism.
- Respond to guests / customers' complaints, enquires, and requests diligently and efficiently.
- Acquire problem-solving skills.

References

Textbook: Trish Stott, At your service , English for the Travel and Tourist Industry, second impression 1997 , Oxford : OUP



Syllabus

| Contents | Instructional Objectives |
|---|--|
| Unit 1: May I introduce myself? | Students should be able to learn and practice the following language functions : 1- Great guests 2- Introduce themselves 3- Say where people are from. 4- Make a short welcome speech. |
| Unit 2: What do you do? | 1- Ask people about their jobs. 2- Talk about jobs. |
| Unit 3: What is the time? | 1- Ask about the time. 2- Tell the time. 3- Talk about the timetable. |
| Unit 4: What kind of room would you like? | 1- Make reservations. 2- Complete reservation details. 3- Request information politely. |
| Unit 5: Don't leave your bags on the bus. locations Unit 6: Is the bank near here? | 1- Give introductions politely. 1- Give directions. 2- State |
| Unit 7: Who's calling, please | 1- Answer calls. 2- Give and ask for information. |
| Unit 8: Would like a window seat? | 1- Ask people to do things. 2- Deal with tourists' requests. |
| Unit 9: How was your day? | 1- Talk about the past. 2- Ask someone about their day. |
| Unit10: Are you ready to order? | 1- Great restaurant guests. 2- Talk and understand orders. |
| Unit 11: How will you pay? 6 | 1- Talk about money. 2- Ask about payment. 3- Change money for someone. |
| Unit 12: We'll meet here at three o'clock. | 1- Explain plans and itineraries to a tour group. 2- Answer common questions asked by tourists. |
| Unit 13: Why don't you take the city bus tour? | 1- make suggestions. 2- Describe tourist attractions. |
| Unit 14: Shall I send you a brochure. | 1- Offer to help people. 2- Deal with tourists' problems. |
| Unit 15: I look forward to hearing from | 1- Talk about experiences. |



| | | | |
|--------------|----------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Computer Maintenance | Code | NW.104 |
| Prerequisite | | | |

Course description:

This course introduces the basic concepts of computer structure through training the student to deal with computer hardware, and the way to assemble them in order to have a PC. It also includes the method of initializing the operating system. Further, it trains the student to handle and fix failures.

| Semester | | 1 | 2 | 3 | 4 |
|--------------------------------------|-----------|---|---|---|---|
| Accredited | | | 3 | | |
| Communication hours (hour / week) | Lecture | | 2 | | |
| | Practical | | 2 | | |

The general theme of the course:

The course aims to empower the student with basic skills to assemble, run, and maintain PCs.

Contents (theoretical and practical)

1-Fundamentals of computer work:

- Computer hardware.
- Computer software.
- The relation between hardware and software.
- Types of PCs.

2-Identification of hardware:

- Motherboard.
- Memory and its types.
- Processors.
- Data storage media.
- Sound card, VGA card, and Network card.
- Power source.
- Keyboard and mouse.
- Extra devices such as printers, scanners



3-Choosing hardware:

- Motherboard and processor, RAM's , VGA and sound card.
- Additional cards, hard disks, and floppy disks, CD-ROMs.
- External case and power source.

4- PC starting up:

- 4- Connecting the P.C. with power source.
- 5- Checking that the P.C. works properly.
- 6- Identifying ways of failure and how to avoid them.
- 7- Access into set-up list.
- 8- Identifying the stages where a PC starts until loading the operating system.
- 9- Trying running the P.C. under some problems to identify their impact on P.C. operation, and identify error messages.

5-Introduction to operating systems:

- Identifying the major functions of operating systems.
- Identifying certain types of operating systems.
- Identifying certain ways to load the operating system.
- Choosing the proper operating system.

6-Installation of operating system:

- 10-Initializing the hard disk.
- 11-Loading the operating system.
- 12-Knowing the expected problems upon installation.
- 13-Tools that manage the operating system

7-Initializing the operating system to work on the network:

- Network definition.
- Requirements to connect to network.
- Installation and initialization of network card.
- Adding network drivers to network card.
- Initialization the operating system to deal with the network.
- Choosing the way of connection with the network.
- Setting up and recovery of Hard disk image.
- Setting up the hard disk to have more than one operating systems.

References:

- Upgrading and Repairing pCs, 13th edition, Scott Mueller, Que, August 2001, ISBN: 0789725428
- The Complete PC Upgrade & Maintenance Guide, 12th ED. By Mark Minasi, Sybsx; August 1,2001, ISBN 0782129900



| | | | |
|--------------|-----------------------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Introduction to Router Technology | Code | NW. 102 |
| Prerequisite | NW 101 | | |

Course Description:

This course represents the second part of courses that aim to empower the student with basic skills to use, operate, and initialize network devices. In this course, the student is trained to operate "Routers" based on theoretical information and practical training on using routers to design networks.

| | | | | |
|-----------------------------------|-----------|---|---|---|
| Semester | 1 | 2 | 3 | 4 |
| Accredited | | 4 | | |
| Communication hours (hour / week) | Lecture | 2 | | |
| | Practical | 4 | | |

The general theme of the course:

The course aims to empower the student with the basic skills to deal with Routers, use and initialize them.

Objectives:

The student should be able to:

- 1- Participate in determination of the network type.
- 2- Participate in determination of the connection type.
- 3- Discuss the design with the decision-makers.
- 4- Participate in determination of devices specifications.
- 5- Participate in developing the network design.
- 6- Load, initialize, and test the work of operating systems.
- 7- Link and test devices.
- 8- Provide backup software copy to configure network devices and to update them.

Contents (theoretical and practical)

- OSI model Review,, WAN's and Routers,, Routing basics and Routing protocols.
- IP addressing of PCs within networks,, Router Components,, Fundamentals of Router configuration,, Router configuration methods,, Router configuration.
- Testing and fixing network failures.



Contents in details (theoretical)

| Objectives | Contents |
|---|---|
| The student should be able to: <ul style="list-style-type: none"> - Identify the functions of Router. - Identify types of Routing protocols. - Configure the router. | Examine Router Elements (RAM, ROM, CDP, show). |
| | Describe connection-oriented network service and connectionless network service. |
| | Define flow control and describe the three basic methods used in networking. |
| | Identify the function of the TCP/IP transport-layer protocol. |
| | Manage configuration files from the privileged exec. mode. |
| | Identify the functions performed by ICMP. |
| | Control router password, identification, and banner. |
| | Check the initial configuration using the initial command. |
| | Log in to a router using both user and privileged mode. |
| | Use the command history and the editing feature. |
| | List the commands to load software from flash memory, a TFTP server, or ROM. |
| | Prepare to backup, upgrade, and load a backup software image. |
| | Identify the parts in specific protocol address example. |
| | List problems that each router type encounter when dealing with topology changes, and describe techniques to reduce the number of these problems. |

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| | |
|--|--|
| <ul style="list-style-type: none"> - Identify the router tasks. - Identify the types of routing protocols. - Configure routers. | Configure IP addresses. |
| | Verify IP Addresses. |
| | Prepare the initial configuration of the router and enable IP. |
| | Add the RIP routing protocol to the configuration. |
| | Add the IGRP routing protocol to the configuration. |
| | Configure standard access list to figure IP traffic. |
| | Monitor and verify selected access list operation on the router. |
| | Configure extended access list to filter IP traffic. |
| Contents in details (Practical) | |
| Objectives | Contents |
| The student should be able to: <ul style="list-style-type: none"> - deal with routers. - configure routers to function within the network. | Become familiar with a router. |
| | Understand the router user interface. |
| | Understand the router show command. |
| | Understand the router setup command. |
| | Understand the router config- Hyper terminal |
| | Configure router software |
| | Perform router password recovery. |
| | Understand Show ARP & clear ARP. |
| | Configure IP addresses and subnets. |
| | Configure static routers. |
| Troubleshoot problems in the router. | |

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References:

- CCNA: Cisco Certified Network Associate Study Guide, Deluxe Edition by Todd Lammle, December 2001, Sybex; ISBN: 0782140483
- CCNA: Exam Notes: Cisco certified Network Associate, Exam 640-507 by Todd Lammle, Sean Odom, Sybex; December 2000, ISBN: 0782126480
- CNAP: Second Semester Companion Guide, Cisco

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|--|--------------------------------|-----------------------------------|-------------------------|---|---|---|--|
| Department | Computer Technology | Major | Network and Programming | | | | |
| Course | Advanced Computer Applications | Code | CSC. 105 | | | | |
| Prerequisite | CSC.101 | | | | | | |
| Course Description: This course contains many topics enable the student to identify advanced abilities of the most well-known office applications that help PC users to achieve their work professionally. | | Semester | 1 | 2 | 3 | 4 | |
| | | Accredited | | 2 | | | |
| | | Communication hours (hour / week) | Lecture | | 0 | | |
| | | | Practical | | 4 | | |
| The general theme of the course: The course aims to let the student practice the most famous office applications that help PC users to achieve their work professionally. | | | | | | | |
| Objectives: The student should be able to: 1- Use text processing programs professionally. 2- Use electronic tables processing programs professionally. 3- Use Databases programs professionally. | | | | | | | |
| Contents (theoretical and practical) | | | | | | | |
| <ul style="list-style-type: none"> • Text processing programs. • Electronic tables processing programs. • Databases programs. | | | | | | | |

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Contents (theoretical and practical)

Text processing programs:

- Margins and lists (creating margins – changing margin content - creating bulleted list – creating numbered list – using the ruler – controlling ruler)
- Dealing with multiple page documents (page breaks – inserting page break – removing page break – searching for a word – styles – document map –headers and footers – inserting footnote – inserting graphic – document proofing – spelling checking – grammar checking- auto correction – replacement – additional electronic dictionaries).
- Tables (creating tables – merging cells – cells formatting – changing borders – changing shading).
- Mail merge (creating Data source – creating main document – inserting current date – performing mail merge).
- Dealing with templates (installed templates – wizards – creating a template – performing mail merge – sorting a table).

Electronic tables programs:

- Organizing data (using data form – record editing using a data form – sorting on one field – sorting on multiple fields – auto filters).
- Printing work sheets (printing preview – page orientation – cell range – headers and footers – page break – repeating titles – centering printouts).
- Working with templates (creating a template – saving a template – opening a file based on a template – editing a template – dealing with installed templates
- Working with Macro (macro recorder - running a macro – assigning a macro to a button).





Databases Programs:

- Introduction (importance of databases programs – rational databases).
- Basic skills (loading the environment – describing environment – creating a data base – saving a database – closing a database – opening a previous database).
- Tables (adding a new table to a database – saving table design – editing table design – primary key – new records – printing the table – sorting, searching and filtering).
- Querying (nature of query – simple selected – running query - criteria – multiple criteria).
- Forms (building a form – adding fields – using multiple forms – query using forms).
- Reports (designing reports – queries and reports – printing a report).

References:

- The 2000 STABLE, An Introduction to Microsoft Office 2000 by P. Hawking, B. McCarthy & C. Nikakis, Prentice Hall, 2000
- Microsoft Office XP (8 in 1). Joe Haprakin, Jarir Bookstore, 2002

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3rd : Course Description for the courses given at the 3rd semester of the
Second Year
Diploma program (Network and Programming)

| | | | | | | |
|---|-----------------------|--|-------------------------|---|---|---|
| Department | Computer Technology | Major | Network and Programming | | | |
| Course | local Network Setting | Code | NW.203 | | | |
| Prerequisite | NW.101 | | | | | |
| Course Description: | | Semester | 1 | 2 | 3 | 4 |
| <p>Through this course, students are trained how to prepare the local network using the technology of server and client for a group of computers working by the windows system.</p> <p>The student is trained to use the network configuration basics and configure computers that are running with windows system.</p> | | Accredited | | | 4 | |
| | | Communication hours (hour / week) | Lecture | | 2 | |
| | | | Practical | | 4 | |
| The general theme of the course: | | The course aims at giving the student the basic skills to prepare and execute the local networks using the technology of server and client using computers functioning by windows operation system | | | | |

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Objectives:

The student should be able to:

- 1- Install the operating system and configure it to work with the network.
- 2- Install the network card and configure it.
- 3- Identify the diverse network technologies.
- 4- Identify the types of the different local networks hardware and its function.
- 5- Deal with the client/server technology.
- 6- Configure the hardware to share the files and the subsidiary hardware existed in the network.
- 7- Test the network function.
- 8- Use the software assigned to find out network malfunctions.

Contents (theoretical and practical)

- Reviewing windows operation system.
- Installing windows operation system.
- Installing the network card and configuring the system running with the network.
- The Different types of local networks.
- Dealing with the server/client technology.
- Hardware used in the local network.
- Configuring the hardware in the network to participate in the information sources and subsidiary hardware such as printers and others.
- Using subsidiary software to confirm the network operation, ping, and ... etc.

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Contents in details (theoretical)

| Objectives | Contents |
|--|---|
| The student should be able to: <ul style="list-style-type: none"> - Identify the PC hardware. - control and run PCs. | Reviewing PC hardware: <ul style="list-style-type: none"> -Motherboard and its components -Peripherals and accessories -Disk drivers -Cards and its types -Adjusting the device using setup software. -Starting the device operation and identifying malfunctions at starting stage. |
| <ul style="list-style-type: none"> - Install the operation system. - Upgrade the installed operation system. - Detect the computer components | Installing the operation system: <ul style="list-style-type: none"> -Identifying the required version for the operation system and its features. - Identifying the operation system requirements in the device and confirming its availability. -Installing the operation system. - Upgrading the fixed operation system. |

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- manage the system features.
- add and delete hardware.
- add and delete software.
- deal with files and indexes.

- Tools of managing windows operation system
- Motherboard.
 - Managing system features .
 - Managing hardware in the system.
 - Adding and deleting hardware.
 - Adding and deleting software.
 - Identifying features of files and indexes
 - Using windows explorer software to deal with files.

- configure windows operation system to work on the network
- teste the connectivity of the PC tools with the network.

- Configuring the operation system
- Installing the network card.
 - Configuring the network card.
 - Adding protocols and network configurations.
 - Numbering the hardware manually and automatically to connect with the network.
 - Identifying the PC within a workgroup or a work field.
 - Tools of testing the PC connectivity to the network
 - Identifying the process of configuring the PC functioning on the network

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- configure files and indexes to share on the web.
- share disks, printers, and hardware on the web
- addnew users

Configuring the operation system to share in the web activities:

- Adding new users for PC
- Logging into the work group or groups
- Reviewing the hardware participating in the work group or groups
- Configuring the indexes to share on the network
- Configuring the hard disks to share on the network
- Configuring printers and scanners to share on the network
- Accessing and using printers and indexes available for sharing from the hardware on the network
- Adding and adjusting the sharing features.

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- install and operate hardware-based- on windows operation system and link them as a work group on a local network
- configure and use the shared hardware operating on a network –based-on windows system

Installing and operating a network of PCs functioning by windows operation system:
-Identifying the required hardware
- Identifying and preparing the required cables
- Testing the connections tools among PCs
-Configuring and numbering PCs to function work on the network as a work group
-Connecting the PCs to the network
-Testing the possibility of sharing indexes and files
-Testing the possibility of sharing a printer ,a CD player, or a scanner.

References

Microsoft Windows XP Professional Resource Kit Documentation by Microsoft Corporation , Microsoft Press, October 17, 2001, ISBN: 0735614857; Bk&CD-ROM edition.

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| | | | |
|--------------|-----------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Routing and Switching | Code | NW.204 |
| Prerequisite | NW.102 | | |

Course Description:

This course aims at empowering the student with the basic skills to use, operate, and configure the hardware of the network.

In this course, students are trained to deal with and operate Switches & Routers hardware through the theoretical information and the practical training based on the direction and switching hardware, and how to be used in designing the networks.

| Semester | 1 | 2 | 3 | 4 |
|-----------------------------------|---------|-----------|---|---|
| Accredited | | | 4 | |
| Communication hours (hour / week) | Lecture | | 2 | |
| | | Practical | | 4 |

The general theme of the course

This course aims at giving the student the basic skills to deal with Switches & Routers hardware, and to configure them primarily to operate and control accessing the network and its protection.

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Objectives:

The student should be able to:

- Participate in identifying the network and the linking type
- Discuss the design with the decision makers.
- Participate in identifying the hardware specifications.
- Participate in developing the network design.
- Upload and configure the operation systems of the network hardware, and test its function.
- Link the hardware and make sure of its operation.
- Provide the backups to configure the network hardware, and practise updating its systems.

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Contents in details (theoretical)

Objectives

The student should be able to:

- Identify methods of improving the performance in the networks
- Identify the switching methods
- Identify configuring routers to obtain the control list in accessing the network

Contents

- Describe the advantages of LAN segmentation.
- Segment LAN using bridges.
- Segment LAN using router.
- Segment LAN using switches.
- Describe two switching methods.
- Understand full and half duplex Ethernet operation.
- Describe network congestion problem in Ethernet networks.
- Understand the features of fast Ethernet.
- Understand the deference between cut-through and store-and-forward LAN switching.
- Understand the Spanning Tree Protocol and its benefit.
- Understand Virtual LANs.
- Understand Access control lists.

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- apply methods of improving the performance in the networks.
- configure Switches.
- configure routers to obtain the control list in accessing the network.

- Overview for LAN segmentation.
- Segment LAN using bridges.
- Segment LAN using router.
- Segment LAN using switches.
- Training how to work with full and half duplex Ethernet
- Studying the effect of network congestion problem in Ethernet networks.
- Installing and testing the features of fast Ethernet
- Configuring and testing the Spanning Tree Protocol.
- Working with Virtual LANs using switches.
- Working with Access control lists

References

- CCNA: Routing and Switching Value Pack (Exam: 640-507) by Certification Insider Press, The Coriolis Group; September 1, 2000; ISBN: 1576106306
- CCNA Virtual Lab, Gold Edition by Todd Lammle, William Tedder, June 15, 2001, Sybex; ISBN: 0782130186
- CNAP: Third Semester Companion Guide, Cisco



| | | | |
|--------------|-----------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Internet Applications | Code | CSC. 206 |
| Prerequisite | | | |

Course Description:

This course provides a broad overview of the main principles used to deal with Internet.

In this course, students are trained to experience configuring PCs and Networks to connect with the Internet through various methods. The students will also learn using the Internet as a subsidiary tool to search for information, transfer data and mails electronically.

| Semester | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|---|---|---|
| Accredited | | | 2 | |
| Communication hours (hour / week) | Lecture | | 1 | |
| | Practical | | 2 | |

The general theme of the course:

This course aims at giving the student the basic skills in dealing with internet in terms of processing the hardware or using the internet to obtain information.

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Objectives:

The student should be able to:

- Define the concept of internet
- Identify internet services and concentrate on the web service.
- Identify the process to be linked to internet
- Define Http protocol and Html language
- Define browsers and using the internet explorer browser
- Learn how to search for information on the web
- Define the e-mail program.
- Concentrate on outlook program, how to use it, and the way of preparing PC to use the email
- Use internet in Mass media.
- Use internet in Education.
- Use internet in Security.

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Content in details (Theoretical & Practical)

1-Main principles of Internet Skills

- An introduction to Internet and Intranet.
- Internet service.
- Browsing the broad wide web network
- Internet settings.
- Registration in the domain.
- Obtaining the connection.

2-Understanding and using the E-mail

- E-mail and internet.
- E-mail functions
- Creating E-mail messages
- Digital Signature.
- Sending and receiving mails.
- Accessories.
- Coordinating the e-mail.
- Mail list.

3-Searching through Internet

- Finding information using search engines
- Methods of making search engines
- Effective search methods
- Using search engines

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4-Understanding and using News Groups

- Defining news groups
- Methods of making news groups
- Hierarchy of news groups
- Selecting and reading articles
- Using answers of repeated questions.
- Articles language and its content

5-Understanding and Using Telnet and FTP protocols

- Defining telnet
- Using telnet
- Commonly used telnet tools
- Defining (ftp)
- Downloading programs
- Voice and visual communication through Internet

References

Introduction to the internet, 3rd edition by Scott D. Jsmes,
prentice Hall College Div; August 2, 2000, ISBN 0130313556

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|--------------|---------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Network Wiring | Code | NW. 205 |
| Prerequisite | NW.101, CSC.104 | | |

Course Description:

This course provides a broad overview of various types of network wiring tools as the different types of cables, besides setting up cables, planning, executing, and documenting networks.

Also, in this course, students are trained to use the inspection devices and mend the diverse cables. Rules of designing standard cables systems are presented as well.

| Semester | | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|---|---|---|---|
| Accredited | | | | 3 | |
| Communication hours (hour / week) | Lecture | | | 2 | |
| | Practical | | | 2 | |

The general theme of the course:

This course aims at providing the student with the basic skills of tools used to link networks and methods to prepare the cables used in PC Networking. As well, using some detection devices and mending the cables. Cables standards and installations are presented as well.

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The general theme of the course:

This course aims at providing the student with the basic skills of tools used to link networks and methods to prepare the cables used in PC Networking. As well, using some detection devices and mending the cables. Cables standards and installations are presented as well.

Objectives:

The student should be able to:

- Participate in identifying the network type.
- Identify the network position and its extensions.
- Participate in developing the network.
- Identify the work procedures and installations during implementation.
- Identify the tools required to set in the network.
- Extend , install cables , supervise the installations and make sure of the electric power sources.
- Examine the network extensions, mend cables, and use the networks examination devices.

Provide oriented network safety tools and make sure of applying the location security.

Topics

- Reviewing the signals types and noise in communication systems
- Standard specifications and cables types
- Designing and installing the standard cables systems
- Planning sites and selecting the cables types
- Preparing and linking cables
- Cables examination devices
- Networks linking types
- Network works documentation



| Content in details (theoretical and practical) | |
|--|--|
| Objectives | Content |
| <ul style="list-style-type: none"> Reviewing the basics required when linking networks. Identifying process of information encoding in signals | Reviewing the Basics <ul style="list-style-type: none"> Electrical and optical signals basics. Electrical measurement basics. Digital measurement devices Basics of optical and electrical communications Information encoding in electrical signals |
| <ul style="list-style-type: none"> Identifying cables types and its standard specifications | Standard specifications of the communication media in networks and its types <ul style="list-style-type: none"> Axial cables UTP cables STP cables Optical cables Wireless communication media |
| <ul style="list-style-type: none"> Identifying the components of linking networks Identifying the tools used to set and test cables | Components of linking networks <ul style="list-style-type: none"> Cables heads MDF linking frames Patch panels subsidiary frames Standards basics to set and connect cables Cables contact points Cables setting tools Cables testing devices |
| <ul style="list-style-type: none"> Identifying the methods used in linking networks Identifying the advantages and disadvantages of the diverse networks | The main methods used to link networks: <ul style="list-style-type: none"> Bus network Ring network Dual ring network Star network Mobile communications network Validation methods of the network stems. |

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Content in details (theoretical and practical)

| Objectives | Content |
|--|--|
| <ul style="list-style-type: none"> • Training to use measurement devices | <p>Training to use the measurement devices:</p> <ul style="list-style-type: none"> • Nature of the optical and electrical signals measurement • Electrical measurement devices • Digital measurement devices • Light strength measurement device and its wave length • Training to use certain electrical and optical communications type • Information encoding in the electrical signals • Noise and signal strength measurement. |
| <ul style="list-style-type: none"> • Training to set the different cables types and its standard specifications | <p>Setting and Dealing with the communication media in the networks</p> <ul style="list-style-type: none"> • UTP cables • STP cables • Optical cables • Wireless communication media |
| <ul style="list-style-type: none"> • Oriented- based training to networks linking components • Oriented- based training to cables setting and testing tools | <p>Networks Linking Components:</p> <ul style="list-style-type: none"> • Cables heads • MDF/IDF linking and distribution cabinets • Standard rules of planning and linking cables • Cables patch points • Cables setting tools • Cables testing devices |
| <ul style="list-style-type: none"> • Oriented –based raining to set networks by the methods used in linking networks. • Oriented –based raining to discover and maintain the cables malfunctions. • Oriented –based raining to install the basic networks devices | <p>Main Methods used to link Networks:</p> <ul style="list-style-type: none"> • Star network • Mobile communication network • Validating the networks stems. |

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- LAN Wiring, by James Trulove, 2nd Edition McGraw-Hill Professional Publishing; August 14, 2000, ISBN: 0071357769
- Cabling: The complete Guide to Network wiring, by David Groth, Jim McBee, Sybex; May 15, 2000, ISBN: 0782126456
- CNAP: First Semester Companion Guide, Cisco

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| | | | |
|--------------|--|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Network Monitoring and Troubleshooting | Code | NW.207 |
| Prerequisite | CSC.104 | | |

Course Description:

This course provides the student with the main concepts of *Network Monitoring and Troubleshooting*. Through this course, the student is trained to use the diverse programs that help in monitoring the networks performance in order to ensure its function continuity.

| Semester | | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|---|---|---|---|
| Accredited | | | | 3 | |
| Communication hours (hour / week) | Lecture | | | 2 | |
| | Practical | | | 2 | |

The general theme of the course

This course aims at empowering the student with the basic skills to install and operate the necessary programs for *Network Monitoring and Troubleshooting*, deal with the emergency problems, observe network performance and propose the necessary solutions to increase its effectiveness.

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Contents in details (theoretical)

- Basics of *Network Monitoring and Troubleshooting*.
- Importance of *Network performance Monitoring*.
- System of *Network performance Monitoring*.
- Methods of *Network Troubleshooting*.
- Improving the networks' performance.
- Monitoring the networks' performance.
- Identifying the networks' performance measurement.
- Troubleshooting through analyzing the network performance.
- Verifying the quality and the connection existence among the hardware.
- Measuring the networks' performance using software or the performance measurement devices.
- Networks performance monitoring protocols.
- Identifying the networks' performance monitoring software.
- Tools and devices of testing networks.
- Defining the software of monitoring the performance of the networks.
- Tools and devices of testing networks.
- Cables Testing System.
- Signals exploring devices system and measuring its quality.
- Signals generation devices System and its usages in testing network.
- Identifying troubleshooting software and repairing malfunctions in networks.

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Content in details (practical)

Oriented – based Training to *Network Monitoring and Troubleshooting*

- Components of the networks performance monitoring system
- Setting a PC to run as a station for *Network Monitoring*
- Method of *Network Troubleshooting*.

Monitoring the network performance

- Setting the required information on standard measurements of the network performance.
- Oriented – based Training to *Network Troubleshooting* through analyzing the network performance and comparing it to the standard measurements.
- Oriented – based Training to verify the quality and existence of connection among hardware
- Oriented – based Training to the measurement of the network performance using the software or the performance measurement hardware.
- Configuring the network performance monitoring protocols on the monitoring stations and other hardware.

Tools and Hardware of Network Detection

- Training to use the cable detection device
- Training to use the signals exploring devices and measure its quality.
- Training to use the signals generation devices and its usages in network detection.
- Installing and operating the software of troubleshooting in networks

References:

- Troubleshooting Campus Networks: practical Analysis of Cisco and LAN protocols, byprscilla Oppenheimer, joseph Bardwell, John Wileyg Sons; July 19, 2002, ISBN 0471210137
- Upgrading and Repairing Nefworksby Terry Oglefree, QueSeptember 25, 2001, ISBN: 0789725576
- Fluke Network Inspector Software manual
- Fluke protocol Inspectors Software manual
- Microsoft MS Network monitor software manual





4th : Course Description for the courses given at the 2nd semester of the
Second Year
Diploma program (Networks and Programming)

| | | | | | | |
|---|-----------------------------------|---------|-------------------------|---|---|---|
| Department | Computer Technology | Major | Network and Programming | | | |
| Course | Network Operating Systems | Code | NW.210 | | | |
| Prerequisite | NW.203 | | | | | |
| Course Description: This course provides the student with the main skills necessary to deal in general with the network software of operation systems, Linux operation systems and windows in particular, the internet protocol, diverse services, securing, and troubleshooting operation systems. | Semester | 1 | 2 | 3 | 4 | |
| | Accredited | | | | 3 | |
| | Communication hours (hour / week) | Lecture | | | | 1 |
| Practical | | | | | 4 | |
| The general theme of the course | | | | | | |
| This course aims at empowering the student with basic skills necessary to deal with the networks software of operations system, internet protocols, different services, and securing. | | | | | | |

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Objectives

The student should be able to:

- Deal in general with the network operation system.
- Deal with the internet protocol.
- Deal with the network's diverse services
- Deal in particular with Linux operation system.
- Deal in particular with windows operation system.
- Highly manage networks operation system.
- Fix operation systems malfunctions.
- Install and maintain the components in Linux operation system.
- Secure the network.

Topics (Theoretical and practical)

- Operation systems principles.
- An introduction to networks
- Network components.
- Internet protocol.
- Network services.
- An introduction to the networks operation systems.
- Reviewing the installation and starting the operation
- "windows" operation system.
- "Linux" operation system.
- Managing "Linux" operation system.
- Advanced management of networks operation system.
- Installing and maintaining the components in "Linux" operation system.
- Fixing the operation system malfunctions.
- Securing the network

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Content in details (Theoretical)

| Objectives The student shall be able to: | Content |
|---|--|
| <ul style="list-style-type: none"> Identify basics of operation systems. Identify windows system Identify Linux and Unix system on the PC desktop Review the networks operation system. | <p>Operation system principles:</p> <ul style="list-style-type: none"> Basics of operation systems Windows operation systems Unix and Linux on the PC desktop Reviewing the networks operation system. |
| <ul style="list-style-type: none"> Identify networks operation systems Identify the networks types Identify the network standards . Identify the networks protocols. Identify Local Architecture Network | <p>An introduction to networks</p> <ul style="list-style-type: none"> Benefits of the networks operation systems Networks types Standard criteria of networks Networks protocols Local Architecture Network |
| <ul style="list-style-type: none"> Identify the network shape Identify the Transmissionmedia Use the network equipment Connect PCs to internet (wide networks) | <p>Network Components</p> <ul style="list-style-type: none"> Network shapes Transference media types Network equipment Connection to internet(wide networks) |

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| | |
|--|--|
| <ul style="list-style-type: none"> • Identify the internet protocol • Deal with the internet addresses • Distinguish names • Identify internet protocol | <p>Internet protocol</p> <ul style="list-style-type: none"> • Internet protocol history. • Internet addresses. • Distinguishing names • Internet protocol. |
| <ul style="list-style-type: none"> • Identify network services usage • Set management services and distance logging • Set directory services. • Set other networks operation systems services | <p>Networks Services</p> <ul style="list-style-type: none"> • Networks services • Management services and distance logging • Directory services • Other networks operation systems services |
| <ul style="list-style-type: none"> • Identify the networks operation systems properties. • Deal with Windows operation system. • Deal with Linux operation system. • Identify the software requirements of Linux networks operation system | <p>An introduction to networks</p> <ul style="list-style-type: none"> • Networks operation systems properties • Windows operation system • Linux operation system • Identifying the software requirements of Linux networks operation system |
| <ul style="list-style-type: none"> • set the installation • Identify Installation process • Identify starting Operation • Fix installation failures of the networks operation systems | <p>Reviewing the installation and starting the operation</p> <ul style="list-style-type: none"> • setting the installation • Installation operation • Starting Operation • Malfunctions of the installation of the networks operation systems. |
| <ul style="list-style-type: none"> • Configure the system • Set user interface /manager • Set users accounts • Manage files system • Set services | <p>Operation system "Windows"</p> <ul style="list-style-type: none"> • Installation • Users interface/manager • Users accounts • Files system management • Services |





| | |
|---|---|
| <ul style="list-style-type: none"> • Do Pre-installation steps • Install and configure Linux • Deal with the server X • Do steps that come after installation and configuration | <p>Operation system "Linux"</p> <ul style="list-style-type: none"> • Pre-installation steps • Installing and configuring Linux • X server • Steps that come after installation and configuration |
| <ul style="list-style-type: none"> • Manage Users interface • Deal with the users accounts and groups. • Manage Files system and services • Deal with the operations that occur at the background | <p>Advanced management of networks operation system</p> <ul style="list-style-type: none"> • User interface management • Users and groups accounts • Files system and services management • Operations in the background |
| <ul style="list-style-type: none"> • Make Backup • Deal with the referential disk • Manage division and operations • Monitor Resources • Analyze and improve the network performance. | <p>Securing the network</p> <ul style="list-style-type: none"> • Backup • Referential disk • Division and operations management • Resources monitoring • Analyzing and improving the network performance. |
| <ul style="list-style-type: none"> • Identify names, concepts, and parts of the components in Linux operation system. • Install, configure, and maintain the components. • Test and confirm the configuration of the components • Deal with Lap Top computers and the mobile components | <p>Installing and maintaining the components in Linux operation system</p> <ul style="list-style-type: none"> • Names, concepts, and parts of the components • Installing, configuring, and maintaining the components • Testing and confirming the configuration of the components • Lap Top computers and the mobile components |





| | |
|---|--|
| <ul style="list-style-type: none"> • Restore the operation system • Troubleshoot networks • Identify the common mistakes • Identify LILO starting Malfunctions • Identify and specify the location of symptoms and problems. | <p>Troubleshooting the operation system</p> <ul style="list-style-type: none"> • Restoring the operation system to overcome damages due malfunctions • Network Troubleshooting. • Identifying common mistakes • Malfunctions of starting LILO • Defining and specifying the location of symptoms and problems |
| <ul style="list-style-type: none"> • Configure a security policy of the network • Deal with the network security threats • Execute the security procedures • Apply the dressings and updates • Apply Firewalls applications | <p>Securing the network</p> <ul style="list-style-type: none"> • Configuring security policy for the network • Network security threats • Applications of dressings and updates • Firewalls |

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| Content in details (practical) | |
|--|--|
| Objectives The student shall be able to: | Content |
| <ul style="list-style-type: none"> Identify the basics of the operation systems Identify the basics of Windows operating systems Identify Linux and Unix systems on the PC desktop. | Operation system principles: <ul style="list-style-type: none"> Operation systems basics Windows operation systems Unix and Linux on the PC desktop |
| <ul style="list-style-type: none"> Identify networks types. Identify Local Architecture Network. | An introduction to networks <ul style="list-style-type: none"> Networks types Local Architecture Network |
| <ul style="list-style-type: none"> Configure the network card Identify networks shapes Identify transference media types Deal with stranded cables | Network Components <ul style="list-style-type: none"> Configuring the Network card Network shapes Transference media types. |
| <ul style="list-style-type: none"> Deal with the internet addresses version 4 Deal with Networks tapping Deal with the internet protocol | Internet protocol <ul style="list-style-type: none"> History of the internet protocol Internet addresses Distinguishing names Internet protocol |
| <ul style="list-style-type: none"> Configure Linux as NIS Deal with the directory Services in Windows operation system. Deal with the Novell Operating system services | Networks Services <ul style="list-style-type: none"> Networks services Management services and distance logging Directory services Other networks operation systems services |

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| | |
|--|--|
| <ul style="list-style-type: none">• Identify the operation systems properties.• Deal with Windows operation system.• Deal with Linux operation system.• Identify the software requirements of Linux networks operation system | <p>An introduction to the networks operation systems</p> <ul style="list-style-type: none">• Networks operation systems properties• Windows operation system• Linux operation system• Specifying the software requirements of Linux networks operation system |
| <ul style="list-style-type: none">• set the installation• Run Windows operation.• Add alternative files at Linux• Use file matching components• Use Components manager at Windows operation system server.• Run Linux.• Deal with the server components.• Deal with the requirements of the components.• Deal with files system. | <p>Reviewing the installation and starting the operation</p> <ul style="list-style-type: none">• setting the installation• Installation operation• Operation starting• Malfunctions of the installation of the networks operation systems |

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- Install windows
- Configure Internet addresses and external LANs at windows operation system
- Register log at windows operation system
- Use Graphical User Interface at windows operation system.
- Use Command Line *Interface* at windows operation system.
- Run windows using windows explorer and My Computer Icon.
- Add users at windows operation system
- Manage users accounts at windows operation system
- Create folders and files at windows operation system
- Create groups at windows operation system.
- Deal with the users accounts.
- Configure exploring services at windows operation system
- Configure files transference service at windows operation system.
- Configure Telnet service at windows operation system.
- Set Scripts at windows operation system.
- Offer (terms of reference) at windows operation system.

Windows Operation system

- Installation
- Users interface/manager
- Users accounts
- Files system management
- services

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| | |
|---|--|
| <ul style="list-style-type: none"> • Identify Pre-installation procedures • Configure Linux setting • Configure server " X" • Log in at Linux. • Use Graphical User Interface at Linux. • Use Command Line <i>Interface</i> at Linux. • Experience bash and C shells at Linux. • Use text editor " VI" at Linux. | <p>"Linux" Operation System</p> <ul style="list-style-type: none"> • Pre-installation procedures • Installing and configuring Linux • X server • Post- installation and configuration procedures |
| <ul style="list-style-type: none"> • Add users at Linux. • Create groups at Linux. • Create folders at Linux. • Manage operating levels. • Identify Apache HTTP <i>Server</i>. • Configure files transference at Linux. • Configure Telnet service at Linux. • Use text editor " VI" at Linux. • Set Scripts at Linux. • Identify Linux shells • Create Samba server | <p>Advanced management of the networks operating system</p> <ul style="list-style-type: none"> • User interface management. • Users and groups accounts. • Files system and services management |



| | |
|--|---|
| <ul style="list-style-type: none"> • Do Backup at Linux. • Identify SNMP protocol. • Test sources application at Linux. • Monitor the network. • Install SNMP . • Configure SNMP security and threats . • Identify backup tools. • Identify the hard drive of performance (bottle neck). • Test sources applications at windows operation system. | <p>Backup</p> <ul style="list-style-type: none"> • Backup. • Reference disk • Division and operations management • Resources monitoring • Analyzing and improving the network performance |
| <ul style="list-style-type: none"> • Install, configure, and maintain the components. • Test and configure the configuration of the components | <p>Installing and maintaining the components in Linux operation system</p> <ul style="list-style-type: none"> • Installing, configuring, and maintaining the components • Testing and confirming the configuration of the components. |

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| | |
|--|---|
| <ul style="list-style-type: none"> • Switch components • Identify diagnosis software at windows operating system. • Use Internet protocol tool. • Identify redundancy process. | <p>Operating system troubleshooting</p> <ul style="list-style-type: none"> • Restoring the operating system to overcome damages • Networks Troubleshooting • Identifying common mistakes • Malfunctions of starting LILO • Defining and specifying the location of symptoms and problems |
| <ul style="list-style-type: none"> • Configure the security policy of the network • Deal with the network security threats • Execute the security procedures • Update windows operating system. • Identify anti-robbery tools | <p>Securing the network</p> <ul style="list-style-type: none"> • Configuring security policy for the network • Network security threats • Applying the security procedures. • Applications of dressings and updates • firewalls |

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Web Links:

<http://www.linuxrouter.org>
<http://firestarter.sourceforge.net>
<http://www.simonzone.com>
<http://linux-firewall-tools.com/linux>
<http://www.redhat.com/>
<http://www.linux-mandrake.com/en>
<http://www.caldera.com/>
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<http://linux.corel.com>
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<http://www.stormix.com/>
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<http://www.redhat.com/support/hardware/>
http://cdb.suse.de/index.php?LANG=en_UK&PHPSESSID=82afdbf72c0c31537924627564e4c66c
<http://www.calderasystems.com/support/hardware/>
<http://www.calderasystems.com/support/hardware/>
<http://www.microsoft.com/hwdq/hcl/>
<http://www.linuxrouter.org>
<http://www.xfree86.org>
<http://www.xig.com>
<http://www.metrolink.com>
<http://www.plig.org/xwinman>
<http://www.apache.org>
<http://www.samba.org>
<http://www.veritas.com>
<http://www.aittape.com>
<http://www.lto-technology.com>
<http://www.psionic.com/abacus/logcheck>
<http://tech.msn.com/internet/speedtest.asp>
<http://www.telus.net/highspeed/BC/hs-speed.html>
<http://www.toast.net>
<http://www.linux-usb.org>
<http://www.exploits.org/v4l>
<http://www.linux-usb.org>
<http://www.linmodems.org>
<http://www.alsa-project.org>
<http://www.4front-tech.com>
<http://www.mostang.com.sane>
<http://www.vividata.com/ocrshop.html>
<http://www.xfree86.org>
<http://www.xig.com>
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<http://www.toms.net/rb>
<http://www.demolinux.org>
<http://www.suse.com>
<http://www.linux.org/dist/english.html>
<http://www.rpmfind.net>
<http://www.debian.org/distrib/packages>
<http://www.yahoo.com>
<http://www.ja.net/documents/use.html>
http://www.freesevers.com/policies/acceptable_use.html
<http://www.rice.edu/armadillo/acceptable.html>
<http://www.bath.ac.uk/bu/cs/policies/hazardconfiddisposal.htm>
<http://www.virginia.edu/finance/polproc/pol/xf1.html>
<http://www.ucalgary.ca/UofC/departments/MTRLSMGMT/surplussales/mds.html>
<http://hoaxbusters.cias.org>
<http://www.utexas.edu/policies/email/#policy>
<http://www.ucop.edu/ucophome/policies/email/email.html>
<http://www.onet.on.ca/onetspam.html>
<http://www.cert.org/>
<http://www.microsoft.com/>
<http://www.redhat.com/>
<http://www.nipc.gov/>
<http://www.kensington.com/>
<http://www.pgpi.org/>
<http://www.isi.edu/~brian/security/kerberos.html>
<http://www.baltimore.com/securityapplications/mailsecure/features.asp>
<http://www.nipc.gov/>
<http://www.microsoft.com/windows2000/downloads/servicepacks/sp3/default.asp>
http://www-1.ibm.com/support/all_download_drivers.html
<http://www.novell.com/cool solutions/gwmag/qna/patches.html>
<http://www.e-infomax.com/ipmasq//a>>
http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/natd.html

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| | | | |
|--------------|-----------------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Wide area Network Protocols | Code | NW.212 |
| Prerequisite | NW.204 | | |

Course Description:

This course provides the student with the main skills necessary to use, operate, and configure the network hardware. Students are trained to use the wide web technology including the connected hardware, and deal with it through the theoretical information and the practical training.

| Semester | | 1 | 2 | 3 | 4 |
|-----------------------------------|-----------|---|---|---|---|
| Accredited | | | | | 3 |
| Communication hours (hour / week) | Lecture | | | | 1 |
| | Practical | | | | 4 |

The general theme of the course

This course aims at empowering the student with basic skills necessary to deal with and use wide web protocols, including the connected operating hardware, and configure the network hardware to start operation.

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Content in details (theoretical)

Reviewing the reference model of communication and the local web styles

- Switching in the local web
- Apparent local networks
- Designing the local networks
- Routers protocols

Wide area networks (WAN) technologies:

- Wide Area Networks (WAN) systems
- *WAN Encapsulation Protocols*
- Systems and connectivity options in Wide Area Networks (WAN)

Designing Wide Area Networks (WAN) :

- Connecting with Wide Area Networks (WAN)
- Identifying and selecting communication method and the connecting line features.
- Identifying wide networking protocols
- Communication protocols between two points on wide network PPP
- Identifying protocol PPP
- Operating the connection by using PPP
- User control method in protocol PPP .
- XDSL and VPN technology
- XDSL and VPN identification.
- Relation of XDSL and VPN technology with the reference model of connection.
- Usages of XDSL and VPN technology
- Connection technology.
- Concept of Frame relay technology system
- Frame relay configuration.
- Introduction to ATM Technology



Content in details (practical)

Reviewing routers configuration

- Routers command screen.
- Entry commands to configure routers
- Dealing with configuration commands
- Configuring interfaces and network numbers.

Configuring routers to function with wide network

- Processing and Configuring connection party with Wide Area Networks (WAN)
- Configuring protocols Encapsulation in Wide Area Networks (WAN)
- Configuring the system and connectivity options in Wide Area Networks (WAN)

Identifying the design of Wide Area Networks (WAN) :

- Training to use commands to identify insertion method
- Training to use commands indicating type of connectivity protocols in Wide Area Networks (WAN)
- Connection protocol between two points on wide network PPP.
- Training to configure routers to connect with protocol PPP
- Training to change the connection method by using protocol PPP instead of other protocols.
- Identifying User control method in protocol PPP.
- XDSL and VPN technology
- Definition of XDSL and VPN
- Relation of xDSL and VPN with reference model of connection
- Usages of xDSL technology
- Frame Relay Connection technology
- Identifying Frame relay technology
- Function of Frame relay technology
- Router configuration to operate using frame relay technology.
- Testing the router configuration and the connection to the network.





References

- Cisco WANWAN Quick Start, by Ronald W.MCCarty, Cisco System Inc., CiscoPress; June 15, 2000, ISBN: 157870104X
- CNAP: first fourth semester Companion Guide,Csco

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1405 - 1406 A . D.
COMMUNITY SERVICE AND CONTINUING EDUCATION CENTRE



| | | | |
|--------------|---------------------|-------|-------------------------|
| Department | Computer Technology | Major | Network and Programming |
| Course | Job Ethics | Code | CS. 214 |
| Prerequisite | None | | |

Course Description:

This course introduces the organization structure, work systems, Job ethics and practices, the relationship among groups, job actions , individual and groups customs and its effect on success at work as well as the ability to communicate with others

| Semester | | 1 | 2 | 3 | 4 |
|--------------------------------------|-----------|---|---|---|---|
| Accredited | | | | | 1 |
| Communication hours (hour / week) | Lecture | | | | 1 |
| | Practical | | | | 0 |

The general theme of the course :

The course aims at empowering the student with the main skills and conducts required to succeed at work.

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COMMUNITY SERVICE AND CONTINUING EDUCATION CENTRE



Objectives:

The student should be able to:

- Understand organization structures.
- Understand the diverse work systems.
- Identify factors that help increase performance.
- Understand individual and group conducts that lead to success at work.
- Deal with work under pressures.
- Identify self-development methods .
- Master functional communication skills

Content in details (theoretical and practical)

- Individual conducts (interests, capabilities, skills, targets).
- Job application (successful CV, Personal interviews) .
- Job ethics .
- Successful job customs.
- Dealing with work obstacles (pressures, disputes andetc).
- Self development methods
- Reading and realizing the given data in different ways (writing, drawing, pictures, diagrams and..... etc).
- Writing and speaking creative methods.
- Listening , query and debate methods.
- Using the modern techniques in communication (e-mail, voice mail and ...etc) .

References: Identified according to the instructor

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COMMUNITY SERVICE AND CONTINUING EDUCATION CENTRE



| Department | Computer Technology | Major | Network and Programming | | | |
|--|--------------------------------------|-----------|-------------------------|---|---|---|
| Course | Network Security | Code | NW. 216 | | | |
| Prerequisite | NW.203, NW.204 | | | | | |
| <p>Course Description: This course introduces the main concepts to secure networks function and the connected hardware. It also examines the diverse sources of danger that may affect the networks, the resistance methods and securing the network.</p> <p>In particular, the student is trained to deal with hardware securing systems against viruses and its impacts.</p> | Semester | 1 | 2 | 3 | 4 | |
| | Accredited | | | | 3 | |
| | Communication hours (hour / week) | Lecture | | | | 2 |
| | | Practical | | | | 2 |
| <p>The general theme of the course : The course aims at empowering the student with the main skills to deal with securing networks systems against viruses.</p> | | | | | | |
| <p>Objectives: The student should be able to:</p> <ul style="list-style-type: none"> - Observe the network performance persistently. - Participate to find out solutions that help the network function persistently. - Provide security tools required the network hardware. - Provide backup for the network settings and systems. - Follow- up all that is recent in the network security field. - Install and configure anti-viruses software | | | | | | |



Topics:

- The basics of securing computers
- Setting backups from the operation systems and configuring hardware
- Methods to controlling network access.
- Types of PC viruses and removal process.
- Installing, configuring, and using the anti-viruses software
- Using the firewalls to protect the network and its hardware
- Installing and operating the firewalls
- Installing and operating the proxy server as a protection system to the networks
- Using the networks protocols translation services in protection

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1405 - 1406 A . D.
COMMUNITY SERVICE AND CONTINUING EDUCATION CENTRE



| Content in details (practical) | |
|--|---|
| Objectives | Content |
| <p>The student shall be able to:</p> <ul style="list-style-type: none"> - Participate in finding out solutions that help the network function persistently. - Provide security tools required the network hardware. - Provide backup for the network settings and systems. - Follow- up all that is recent in the network security field. - Install and configure anti-viruses software | <p>The basics of securing computers</p> <ul style="list-style-type: none"> • The importance of securing the PCs operating on the networks • Displaying the most significant methods of losing information and damaging the hardware contents in the networks. • Displaying the most significant methods of securing hardware and information <p>Preparing the backups from operation systems and configuring the hardware:</p> <ul style="list-style-type: none"> • Preparing the backups from the PC operations system files and retrieving it • Preparing the backups from configuring the network • Storage media of the backup <p>Methods to controlling network access.</p> <ul style="list-style-type: none"> • Protecting the network from the illegal accessing by using control lists in connection • Protecting computers from illegal accessing by adjusting and configuring the security positions of the files and indexes shared in the network. • Adjusting the tasks permitted for the users |

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 1406 - 1408 A . D.
 COMMUNITY SERVICE AND CONTINUING EDUCATION CENTRE



- Participate in finding out solutions that help the network function persistently.
- Provide security tools required the network hardware.
- Provide backup for the network settings and systems.
- Follow- up all that is recent in the network security field.
- Install and configure anti-viruses software

Types of computers' viruses and resisting methods

- Operational software viruses
- Writing files viruses
- E-mail viruses
- Viruses spreading methods
- Installing, configuring, and using the anti-viruses software
- Maintaining the infected PC with viruses

Using firewalls to protect the network and its hardware:

- Defining the firewalls
- Firewalls software
- Firewalls hardware
- Installing and operating the firewalls in the network

Installing and operating the agent server as a network protection system

- Defining the agent server
- The agent server of the electronic pages
- The agent server of the files transference
- Setting the PC to run as an agent server

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COMMUNITY SERVICE AND CONTINUING EDUCATION CENTRE



Participate in finding out solutions that help the network function persistently.

- Provide security tools required the network hardware.
- Provide backup for the network settings and systems.
- Follow- up all that is recent in the network security field.
- Install and configure anti-viruses software

Using the network protocols translation services in protection:

- Defining the protocols translation service NAT
- the protocols translation service as a system to secure the local web
- Hardware used to render the service of translating the protocols
- Using a guide hardware to render the service of translating the protocols
- Using a PC to render the service of translating the protocols

Permitted protocols to deal with the protocols translation service

REFERNCES

- Managing Cisco Network Security, by Mike Wenstrom, Cisco Press, January 15, 2001, ISBN: 1578701031
- Essential Checkpoints Firewall-1: An Installation, Configuration, and Troubleshooting Guide, by Dameon D. Welch-Abernathy, January 15, 2002, Addison-Wesley Pub. Co.; ISBN: 0201699508
- Hacking Exposed, by Joel Scambray, Stuart McClure, George Kurtz, McGraw-Hill Professional Pub.; October 11, 2000, ISBN:0072127481.
- Upgrading and Repairing Networks by Terry Ogletree, Que; September 25, 2001, ISBN: 0789725576



| | | | | | | |
|--------------|---------------------|-------|-------------------------|--|--|--|
| Department | Computer Technology | Major | Network and Programming | | | |
| Course | Elective course | Code | NW. 218 | | | |
| Prerequisite | None | | | | | |

Course Description:

Through this course, students are trained to the most up-to-date technologies in the field according to the labor market.
Also, students shall provide training and study topics in coordination with the Department in order to cover certain new issues in the labor field.

| | | | | |
|--------------------------------------|-----------|---|---|---|
| Semester | 1 | 2 | 3 | 4 |
| Accredited | | | | 3 |
| Communication hours (hour / week) | Lecture | 2 | | 2 |
| | Practical | 2 | | 2 |

The general theme of the course :

This course aims at training the student to the most up-to-date technologies according to market needs. The subject of the course is changed as required.

| | |
|--|--|
| Relevant tasks F2-5 G1-4 G6-7 | <p>Objectives:</p> <p>The student should be able to:</p> <ul style="list-style-type: none"> - Identify new solutions to the networks problems - Follow up the updates in the field. - Conduct experiments using the new technologies - Follow up training courses, seminars, and professional conferences. - Identify recent updates related to means of securing and protecting networks. |
|--|--|

Topics

- The topics are specified according to the market needs and the updates in the field.
- The study is relevant to training the students to the new technologies and its usage in work.





| | | | | | | |
|--------------|---------------------|-------|-------------------------|--|--|--|
| Department | Computer Technology | Major | Network and Programming | | | |
| Course | Project | Code | NW. 220 | | | |
| Prerequisite | None | | | | | |

Course Description:

Through this course, students will identify certain problem or trouble related to applied programs development. Thereafter, they will get the efficient training to find out the best solution with the working team and under the lecturer supervision.

| | | | | |
|--------------------------------------|-----------|---|---|---|
| Semester | 1 | 2 | 3 | 4 |
| Accredited | | | | 2 |
| Communication hours (hour / week) | Lecture | 1 | | 2 |
| | Practical | 2 | | 2 |

The general theme of the course :

This course aims at examining the students' performance and training them to the most up-to-date technologies used in troubleshooting.

Content

- Identified according to the project.

