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**DEPARTMENT OF ELECTRICAL ENGINEERING**

**Course Descriptive File**

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| 1 | Course Title | Introduction to Computing  |
| 2 | Course Code | EE-110 |
| 3 | Credit Hours |  |
| 4 | Pre-requisites/Co-requisites |  |
| 5 | Semester | 1st |
| 6 | Resource Person | Ahlam Jameel |
| 7 | Contact Hours(Theory) |  |
| 8 | Contact Hours(Lab) |  |
| 9 | Office Hours  | 9am to 3pm. |
| 10 | Email | ahlam.khan@hotmail.com |
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| 11 | Course Outline as per Scheme of Studies ( SoS) |
| **Theory:*** Basic computer and network organization. Introduction to operating systems.
* Introduction to word processing. spreadsheets and presentation software.
* Introduction to mathematical software such as MATLAB. Program, languages, and compilation process.
* Development of flowchart and corresponding pseudo codes.
* Introduction to simple program coding. executing and debugging involving input / output.

 **Practical:*** Demonstration of computer and networking hardware and peripherals.
* Operating system (Lino, Windows etc.) and application software installation (open office, MATLAB etc.).
* Use of word processing. spread sheet and presentation software such as open office, latex etc. Solution of simple mathematical problems using MATLAB.
* Introduction to C programming language and Turbo C.
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| 12 | Course Objectives as per SoS |
| On completion of this Course the student shall be able to:1. Corn about the basic concepts of computer system, its peripheral devices and different typo of networks.
2. Familiarize the students with different types of computer software and applications.
3. Basic use of MATLAB and application of simple mathematical problems on MATLAB.
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| 13 | Books  |
| ***Text Book:***1. Peter Norton's Introduction to Computers. 2. Internet Resources |
| 14 | Course Learning Outcomes (CLOs) |
| After successful completion, students will be able:

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| **CLO****NO.** | **CLO STATEMENT** | **Domain** | **PLO** | **Taxonomy****LEVEL** |
| 1 | Identify the components of a computer system, demonstrate basic proficiency in computer and commonly used computer applications.  | Cognitive | 1 | C3 |
| 2 | Explain the fundamentals of operating systems, databases, computer networks and internet. | Cognitive | 1 | C2 |
| 3 | Ability to write, debug and execute programs in C Language | Cognitive | 1 | C3 |

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| **CLO****NO.** | **LAB CLO STATEMENT** | **Domain** | **PLO** | **Taxonomy****LEVEL** |
| 1 | Observe and APPLY the basics and features of computer Psychomotor system. | Psychomotor | 1 | P2,P3 |
| 2 | DEMONSTRATE basic proficiency in computer and commonly used computer applications. | Psychomotor | 5 | P2,P4 |
| 3 | Ability to CREATE and execute programs in C Language. | Psychomotor | 5 | P3,P4 |

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| 15 | Marks Breakup  |
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| Quizzes | 10% |
| Homework/assignments  | 10% |
| Midterm exam | 30% |
| Terminal exam(3 hours) | 50% |
| Total (theory) | 100% |

Theory

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| Lab Assessments | % |
| Lab Sessional Exams(xx% Lab performance + xx% Lab Assessments) | % |
| Lab Terminal Exam  (xx% Lab performance + xx% Lab Assessments) | % |
| Total (lab) | 100% |

Lab

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| Final marks | Theory marks \* 0.75 + Lab marks \* 0.25 |

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| 16 |
| **Week** | **Topic** | **CLO** | **Taxonomy****Level** | **Specific Outcome** | **Contact Hours** | **Assessment** |
| 1 | * Introduction to computers, working of computer.
* Basic computer definitions (data, information, bit, byte, character, hardware, software).
* Anatomy of computer (input, output, memory/ storage, Keyboard and Mouse).
 | 1 | C3 | Students will be able to understand hardware. software, input-output and memory of computer system. | 01 |  |
| 2 | * Characteristics of Computer (speed, storage, accuracy, versatility, automation, diligence)
* Difference between primary and secondary storage.
* Control unit, Arithmetic Logic Unit and Bus.
 | 1 | C3 | Students will be able to understandPerformance Characteristics of computer. Main elements of computer CPU. | 01 |
| 3 | * Classification of Computers.
* Operating System, functions, types and examples of OS.
* Different types of computer viruses
 | 2 | C2 | Students will be able to understandConcept and understanding of Computer Operating System and its types. | 01 |
| 4 | * Introduction to programming languages (low level and high level)
* Different types of Networks (LAN, MAN, WAN)
 | 2 | C2 | Students will be able to understandBasic introduction to programming languages. Study of different types of networks based on geographical area. | 01 |  |
| 5 | * Network Topologies (Bus, Ring, Star)
* Understanding of different network topologies.
 | 2 | C2 | Understanding of different network topologies. | 01 |
| 6 | Essential Computer Devices * Processing devices, memory devices, input and output devices, storage devices
 | 2 | C2 | Students will be able to understandProperties and features of essential computer components. | 01 |
| 7 | * Computer Software (System software and Application software)
* Computer Networks and some common networking terms.
 | 1 | C3 | Learn about types of computer software. | 01 |  |
| 8 | Introduction to transmission media:* Guided (misted pair. coaxial, optical fiber)
* Unguided (radiowaves, microwaves, infrared)
 | 2 | C2 | Students will be able to understandTransmission media and its types. | 01 |
| 9 | Transmission Modes: * Simples, Half- duplex.
* Full-duplex.
* Network devices: (repeater, hub, bridge, switch. router, gateway).
 | 2 | C2 | Students will understand different modes a transmission and different network devices. | 01 |
| 10 | Computer network models: * Concept of layered approach.
* OSI model, TCP/IP model along with the function of each layer.
 | 2 | C2 | Conceptual approach of OS1 and TCP/IP layered models. | 01 |  |
| 11 | * Internet, basic internet features. services provided, benefits.
* Network structures: Client-server and peer-to-peer.
 | 2 | C2 |  Introduction and detailed study of Internet. Different network structures. | 01 |  |
| 12 | Introduction to MATLAB: * Concept of MATLAB display window, workspace, command history etc.
* Learn to use MATLAB as a calculator and perform some basic mathematical functions.
* Writing variables, controlling the floating numbers.
 | 3 | C3 | Learn about the basic use of MATLAB, is features, method to write different formulas and functions. | 01 |
| 13 | * Implementation of Elementary functions.
* Basic plotting and its features.
* Vector and Matrix generation, indexing, dimensioning, transposing.
* Learn about the creation of M-scripts.
 | 3 | C3 | Continued study of basic MATLAB functions along with the generation process of vectors and matrices. Introduction to nt-scripts and its creation. | 01 |  |
| 16 | **Revision** |  |  |  |  |  |