Appearance for Continuous Evaluation (CE) and End Semester Examination (ESE) are compulsory, and no Grade shall be awarded to a candidate if the candidate is absent for CE or ESE or both.

## SYLLABUS

## GENERAL FOUNDATION COURSES
## MULTIDISCIPLINARY COURSES

### KU1MDCCSC101: ESSENTIALS OF COMPUTING

| Semester | Course Type | Course Level | Course Code | Credits | Total Hours |
|---|---|---|---|---|---|
| 1 | MDC | 100-199 | KU1MDCCSC101 | 3 | 45 |

| Learning Approach (Hours/ Week) | | | Marks Distribution | | | Duration of ESE (Hours) |
|---|---|---|---|---|---|---|
| Lecture | Practical/ Internship | Tutorial | CE | ESE | Total | |
| 3 | 0 | | 25 | 50 | 75 | 1.5 hrs |

**Course Description:**

Computer Fundamentals courses provide a comprehensive introduction to basic computer concepts and skills. Topics covered include hardware, software, operating systems, networking, and troubleshooting. Gain essential knowledge to navigate the digital world effectively.

**Course Prerequisite: NIL**

**Course Outcomes:**

| CO No. | Expected Outcome | Learning Domains |
|---|---|---|
| 1 | Identify various components of Computer system. | U /R |
| 2 | Understand the importance of binary number system in data representation. | U /R |
| 3 | Illustrate binary arithmetic and number conversions. | U |
| 4 | Differentiate various types of software | |
| 5 | Understand types of programming languages and various language processors | |
| 6 | Understand the features, types and applications of internet | U |

***Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C)***

**Mapping of Course Outcomes to PSOs**

| | PSO1 | PSO2 | PSO3 | PSO4 | PSO5 | PSO6 | PSO7 |
|---|---|---|---|---|---|---|---|
| **CO1** | 3 | | | | | | |
| **CO2** | 3 | | 3 | | | | |
| **CO3** | | 2 | 3 | 3 | | | |
| **CO4** | 3 | 3 | 3 | | | | |
| **CO5** | 2 | 3 | | | | | |
| **CO6** | 3 | | 3 | 2 | | 2 | |

## COURSE CONTENTS

**Contents for Classroom Transaction:**

| MODULE | UNIT | DESCRIPTION | HOURS |
|---|---|---|---|
| 1 | **MODULE TITLE** :Basic components of the system | | |
| | 1 | **Introduction to Computers:** Definition and Characteristics of Computers, Brief History and Evolution of Computers. Computer System Overview, Basic Components of a Computer System - Input, Output, Processing, and Storage. | 9 |
| | 2 | **Central Processing Unit (CPU):** Basic Concepts of CPU, Architecture of a CPU - ALU, Registers, and Control Unit. | |
| | 3 | **System Memory and Storage:** Memory Hierarchy - An Overview, Primary Memory - RAM (Random Access Memory) and ROM (Read Only Memory) - Types and Functions, Secondary Memory - Hard Drives, SSDs, USB Drives Introduction to Cache Memory - Purpose and Basic Functioning. | |

| | | |
|---|---|---|
| **2** | **MODULE TITLE** : Data representation | |

| | | | |
|---|---|---|---|
| | 1 | **Introduction to Data Representation:** Decimal, Binary, Hexa Decimal and Octal Number Systems, Conversion Between Number Systems. Conversion between Number system | 9 |
| | 2 | **Binary Arithmetic and Complements:** Binary addition, subtraction, Complements of Binary Numbers (1's Complement and 2's Complement). | |
| | 3 | **Special Codes and Unicode:** Binary Coded Decimal (BCD), Grey code, ASCII Code, Unicode | |

| | | | |
|---|---|---|---|
| **3** | **MODULE TITLE :** Types of software | | |
| | 1 | **Introduction to Software:** Types of Software - Application software, System Software, Operating Systems - Basics Function, examples. | 9 |
| | 2 | **Software Licensing and Acquisition:** Retail, OEM, Demo, Shareware, Freeware, Open-Source Software. | |
| | 3 | **Programming Languages:** Types, Basic Concepts of Compiler, Assembler, Interpreter, Linker and Loader, Source code and Object code. | |

| | | | |
|---|---|---|---|
| **4** | **MODULE TITLE** :Basics of computer networks | | |
| | 1 | **Introduction to Computer networks:** Data Communication System and Its Components, advantages of networking., hardware components of networking-Transmission modes-Simplex- half duplex-full duplex | |
| | 2 | Classification of networks-LAN, MAN, WAN, internet. Network topologies-Bus, Star, Ring and Mesh. Internet applications. Introduction to the term web, web browsers, http/https, URL, Domain name. | 9 |

| | | |
|---|---|---|
| **5** | **Teacher Specific Module** | |

| | | |
|---|---|---|
| | *Directions* | |
| | Identify various network devices and make notes on them<br>Hands on exercise on installing operating system. | 9 |

**Essential Readings:**


1. Kernighan, Brian W (2011). D is for Digital: What a well-informed person should know about computers and communications. CreateSpace Independent Publishing Platform.
2. Goel, Anita (2010). Computer fundamentals. Pearson Education India.
3. Floyd, Thomas L (2011). Digital fundamentals, 10/e. Pearson Education India.
4. Petzold, C. (2022). *Code: The Hidden Language of Computer Hardware and Software*. Pearson Education.
5. Kernighan, Brian W (2011). *D is for Digital: What a well-informed person should know about computers and communications*. CreateSpace Independent Publishing Platform
6. Forouzan, B. A., &Fegan, S. C. New York: "Data communications and networking", McGraw-Hill Higher Education, 2007.
7. Andrew S. Tanenbaum, "Computer Networks", 4th ed., Prentice Hall, 2003.


**Suggested Readings:**

1. https://www.geeksforgeeks.org/
2. https://www.sciencedirect.com/
3. https://www.tutorialspoint.com

**Assessment Rubrics:**

| Evaluation Type | | Marks |
|---|---|---|
| End Semester Evaluation | | **50** |
| Continuous Evaluation | | **25** |
| a) | Test Paper- 1 | 5 |

| | | |
|---|---|---|
| b) | Model exam | 10 |
| c) | Assignment(2 numbers) | 5 |
| d) | Seminar | 5 |
| e) | Book/ Article Review | |
| f) | Viva-Voce | |
| g) | Field Report | |
| **Total** | | **75** |