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|------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Branch Name:</b>          | Computer Engineering, Information Technology<br>Artificial Intelligence & Machine Learning (AI/ML) |
| <b>Program Code:</b>         | ET404, ET407, ET409                                                                                |
| <b>Course Name:</b>          | Fundamentals of Information Technology                                                             |
| <b>Course Code:</b>          | 2ET4000110                                                                                         |
| <b>Pre-requisite Course:</b> | -----                                                                                              |

**Course Objectives: (Min 3)**

1. Understand the importance of information technology and its impact on society.
2. Understand the power and potential of the INTERNET.
3. Understand about hardware and software used in computer.
4. Understand about basic networking and database management.

**Teaching and Examination Scheme:**

| Teaching Scheme<br>(Hours per week) |                 |                  |        | Evaluation Scheme (Marks) |                          |                          |                          |                  |
|-------------------------------------|-----------------|------------------|--------|---------------------------|--------------------------|--------------------------|--------------------------|------------------|
| Lecture<br>(L)                      | Tutorial<br>(T) | Practical<br>(P) | Credit | Theory (Marks)            |                          | Practical (Marks)        |                          | Total<br>(Marks) |
|                                     |                 |                  |        | University<br>Assessment  | Continuous<br>Assessment | University<br>Assessment | Continuous<br>Assessment |                  |
| 3                                   | -               | -                | 3      | 60                        | 40                       | -                        | -                        | 100              |

**Subject Contents:**

| Sr.<br>No | Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Total<br>Hours | Weightage<br>(%) |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------|
| 1         | <b>Introduction of Information Technology</b><br>1.1. What is information?<br>1.2. Information technology<br>1.3. Information processing cycle<br>1.4. Data 1.5. Data v/s information<br>1.6. Use of it/computer in:<br>1.6.1. The home and at play<br>1.6.2. 1.6.2.Education and training<br>1.6.3.Entertainment and the arts<br>1.6.4.Business and industries<br>1.6.5.Science, engineering and mathematics<br>1.6.6.Medicine, defense, space application etc | 02             | 06               |
| 2         | <b>Internet</b><br>2.1 What is the Internet?<br>2.2 Web pages<br>2.3 Home page<br>2.4 Use of web sites<br>2.5 Access providers                                                                                                                                                                                                                                                                                                                                  | 08             | 14               |

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |           |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|
|          | 2.6 Types of access<br>2.7 The browser<br>2.8 Universal resource locators<br>2.9 Browsing or surfing the web<br>2.10 A search engine<br>2.11 Internet phone<br>2.12 Applications of the Internet:<br>2.12.1 E-mail<br>2.12.2 Voice mail<br>2.12.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
| <b>3</b> | <b>COMPUTER HARDWARE</b><br>3.1. Classification of computers<br>3.1.1 Supercomputers<br>3.1.2 Mainframe<br>3.1.3 Desktop computers<br>3.1.4 Laptop computers/ Notebook computers<br>3.2 Anatomy of a computer<br>3.2.1 Motherboard<br>3.2.2 CPU<br>3.2.3 SMPS<br>3.2.4 Expansion slots<br>3.2.5 Sockets and ports<br>3.2.6 Drives<br>3.3 Special input devices:<br>3.3.1 Pointing devices:<br>3.3.1.1 Mouse<br>3.3.1.2 Track balls<br>3.3.1.3 Track sticks<br>3.3.1.4 Touch pads<br>3.3.1.5 Joysticks<br>3.3.2 Modems<br>3.3.3 Scanners<br>3.3.4 Speech recognition devices<br>3.4 Special output devices:<br>3.4.1 Dot matrix printers<br>3.4.2 Laser printers<br>3.4.3 Color printers<br>3.4.4 Line printers<br>3.4.5 Photo printers<br>3.4.6 Thermal printers<br>3.4.6 Plotters | <b>06</b> | <b>14</b> |
| <b>4</b> | <b>COMPUTER SOFTWARE</b><br>4.1 What is software?<br>4.2 Types of software:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>09</b> | <b>20</b> |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|
|   | 4.2.1 Operating system<br>4.2.2 Application software<br>4.2.3 Utility programs<br>4.2.4 Language processors (compiler, interpreter)<br>4.3 Interfaces and operating system.<br>4.3.1 Character based interface<br>4.3.2 Graphical user interface<br>4.3.3 Pen based interface<br>4.3.4 Touch screen interface<br>4.3.5 Conversation interface<br>4.4 Types of operating system.<br>4.4.1 Desktop<br>4.4.2 Server<br>4.4.3 Mainframe<br>4.4.4 Embedded<br>4.4.5 Characteristics of operating system |    |    |
| 5 | <b>COMPUTERS NETWORKS</b><br>5.1 Network Architecture (Star, Tree, Bus, Mesh, Ring)<br>5.2 Categories of Network (LAN, MAN, WAN)<br>5.3 Intranet<br>5.4 Firewall<br>5.5 Various networking devices (Hub, Switch, Modem, NIC)<br>5.6 Network Server System (File, Print, Database)                                                                                                                                                                                                                  | 06 | 16 |
| 6 | <b>Database Technology</b><br>6.1 What is Database?<br>6.2 Advantages of database<br>6.3 Organization of database<br>6.4 RDBMS<br>6.5 Form<br>6.6 Query<br>6.7 Responsibilities of Database Administrator<br>6.8 Distributed Database<br>6.9 System approach of Database (Integrated, Distributed)                                                                                                                                                                                                 | 06 | 16 |
| 7 | <b>Multimedia</b><br>7.1 Components of Multimedia (Sound Card, CD-ROM, Graphics Card, DVD)<br>7.2 Applications of Multimedia (Education, Office works, Industry)                                                                                                                                                                                                                                                                                                                                   | 02 | 06 |
| 8 | <b>Viruses</b><br>8.1 What is a virus?<br>8.2 Origin of virus<br>8.3 Process of infection<br>8.4 Classification<br>of virus Boot<br>infectors<br>System                                                                                                                                                                                                                                                                                                                                            | 03 | 08 |

|  |                                                                                                                    |  |  |
|--|--------------------------------------------------------------------------------------------------------------------|--|--|
|  | infectors<br>General<br>com or exe infectors<br>8.5 Latest Know viruses<br>8.6 Prevention<br>8.7 Remedial measures |  |  |
|--|--------------------------------------------------------------------------------------------------------------------|--|--|

**Text Books / Reference Books:**

| Sr. No. | Title of Books            | Author                    | Publication                   |
|---------|---------------------------|---------------------------|-------------------------------|
| 1.      | Information Technology    | Curtin, Foley, Sen, Morin | S.Chand & Co., latest edition |
| 2.      | Fundamentals Of Computers | V. Rajaraman              | (3rd EDITION)                 |

**List of Open-Source Software/learning website:**

- <https://www.tutorialspoint.com/>
- <https://edu.gcfglobal.org/>
- <https://www.computerhope.com/>

**Course Learning Outcomes (CLO): On completion of this course, the students will be able to:**

| CLO  | Description                                                                                                   | Bloom's Taxonomy Level        |
|------|---------------------------------------------------------------------------------------------------------------|-------------------------------|
| CLO1 | Understand a computer system that has hardware and software components, which controls and makes them useful. | 2 Understanding               |
| CLO2 | Understand the operating system as the interface to the computer system.                                      | 2 Understanding               |
| CLO3 | Use the basic functions of an operating system.                                                               | 2 Understanding<br>3 Applying |
| CLO4 | Set the parameter required for effective use of hardware combined with and application soft wares             | 3 Applying<br>6 Creating      |
| CLO5 | Compare major OS like Linux and MS-Windows                                                                    | 2 Understanding<br>4 Analyze  |
| CLO6 | Use file mangers, word processors, spreadsheets, presentation software's and Internet                         | 4 Analyze                     |

| Course Learning Outcomes | Program Outcomes (Pos) |     |     |     |     |     |     |     |     |      |      |      |
|--------------------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
|                          | PO1                    | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CLO1                     | H                      |     |     |     |     |     |     |     |     |      |      |      |
| CLO2                     | M                      |     |     |     |     |     |     |     |     |      |      |      |
| CLO3                     | H                      |     |     |     |     |     | M   |     |     |      |      |      |
| CLO4                     | M                      |     |     |     |     | H   |     |     |     |      |      |      |
| CLO5                     | M                      | H   |     | L   |     |     | H   |     |     |      |      |      |
| CLO6                     | H                      | M   |     | M   |     |     |     |     |     |      |      | M    |

**H: High, M: Medium, L: Low**