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**University of Sargodha**

 **Department of Computer Science**

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**Course Title: Computer Science**

**Course Structure: Lectures: 3 Credit Hours: 3**

**Course Objectives: The course introduces students to information and communication technologies and their application in the workplace. Students will get basic understanding of computer software, hardware, and associated technologies. They will also learn how computers are used in the workplace, how communications systems can help boost productivity, and how the Internet technologies can influence the workplace.**

**Course Syllabus: Introduction to Computers, The Internet and World Wide Web, Application Software, The System Unit, Input Devices, Output Devices, Storage, System Software, Communications, Databases, Computer Security and Safety, Ethics, and Privacy.**

**Course Outline: 1. Introduction to Computers: Data and Information, Information Processing Cycle, the Components of a Computer, Advantages and Disadvantages of Using Computers. Networks and the Internet. Computer Software, Categories of Computers, Elements of an Information System, Examples of Computer Usage, Computer Applications in So- city [Ch. 1]**

**. 2. The Internet and World Wide Web: Key Concepts of the Internet, Evolution of the Internet, the World Wide Web, E-Commerce, Other Internet Services, Netiquette [Ch. 2].**

 **3. Application Software: Business Software, Graphics and Multimedia Software, Soft- ware for Home, Personal, and Educational Use, Web Applications, Application Soft- ware for Communications. [Ch. 3]**

 **4. The System Unit: Processor, Data Representation, Memory, Expansion Slots and Adapter Cards, Ports and Connectors, Buses, Bays, Power Supply. [Ch. 4]**

 **5. Input Devices: What Is Input? What Are Input Devices? The Keyboard, Pointing De- vices, Mouse, Other Pointing Devices, Touch Screens And Touch-Sensitive Pads, Pen Input, Other Input For Smart Phones, Game Controllers, Digital Cameras, Voice In- put, Video Input, Scanners And Reading Devices, Biometric Input, Terminals, Putting It All Together, Input Devices For Physically Challenged Users. [Ch. 5]**

**6. Output Devices: What is Output? Display Devices, Printers, Speakers, Headphones, and Ear buds, Other Output Devices. [Ch. 6]**

**7. Storage: Hard Disks, Flash Memory Storage, Cloud Storage, Optical Discs, Other Types of Storage. [Ch. 7]**

 **8. System Software: Operating Systems, Operating System Functions, Types Of Operate- in Systems, Stand-Alone Operating Systems, Server Operating Systems, Embedded Operating Systems, Utility Programs [Ch. 8]**

**9. Communications: Uses of Computer Communications, Networks, Network Comma- inactions Standards, Communications Software, Communications over the Telephone Network, Communications Devices, Home Networks, Communications Channel, Physical Transmission Media, Wireless Transmission Media. [Ch. 9]**

**10. Databases: Data, and Information, The Hierarchy of Data, Maintaining Data, File Processing Versus Databases, Database Management Systems, Relational, Object- Oriented, and Multidimensional Databases, Web Databases, Database Administration 11. Computer Security and Safety, Ethics, and Privacy: Computer Security Risks, Internet And Network Attacks, Unauthorized Access And Use, Hardware Theft And Vandal- ism, Software Theft, Information Theft, System Failure, Backing Up, Wireless Sec- ritzy, Health Concerns Of Computer Use, Ethics And Society**

**Labs: Lab work should be carried out to develop students‘Computer Skills, Operating Systems and Utility Software Skills, E-Mail Skills, Word Processing Skills, Spreadsheet Skills, Electronic Presentation Skills, Web Surfing Skills.**

**Textbook(s):  Discovering Computers by Gary B. Shelly & Misty E. Fermat, Course Technology; 1st Edition (January 25, 2011).**

**Reference Material:  Computing Essentials 2012 by Timothy J. O'Leary and Linda I. O'Leary, McGraw Hill Higher Education; 22nd Revised Edition (February 1, 2011).  Computers: Understanding Technology by Fuller, Floyd; Larson, Brian, Fourth Edi- ton, ISBN: 978-0-76383-927-7 (OR Latest Edition.)  The Concepts of Information Technology by Imran Saied, AfsanRaza, Tariq Mah- mood and ZafarHussain, 6th Edition, IT Series Publications.  The Essential Guide to Computing: The Story of Information Technology by by E Garrison Walters, Prentice Hall PTR (August 11, 2000). ISBN-10: 0130194697  Computer Applications by Tasleem Mustafa, Tariq Mahmood, Imran Saeed and Za- hidJaved, IT Publication Series**