

	<div>HiLCoE</div> <div>School of Computer Science & Technology</div>	<div>Doc No. CD/HiL/001</div> <div>Version: 003</div>
<div>Course Outline</div>		<div>Page 1 of 3</div>

Course Code	CS211 Credit Hours 5
Course Title	ICT Fundamentals
Programme	BSc. In Computer Science
Course Description	<p>This course introduces the concept of ICT and its applications in the wide range of everyday life and our work environment. It addresses concepts related to the components of a computer system, data representation and encoding, computer networking and data transmission, introductory software engineering notions, computer system architecture, and technological trends of ICT.</p> <p>The aim of this course is to introduce you to the basics of ICT and help you develop a culture of learning current technology trends so that you are able to harness the potentials of Information and Communications Technology.</p> <p>This course is intended for students with little or no background in computer and communication technologies.</p>
Objectives	<p>Upon successful completion of this course students are expected to:</p> <ul style="list-style-type: none"> • Define Information, and Information Communications Technology • Understand the concept of a system and how it relates to information systems. • Understand the unification of computer & communication technologies • Understand computer Program execution sequence and organization of the CPU • Identify the basic components of the system unit and the way they interact to form a single computing system • Identify and describe different types of computer software • Understand data representation techniques and computer arithmetic • Understand computer-based communications and networking concepts • Know the processes and considerations of Business Process Engineering • Appreciate the concepts surrounding the Internet, e-commerce / e-business activities, and the World Wide Web • Understand the enabling/pervasive features of ICT • Identify major trends in ICT
Textbook	
References	<ul style="list-style-type: none"> • Introduction to Information Systems. O'Brien & Marakas, Fifteenth Edition • Using Information Technology. Williams, Sawyer, Hutchinson • A Balanced Introduction to Computer Science by David Reed, 3rd Edition • Introduction to Computers. Peter Norton • Computers and information systems. Hutchinson/sawyer • Fundamentals of Information Technology. ALAGAPPA University Karaikudi, Directorate of Distance Education • Vickery, Brain and Alina Vickery. Information science in theory and practice. Bowker-Saur, 1987 • Introduction to computers and information Systems. Donald a. Morris • Modern systems Analysis. Jeffery A. Hoffer • Perrole, Judith, Computers and Social Change: Information, Property, and power (web Edition), 1997 • Computer Science an overview. Fifth edition by J. Glenn Bvroomshera



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Assessment Method	<ul style="list-style-type: none">• Assignments: 10%• Lab: 20%	<ul style="list-style-type: none">• Mid. Exam: 20%• Final Exam: 50%
Term - Year	<ul style="list-style-type: none">• Autumn 2022	
Instructor	Jafar Muzeyin	

COURSE CONTENT

1. Introduction

- 1.1. Overview of ICT and CS
- 1.2. Knowledge Hierarchy (and Management*)
- 1.3. Components of Information Systems
- 1.4. Applications of ICT/IS/Computers
- 1.5. Information Systems in Business

2. Computer Hardware and Software: Development and Evolution

- 2.1. Evolution of Computers
- 2.2. Computer Generations
- 2.3. Milestones in Computer HW & SW Development
- 2.4. Types and Characteristics of Computers*
- 2.5. Components of the Computer System
- 2.6. Software Generations
- 2.7. System Software and Application Software*

3. Data Representation and Computer Arithmetic

- 3.1. Number Systems and Conversion
- 3.2. Binary Arithmetic And Complements
- 3.3. Fixed and Floating Point Numbers
- 3.4. Units of Data Representation and Coding Methods
- 3.5. Boolean Algebra and Logic Circuits*

4. Computer Organization & Architecture

- 4.1. Microcomputer Architecture
- 4.2. Computer Program execution process and the CPU organization
- 4.3. Hierarchical Organization of the Computer System
- 4.4. The Operating System Functions and components*
- 4.5. Programming Languages and Programming Paradigms*

5. Business Process Engineering

- 5.1. Steps in Software Systems Development
- 5.2. Phases of SDLC
- 5.3. SDLC Models

6. Data Communications and Computer Networks

- 6.1. Data Transmission Concepts
- 6.2. Data Transmission Software
- 6.3. Data Communication Channels and Technologies
- 6.4. Types of Computer Networks
- 6.5. Network Topologies
- 6.6. Networking Components (Devices, Software, ...)



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7. Internet, Intranet and Extranet

- 7.1. History
- 7.2. How it works
- 7.3. Electronic Communication tools (e-services)
- 7.4. Services (www, Telnet, email, ftp, IRC, internet telephony, ...)
- 7.5. Cloud Computing*

8. Future Trends in ICT **[Reading Assignment]**

- 8.1. Artificial Intelligence
- 8.2. Ubiquitous (Pervasive) Computing
- 8.3. Grid Computing
- 8.4. Internet of Things