CSE4162(S): Major Inventions of ICT (S)

Programme: B.Tech. (CSE & CCE) Year: 4th Semester: 8th
Course: Program Elective Credits: 3 Hours: 40

Course Context and Overview (100 words):
This course aims to offer an overview of the major inventions of the Information and Communications Technologies (ICT). This course offers insights into (i) why: the motivation, the problems that these inventions attempted to address, (ii) what: the concepts and techniques. This course also discusses the impact of these inventions on the technological progress and their applications.

Prerequisites Courses: Data Structures & Algorithms

Course outcomes (COs):

On completion of this course, the students will have the ability to:
CO1: Demonstrate familiarity with some of the major inventions of ICT.
CO2: Analyze and explain the problems that these inventions attempted to resolve.
CO3: Explain the design – concepts and techniques contained in these inventions and their impact on business / scientific / social domains.

Course Topics:

Contents	Lecture Hours	
UNIT – 1 : An Overview:		3
1.1 A chronological overview of the major inventions of ICT.	2	
1.2 Criteria used for selecting some of these inventions.	1	
UNIT-2: The First Three Major Inventions of ICT:		9
2.1 Fortran – the High Level Programming Language	3	
2.2 Integrated Circuits and their Impact Performance & Cost	3	
2.3. The RDMS – its impact on the design and operations of database applications.	3	
UNIT–3: The Next Four Major Inventions of ICT:		16

3.1 Local Area Networks – Paradigm shift to Client – Server Computing.	4	
3.2 The Personal Computer – The genesis and its impact on the SME segment.	4	
3.3 Public Key Cryptography – the techniques and their impact on business and social applications.	4	
3.4 Computer Graphics – Paradigm shift in processing and presenting 2D and 3D images.	4	
UNIT-4: The Last Three Major Inventions of ICT:		**12**
4.1 The Internet and World Wide Web – Paradigm Shift in Sharing ad Accessing Global Data.	4	
4.2 The Search Engines – Their techniques and far reaching impact.	4	
4.3 Mobile Apps and Cloud Computing – Techniques leading to anytime, anywhere, any device based access to applications.	4	

Text Books:

1. V. Rajaraman, *"Groundbreaking Inventions in ICT",* PHI Learning Pvt Ltd, 2020
2. Martin Campbell – Kelly and William Aspray, "*Computer: A History of the Information Machine",* 2nd Ed, Westview Press, 2004

Evaluation:

Component	Weightage (%)
Quiz - 1(in Jan 2021) --- 10% Quiz - 2 (in Feb 2021) --- 10% Project Work (in Mar, April) --- 20%	40%
Mid-Term	20%
End-Term	40%

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