Program	BS Data Science	
Course Code	GE-160	
Course Title	Applications of Information and Communication Technologies	
Credit Hours	**Theory**	**Lab**
	2	1
Lecture Duration	60 minutes (1.0 Hours) 2 lectures per week, 3 hours lab session per week	
Semester	1	
Pre-requisites	**Courses**	**Knowledge**
	Nil	Nil
Follow Up Courses		

Course Learning Outcomes (CLOs)

CLO No	Course Learning Outcome	Bloom Taxonomy
CLO-1	Understand basics of computing technology	C1 (Knowledge)
CLO-2	Do number systems conversions and arithmetic	C2 (Understand)
CLO-3	Have knowledge of types of software	C2 (Understand)
CLO-4	Have knowledge of computing related technologies	C3 (Apply)

Objectives	1. This is an introductory course in Computer Science designed for beginners. 2. Apart from leading the participants through a whirlwind history of computing, the course also develops a feel for web programming through a series of lectures that help the students develop their own web page.

	3. Main objective of the course is to build an appreciation for the fundamental concepts in computing and to become familiar with popular PC productivity software.

Learning Outcomes	• Understand basics of computing technology • Do number systems conversions and arithmetic • Have knowledge of types of software • Have knowledge of computing related technologies
Contents	1. Brief History of Computer 1.1. Four Stages of History 2. Computer Elements and Software Types 2.1. Processor, Memory, Hardware, Software 2.2. Application Software its uses and Limitations 2.3. System Software its Importance and its Types 3. Types of Computer 3.1. Super Compute 3.2. Mainframe Compute 3.3. Mini Compute 3.4. Micro Compute 4. Organizing Computer Facility 4.1. Centralized Computing Facility 4.2. Distributed Computing Facility 4.3. Decentralized Computing Facility 5. Input Devices 5.1. Keyboard and its Types, 5.2. Terminal (Dump, Smart, Intelligent), 5.3. Dedicated Data Entry 5.4. Pointing Devices, Voice Input, 6. Output Devices

	6.1. Soft- Hard 6.2. Copies, Monitors and its Types, Printers and its Types, Plotters, 6.3. Computer Virus and its Forms, 6.4. Storage Units, 6.5. Primary and Secondary Memories, 7. RAM and its Types 7.1. Popular types of RAM 8. Cache Memory 8.1. Cache Memory Importance 8.2. Type of Cache Memory 9. Hard Disks, Working of Hard Disk 9.1. Diskettes, RAID, 9.2. Optical Disk Storages (DVD, CD ROM), 9.3. Magnetic Types, Backup System, 10. Data Communications 10.1. Data Communication Model 10.2. Data Transmission 10.3. Digital and Analog Transmission 10.4. Modems 10.5. Asynchronous and Synchronous Transmission 10.6. Simplex. Half Duplex, Full Duplex Transmissions 11. Communications 11.1. Medias (Cables, Wireless) 11.2. Protocols, Network Topologies (Star, Bus, Ring) 11.3. LAN, WAN, and MAN 12. Internet 12.1. A Brief History 12.2. Birthplace of ARPA Net 12.3. Web Browser

	12.4. Internet Services provider 12.5. Function and Features of Browse 12.6. Search Engines

<table>
<tr><td>Teaching-learning Strategies</td><td colspan="4">• Interactive class session
• Hands on practices in class
• Brainstorming and group discussion sessions</td></tr>
<tr><td>Assignments</td><td colspan="4">• Paper based written assignments 4
• Coding HTML and CSS 3</td></tr>
<tr><td rowspan="4">Assessment and Examinations</td><td>Sr. #</td><td>Elements</td><td>Weightage</td><td>Details</td></tr>
<tr><td>1</td><td>Formative Assessment</td><td>25%</td><td>It is continuous assessment. It includes: classroom participation, attendance, assignments and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.</td></tr>
<tr><td>2</td><td>Midterm Assessment</td><td>35%</td><td>It takes place at the mid-point of the semester.</td></tr>
<tr><td>3</td><td>Final Assessment</td><td>40%</td><td>It takes place at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.</td></tr>
<tr><td>Textbooks</td><td colspan="4">• Sinha, P. K., & Sinha, P. (2010). Computer fundamentals. BPB publications.</td></tr>
<tr><td></td><td colspan="4">• Morley, D., & Parker, C. S. (2014). Understanding computers: Today and tomorrow, comprehensive. Cengage Learning.</td></tr>
</table>

Reference Material/Suggested Readings	• Livesley, R. K. (2017). An introduction to automatic digital computers. Cambridge University Press. • Zawacki-Richter, O., & Latchem, C. (2018). Exploring four decades of research in Computers & Education. Computers & Education, 122, 136152.
Notes	• Academic integrity is expected of all students. Plagiarism or cheating in any assessment will result in at least an F grade in the course, and possibly more severe penalties. • You bear all the responsibility for protecting your assignments from plagiarism. If anyone else submits your assignment or uses your code in his/her assignment, you will be considered equally responsible. • The instructor reserves the right to modify the grading scheme/marks division and course outline during the semester. • There is no makeup for a missed sessional grading instruments like quizzes, assignments, and homework's.