Title: Applications of Information and Communication Technologies

Code Number: CS1101

Credit Hours: 3 (2+1)

Prerequisites: Nil

Semester: 1st

Course Objectives
The course will enable students to:
1. Explain the fundamental concepts, components, and scope of Information and Communication Technologies (ICT).
2. Identify uses of various ICT platforms and tools for different purposes.
3. Understand the ethical and legal considerations in use of ICT platforms and tools.
4. Apply ICT platforms and tools for different purposes to address basic needs in different domains of daily, academic, and professional life.
5. Ability to write, debug and execute programs in MATLAB

Contents
Unit 1: Introduction to Information and Communication Technologies
1. Components of Information and Communication Technologies
2. Scope of Information and Communication Technologies
3. Use of ICT in education, business, governance, healthcare, digital media and entertainment
4. Emerging technologies and future trends

Unit 2: Basic ICT Productivity Tools
1. Effective use of popular search engines (e.g., Google, Bing, etc.) to explore World Wide Web.
2. Formal communication tools and etiquettes (Gmail, Microsoft Outlook, etc.).
3. Microsoft Office Suites (Word, Excel, PowerPoint).
4. Google Workspace (Google Docs, Sheets, Slides).
5. Dropbox (Cloud storage and file sharing)
6. Google Drive (Cloud storage with Google Docs integration) and Microsoft OneDrive (Cloud storage with Microsoft Office integration).
7. Evernote (Note-taking and organization applications)
8. OneNote (Microsoft's digital notebook for capturing and organizing ideas).
9. Video conferencing (Google Meet, Microsoft Teams, Zoom, etc.).
10. Social media applications (LinkedIn, Facebook, Instagram, etc.).

Unit 3: ICT in Education
1. Working with learning management systems (Moodle, Canvas, Google Classrooms, etc.).
2. Sources of online education courses (Coursera, edX, Udemy, Khan Academy, etc.).
3. Interactive multimedia and virtual classrooms.

Unit 4: ICT in Health and Well-being

1. Health and fitness tracking devices and applications (Google Fit, Samsung Health, Apple Health, Xiaomi Mi Band, Runkeeper, etc.).
2. Telemedicine and online health consultations (OLADOC, Sehat Kahani, Marham, etc.).

Unit 5: ICT in Personal Finance and Shopping

1. Online banking and financial management tools (JazzCash, Easypaisa, Zong PayMax, ILINK and MNET, Keenu Wallet, etc.).
2. E-commerce platforms (Daraz.pk, Telemart, Shophive, etc.)

Unit 6: Digital Citizenship and Online Etiquette

1. Digital identity and online reputation.
2. Netiquette and respectful online communication.
3. Cyberbullying and online harassment.

Unit 7: Ethical Considerations in Use of ICT Platforms and Tools

1. Intellectual property and copyright issues.
2. Ensuring originality in content creation by avoiding plagiarism and unauthorized use of information sources.
3. Content accuracy and integrity (ensuring that the content shared through ICT platforms is free from misinformation, fake news, and manipulation).

Lab Work Outline

1. Operating system (Linux, windows etc.) and application software installation (open office, MATLAB etc). 1. Guided tutorials and exercises to ensure that students are proficient in commonly used software applications such as word processing software (c.g., Microsoft Word), presentation software (e.g., Microsoft PowerPoint), spreadsheet software (e.g., Microsoft Excel) among such other tools students may be assigned practical tasks that require them to create documents, presentations and spreadsheets etc.
2. Assigning of tasks that involve creating, managing, and organizing files and folders on both local and cloud storage systems.. students will practice file naming conventions, creating directories, and using cloud storage solutions (e.g., Google Drive, OneDrive).
3. The use of online learning management systems (LMS) where students can access course materials, submit assignments, participate in discussion forums, and take quizzes or tests. This will provide students with the practical experience with online platforms commonly used in education and the workplace.
4. Solution of simple mathematical problems using MATLAB. Executing and debugging involving Input / Outputs, Variables, Conditions and logical operators, If / else, loops (for, while), Matrices (single / multidimensional), Functions (Built-in / self-defined), Plots, Engineering Applications in MATLAB, Introduction to SIMULINK.

Teaching-Learning Strategies:

The pedagogical approach to this course relies on face-to-face teaching in a university classroom environment. The lectures are delivered using multimedia support and on white board. Students are engaged and encouraged to solve real world problems using computer-aided tools.

Assignments/Types and Number with calendar:

A minimum of four assignments to be submitted before the written exams for each term.

Assessment and Examinations:

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	It takes place at the mid-point of the semester.
2.	Sessional Assessment	25%	It is continuous assessment. It includes classroom participation, attendance, assignments and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.
3.	Final Assessment	40%	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.

Recommended Books:
1. "Discovering Computers" by Vernmaat, Shaffer, and Freund.
2. "GO! With Microsoft Office" Series by Gaskin, Vargas, and McLellan.
3. "Exploring Microsoft Office" Series by Grauer and Poatsy
4. "Computing Essentials" by Morley and Parker
5. "Technology in Action" by Evans, Martin and Poatsy
6. Moore, H., "MATLAB for Engineers". Pearson. (2017)
7. Delores M. Etter, "Introduction to MATLAB", Prentice Hall; 3rdedition (2014)