NATIONAL UNIVERSITY
of Computer & Emerging Sciences, Lahore

Department of Computer Science

CL 117 – Intro. To Information and Communication Technologies

FALL 2020

Instructor Name: Shakeel Zafar   **Email address:** shakeel.zafar@nu.edu.pk
Office Location/Number: In front of Lab-4   **Office Hours:** Mon, Wed, Tues 9:00-11:00 AM

Course Information

Program: BS   **Credit Hours:** 1   **Type:** Core
Pre-requisites (if any): NO
Course Website (if any): NA
Class Meeting Time: BDS-1A, Tue, 11:00 – 2:00PM   BCS-1G: Thurs, 11:00 – 2:00 PM
Class Venue: **Lab – 08**   **Lab - 01**

Course Description/Objectives/Goals?

Objective of this course is to give fundamental understanding of Information and Communication technologies and related applications. Basic concepts of Computer architecture and organization, number system (binary, hexadecimal, decimal), application and importance of mathematics in computer science, operating system, database management and relational database concepts, big data, computer networks and communication, internet and world wide web, artificial intelligence, graphics.

Course Learning Outcomes (CLOs):		
At the end of the course students will be able to:	**Domain**	**BT* Level**
Convert one number from one number system to another and understand the importance of mathematics in CS.	C	1
Understand the basic architecture of a computer system and have a basic know how of various operating systems.	C	1
Have a fundamental understanding of data management and its applications and know a few applications of big data.	C	1
Understand the basic components of a communication system	C	1
Understand the basics of web development and should be able to develop a web page	C	3
Have a basic know how of various AI applications	C	1
Understand the basics of graphics and be able to use a tool for graphics or animations	C	3
* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain.		
Bloom's taxonomy Levels:1. Knowledge, 2. Comprehension, 3. Application, 4. Analysis, 5. Synthesis, 6. Evaluation		

Tentative Weekly Schedule

Week	Topic	Lecture & Activity
1	Introduction	History and evolution of computing devices. Modern applications of computer Science
2	Number System	Representation of data in binary + conversions in decimal and binary number system representation of floating point numbers
3	Computer Organization	High level architecture of computer system Basic components of processor and memory
4	Mathematics in Computer Science	Importance of mathematics in computer science and its applications Introduction to the concepts of optimization, graphs, functions and basic counting techniques with reference to their application in mathematics
5	Operating systems	Concept of resources and management of shared resources. Introduction to various operating systems (windows, Linux, Android)
6	Data Management and its applications	Role of data in computer science, types of data (structured, semi structured, unstructured), Introduction to database systems
7	Computer Graphics	Introduction to the field + Use of simple animation tools
8	Communication	Introduction to the basic components of communication system Brief overview of working of computer communication
9	Web development	Introduction to html and its basic tags Exercise to develop a static 3-4 page website
10	Artificial Intelligence	Basic introduction to the field and its commonly used applications One detailed application like autonomous cars
11	Big data	Big data and its applications + challenges A case study like friend/product recommendation in Facebook
12, 13, 14	Student Presentations	
	FINAL EXAM	

(Tentative) Grading Criteria

1. 9-10 Class Activities (25%)
2. Group Presentations (25%)
3. Final Exam (50%)

Course Policies

1. Quizzes may be un-announced.
2. No makeup for missed quiz or class activity or group presentation.
3. 80% attendance

Grading Model

Absolute