Department of Computer Science and Engineering
Semester: Fall 2022

Course Code: CSE 112 **Credit Hours: 3**

Course Title: Computer Fundamentals

Course Intended Learning Outcomes:

(1) To converse in basic computer terminology

(2) To formulate opinions about the impact of computers on society

(3) To possess the knowledge of basic hardware peripherals

(4) To know and use different number systems

(5) To know the basics of programming

(6) To solve basic computational problems with C language

Course Intended Learning Outcomes:

Week No.	Topics	Expected Learning Outcome	Assessment (Asg./CT/Mid/Final)
Wk. 1	a. Introduction and motivation b. Course outline discussion c. Real-life application discussion **Lab Class:** a. Basic operation using PC, hardware and peripheral introduction b. Demo of computer mother board	a. Orientation and sharing learning b. Learning on different parts of a computer c. Learning on using some applications	None
Wk. 2 Wk. 3	a. Basic computer organization, how a computer works b. Number system and conversions c. Application of number systems **Lab Class:** a. Working with productivity package Microsoft office and using Windows ***Assign Team Project***	a. Learning on different parts of a computer system. b. Appreciate the need for number systems. c. Ability to work with number system d. Ability to convert from one base to another including base 2, 4, 8, 10 and 16 e. Skills on working with productivity package	MCQ for overall assessment of class prior to class test
Wk. 4	a. Computer arithmetic **Lab Class:** a. Working with productivity package Excel and PowerPoint	a. Learning on computer arithmetic	Class Test # 1
Wk. 5	a. Addition and subtraction with two's complement **Lab Class:** a. Working with productivity package Excel and PowerPoint	a. Learning on two's complement representation b. Ability to perform addition and subtraction using two's complement	

Wk. 6	**a.** Floating point representation of numbers **Lab Class:** **a.** Working with productivity package Excel and PowerPoint **b.** Using Google tools for education (Google classroom, calendar, email etc.)	**a.** Ability to work with floating point numbers **b.** Ability to convert a floating point number from decimal to binary and vice versa.	
Wk. 7	Midterm Week	Midterm Week	Midterm Exam
Wk. 8	Develop logical concept of problem solving **a.** Pseudocode **b.** Flowchart **Lab Class:** **a.** Working with productivity package Excel and PowerPoint, Internet and email usage **b.** Working with drawing tools e.g. Paint, Photoshop and Illustrator	**a.** Learn on thinking of problem solving **b.** Appreciate the needs for programming **c.** Ability to draw flowchart from pseudo code **d.** Ability to derive pseudocode from flowchart **e.** Ability to identify errors in flowchart	Class Test # 2
Wk. 9	Develop logical concept of problem solving **a.** Pseudocode **b.** Flowchart **Lab Class:** **a.** Using Flow Charting Tool e.g. Visio **b.** Practical drawing flowchart using tool	**a.** Develop logic building for problem solving **b.** Ability to draw flowchart from pseudo code **c.** Ability to derive pseudocode from flowchart **d.** Ability to identify errors in flowchart	Team Project Presentation
Wk. 10	Basic program structure and variables **a.** Data types and why it is needed **b.** Concept of variable and constant **c.** Variable naming convention d. C Reserved Words **Lab Class:** **a.** Basic C programming using CodeBlocks (installation, coding, debugging, compiling and executing program)	**a.** Solving simple problems using programming **b.** Creating a simple program in IDE and compiling and then running it.	
Wk. 11 Wk. 12	Operators and expressions **a.** Token and how it is used **b.** Different types of operators and expressions. **c.** Assignment, arithmetic, relational, logical and bitwise expressions including precedence and associativity	**a.** Learning on using operators and expressions **b.** Learning on how to evaluate expressions.	Class Test # 3

	d. Expression evaluation **e.** Type casting **Lab Class:** **a.** Basic problem solving using programming		
Wk. 13	Input output functions, control structures and basic logic development **a.** Different types of input and output functions. **b.** The % format specifiers **c.** Formatting output **d.** Working with control structure **Lab Class:** **a.** Basic problem solving using programming	**a.** Learning on how to deal with input and output **b.** Learning on how to manage formatted output	
Wk. 14	Final Exam Week	Final Exam Week	Final Exam

Text Book:

1. Computer Fundamentals by Pradeep K. Sinha, 6th Edition.

Reference Books:

1. Computer Fundamentals and ICT by M. Lutfar Rahman, M. Shamim Kaiser, M. Ariful Rahman, M. Alamgir Hossain.
2. Fundamentals of Computers by V. Rajaraman and N. Adabala, 6th Edition.
3. Introduction to Computer by Peter Norton.
4. Introduction to Computer by Professor Dr. Md. Ismail Jabiullah
5. Introduction to Information System by James A. O'Brien, 8th Edition.
6. Teach Yourself C by Herbert Schildt, 3rd Edition.
7. C How to Program by Deitel and Deitel, 7th Edition.