SIR SYED UNIVERSITY OF ENGINEERING & TECHNOLOGY
ELECTRONIC ENGINEERING DEPARTMENT

COURSE INFORMATION SHEET
(For Lab Based Course)

Session:	Spring-2023
Course Title:	Computer Fundamentals and Programming
Course Code:	CE – 100L
Credit Hours:	1
Semester:	2nd
Pre-Requisites:	None
Instructor Name:	Syed ShahRukh Haider
Email and Contact Information:	shahrukhh@ssuet.edu.pk
WhatsApp Group	CE-100T CFP 2023
Office Hours:	8:30am to 5 pm
Mode of Teaching:	Synchronous/Asynchronous/ Hybrid/Blended

COURSE OBJECTIVE:

This lab emphasizes to perform experiment on Turbo C that demonstrates the concept of programming techniques. The student will be able to solve various problems related to real world scenarios. Moreover familiarization with operating system commands and MS office to create documents, presentations, spreadsheets etc.

COURSE OUTLINE:

Introduction to Turbo C Integrated Development Environment (IDE). Use of programming techniques, variables, operators, Input/Output, mathematical fuctions, iterative / selection control, functions and arrays. Using Dos commands, window explorer, MS word, power point and excel for preparing documents, spreadsheets and presentations.

COURSE LEARNING OUTCOMES (CLOs) and its mapping with Program Learning Outcomes (PLOs):

CLO No.	Course Learning Outcomes (CLOs)	PLOs	Bloom's Taxonomy
1	**Describe** various Operating system commands, programming techniques using C to solve problems and MS office skills.	PLO_3 (Design & Dev. of Solution)	P1 (Perception)
2	**Display** the knowledge of programming techniques used in problem solving.	PLO_3 (Design & Dev. of Solution)	P5 (Complex overt Response)

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COMPLEX ENGINEERING ACTIVITY:

Complex Engineering Activity Details	Included: Yes Nature and details of Complex Engineering Problem (CEA): It will be given as Subject Project assigned to 2-4 students in a group. CEA will be based on CLO1. Students have to use in-depth knowledge of procedure oriented programming techniques for designing application in C **Attributes could be: WK3, WA1, EA1** WK3: Engineering Fundamental WA1: Engineering Knowledge EA1: Diverse Resources Assessment in: Course Project

RELATIONSHIP BETWEEN ASSESSMENT TOOLS AND CLOs:

Assessment Tools	CLO-1 35(Marks)	CLO-2 15(Marks)
Lab Manual	42.85% (15)	--
Project/Report/Viva	14.30%(05)	66.67% (10)
Lab Exam/viva	42.85% (15)	33.33%(05)

GRADING POLICY:

Assessment Tools	Percentage	Marks
Lab Manual	30%	15
Project/Report/Viva	30%	15
Lab Exam/Viva	40%	20
TOTAL	**100%**	**50**

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Recommended Book:

- **Lab Manual**

COURSE BREAKDOWN WITH LAB SYNCHRONIZATION:

- Both sides same Colours: Lab is synchronized with the topic
- Red Color: Lab is not synchronized (*conducted before theory*)
- **No Color:**   Lab is to introduce new hardware or software skill /
                                    Open Ended Lab / Lab is relevant to a topic taught in
                                    pre-requisite and required for upcoming labs.

Week No.	Topics	Laboratory Synchronization
1	Introduction to OBE. Introduction to Computers (Parts of a Computer System, Early History of Computers) Introduction to Windows, DOS & Turbo C Programming Language[1]	Explain Window Environment, MS-DOS commands and Turbo C IDE with basic structure of a C program[1]
2	Processing Hardware Data types in C[2]	Explain Data Types in C language [2].
3	Input Devices C Building Blocks[3].	Explain run time input function "SCANF ( )" in C language[3]
4	Input Devices (Continued) Operators in C. Mathematical Functions in C[4]	Explain operators, formula handling and use of Math Functions in C language [4]
5	Output Devices Iterative Control (Loops in C)[5]	Explain the use of MS-Office (MS Word) Explain types of Loops in C language [5]
6	Number Systems and Inter conversion	Explain the use of MS OFFICE (Power Point).
7	Boolean Algebra & Logic Gates	**(Open Ended Lab)**
8	MID TERM	
9	Storage Hardware Nested Loops[6]	Explain the use of MS-Office (MS-Excel). Explain Nested Loops in C language [6].
10	Introduction to Software Selection Control (Decisions)[7]	Explain Selection control in C language[7].
11	Generations of Programming Languages. Selection control (Continued)[8])	Explain nested selection control, else if and switch, case in C language[8].
12	Arrays (Purpose, Notation, Benefits), Defining Arrays Finding Minimum & Maximum Values, Sorting[9].	Explain the concept of Arrays in C language[9].
13	2D Numeric arrays & Sorting. Strings, String Functions (strcmp, strcat, strcpy, strlen), Sorting 1D & 2D String Arrays[10]	Explain the concept of Strings & String sorting in C language [10].

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14	Functions: Passing Arguments to Functions, Returning Values from Functions, Header files, External Variables [11]	Explain user defined Functions & Header Files[11]
15	Preprocessor Directives, Macros	**(Open Ended Lab)**
16	Difference Between Macro and Function	Final Viva

LAB PLAN

Course Title: Computer Fundamentals and Programming
Course Code: CE-100L

Week No.	Lab Dates	Objective	Required Reading
1		Use Window Environment, MS-DOS commands and Turbo C IDE with basic structure of a C program	**01**
2		Use Data Types in C language	**16**
3		Use run time input function "SCANF ( )" in C language	**19**
4		Explain operators, formula handling and use of Math Functions in C language	**21**
5		Explain the use of MS-Office (MS Word) Explain types of Loops in C language	**25**
6		Explain the use of MS OFFICE (Power Point).	**38**
7		**(Open Ended Lab)**	**42**
8			

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9		Explain the use of MS-Office (MS-Excel). Explain Nested Loops in C language	43
10		Use Selection control in C language	58
11		Use nested selection control, else if and switch, case in C language	64
12		Use the concept of Arrays in C language	69
13		Use the concept of Strings & String sorting in C language	72
14		Use user defined Functions & Header Files	75
15		**(Open Ended Lab)**	77
16		Final Viva	