SIR SYED UNIVERSITY OF ENGINEERING & TECHNOLOGY
ELECTRONIC ENGINEERING DEPARTMENT

COURSE INFORMATION SHEET

Session:	Spring 2023
Course Title:	Computer Fundamentals & Programming
Course Code:	CE-100T
Credit Hours:	3+0
Semester:	2nd
Pre-Requisites:	Nil
Instructor Name:	Engr. Syed ShahRukh Haider
Email and Contact Information:	shahrukhh@ssuet.edu.pk
WhatsApp Group	CE-100T CFP 2023
Office Hours:	8:30am to 5:00pm
Mode of Teaching:	Synchronous/Asynchronous/ ☑ **Hybrid**/ Blended

COURSE OBJECTIVE:

This course introduces the concepts and fundamentals of computing and programming. Topics include computer hardware / software, number systems and logic gates and procedure oriented programming techniques.

COURSE OUTLINE:

This course covers history, components of computers like processing hardware, I/O devices, storage hardware, Types of software, operating systems, number systems and logic gates. It also includes programming topics such as basic building blocks, data types, operators, control statements, functions and arrays.

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

CLO No.	Course Learning Outcomes (CLOs)	PLO's	Blooms Taxonomy*
CLO_1	**Describe** fundamental knowledge about the history, basic components like processing hardware, I/O devices, storage hardware, software & database..	PLO_3	C2 (Understading)
CLO_2	**Explain** inter conversion between number systems, Boolean algebra & logic gates. Simplification of Boolean expressions	PLO_4	C2 (Understanding)
CLO_3	**Demonstrate** problem solving skills by developing programs incorporating the concepts of data types, operators, Input/Output, control statements, functions and arrays.	PLO_5	C3 (Applying)

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COMPLEX ENGINEERING PROBLEM:

Complex Engineering Problem Details	**Included: Yes** Nature and details of Complex Engineering Problem (CEP): It will be given in Assignment # 03. CEP will be based on CLO3 "Programming techniques to Solve a problem". Students have to use in-depth knowledge related to the following concepts: Data types, operators, I/O and control statements, functions and Arrays **Attributes could be: WP1, WK2, WK3, WK5, WA3** WP1: Depth of knowledge required WK2: Mathematics, Numerical analysis, Statistics, Computer & Information Science. WK3: Engineering fundamentals WK5: Engineering design WA3: Design/Development of Solutions Assessment in: Assignment # 03

RELATIONSHIP BETWEEN ASSESSMENT TOOLS AND CLOs:

Assessment Tools	CLO-1(36)	CLO-2(28)	CLO-3(36)
Quizzes	8.33% (3)	14.29% (4)	8.33% (3)
Assignments	8.33% (3)	14.29% (4)	8.33% (3)
Midterm Exam	27.78% (10)	35.71% (10)	27.78% (10)
Final Exam	55.56% (20)	35.71% (10)	55.56% (20)

GRADING POLICY:

Assessment Tools	Percentage
Midterm Exam	30%
Final Exam	50%
Assignments	10%
Quizzes	10%
Total	100%

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Recommended Book:

- Peter Norton ***"Introduction to Computers"***, McGraw Hill, Sixth Edition, ISBN: 978-0-07-059374-9
- Robert Lafore, ***"C Programming using Turbo C++"*** SAMS, Second Edition,ISBN:0-672-30399-X

Reference Books:

- Sarah E. Hutchinson, Stacey C. Sawyer ***"Computer, Communication and Information"*** Prentice Hall PTR, ISBN: 9780023117107
- Yashwant Kanetkar ***"Let us C"***, Seventh Edition, ISBN: 9780470234341

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COURSE BREAKDOWN WITH LAB SYNCHRONIZATION:

- **Both sides same Colors:** 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 Titles
1	Introduction to OBE, Introduction to Computers (Parts of a Computer System, Early History of Computers), Generations of Computers, Introduction to Windows and DOS.[1]	To become familiar with DOS environment and Windows **X**P.[1]
2	Processing Hardware (CPU ALU Cache Memory, Registers, MotherBoard) , Input Devices, Word Processing Software.[2]	MS WORD for creating and editing professional documents[2]
3	Input devices, output devices & presentations concept [3]	MS-Power Point for creating and editing professional presentations[3]
4	Number Systems and Inter conversion [4]	MS-Excel to create and edit documents using functions and charts.[4]
5	Introduction to C programing Building Blocks. (input Statement, Output Statement, Escape Se**q**uences) [5]	Study features of Integrated Development Environment IDE or basic structure and data types for C language[5]
6	Operators in C and Mathematical Functions in C [6]	Use of operators, error handling and Math functions[6]
7	Flow Chart , Boolean Algebra & Logic Gates.	**(Open Ended Lab)**
8	**MID TERM**	
9	Iterative Control (Loops in C)[8]	Types of iterative loop in C language[8]
10	Nested Iterative Control Statements[9]	Types of nested loops in C language[9]
11	Selection Control (if , if-else, else if Ladder, Nested if)[10]	Concepts of conditional statement in C language[10]
12	Selection control (Switch Case)[11]	Concepts of conditional statement in C language[11]
13	2D Numeric arrays & Sorting. Strings, String Functions (strcmp, strcat, strcpy, strlen), Sorting 1D & 2D String Arrays[10]	Implementation of2D Array in C Programming. Strings & String sorting[10].
14	Functions: Passing Arguments to Functions, Returning Values from Functions, Header files, External Variables [11]	Data handling and sorting[13]
15	Preprocessor Directives, Macros	**(Open Ended Lab)**
16	Difference Between Macro and Function	Final Viva

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LESSON PLAN

Course Title: Computer Fundamental and Programming **Course Code:** CE-100T

Week No.	Lesson No.	Lesson Date	Topics	Required Reading	Key Date
1	1		Introduction to OBE. Parts of a Computer System, Early History of Computers	"PeterNorton" Appendix D Page: 538-556	
	2		Introduction to Windows, DOS & Turbo C, Output Statement	"Lafore" Chap: 1 Page: 7-22	
2	3		Processing Hardware	"PeterNorton" Chap: 1,4 Page: 25-28, 130-138	
	4		Data types in C	"Lafore" Chap: 2 Page: 28-35	
3	5		Input Devices	"PeterNorton" Chap: 2 Page: 49-65	Assignment # 01
	6		Input Statement in C	"Lafore" Chap: 2 Page: 42-47	
4	7		Input Devices (Continued)	"PeterNorton" Chap: 2 Page: 69-77	
	8		Operators / Mathematical Functions in C	"Lafore" Chap: 2 Page: 48-58	
5	9		Output Devices	"PeterNorton" Chap: 3 Page: 88-116	Assignment#02
	10		Iterative Control in C	"Lafore" Chap: 3 Page: 66-83	
6	11		Number Systems and Inter conversion	Handout	
	12		Number Systems and Inter conversion(continued)	Handout	
7	13		Boolean Algebra & Logic Gates	Handout	Quiz # 2
	14		Boolean Algebra & Logic Gates(continued)	Handout	
8	MID TERM EXAMINATION				

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9	15		Storage Hardware	"PeterNorton" Chap: 5 Page: 166-179	
	16		Nested Iterative Control in C	"Lafore" Chap: 3 Page: 84-91	
10	17		Introduction to Software	"PeterNorton" Chap: 6 Page: 205-212	
	18		Selection Control in C	"Lafore" Chap: 4 Page: 96-105	
11	19		Generations of Programming Languages.	"PeterNorton" Chap: 12 Page: 439-461	
	20		Selection control in C (Continued)	"Lafore" Chap: 4 Page: 107-120	
12	21		Arrays (Purpose, Notation, Benefits), Defining Arrays Finding Minimum & Maximum Values.	"Lafore" Chap: 6 Page: 172-181	Assignment # 03
	22		Sorting of Arrays	Handout	
13	23		2D Numeric arrays & sorting.	"Lafore" Chap: 6 Page: 181-184	
	24		Strings, String Functions (strcmp, strcat, strcpy, strlen), Sorting 1D & 2D String Arrays	"Lafore" Chap: 6 Page: 197-207	Quiz # 3
14	25		Functions: Passing Arguments to Functions,	"Lafore" Chap: 5 Page: 130-135, 142-147	
	26		Returning Values from Functions	"Lafore" Chap: 5 Page: 136-142	
15	27		Program Flow Charts	Handout	
	28		Header files, External Variables	"Lafore" Chap: 5 Page: 152,164	
16	29		Preprocessor Directives	"Lafore" Chap: 5 Page: 157-158	
	30		Revision		