

Basic Information

Faculty							
Office Hour							
Contact Details							
Course Pre-requisites	None						
Department offering the course	Computer Science and Engineering						
Course Title	Structured Programming LAB						
Course Code	CSE 104(Lab)	Sec		Credit	01	Term	Fall 2019
Number of Lectures	0	Number of Tutorials	0	Number of Practical	24	Total	24

Course Details

1.Course Description

This is an introductory course in Computer Programming which will introduce the students to the concepts and some techniques of problem solving, algorithm specification and development, programming style, debugging and testing, documentation etc. Multiple programming paradigms will be introduced. However, emphasis will be on imperative programming languages with C being the language of choice in this subject. Students will be expected demonstrate knowledge and understanding of C syntax as well as programming expertise using it.

2. Course Objective

1. The course aims to provide exposure to problem-solving through programming. It aims to train the student to the basic concepts of the C-programming language. This course involves a lab component which is designed to give the student hands-on experience with the concepts that **develop** problem solving and coding skills.

3. Intended learning outcomes of the course (ILOs)

SKILL S	1. Basic knowledge of structured programming terminologies to develop problem-solving skills, produce quality code and ability to handle possible errors during program execution.
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4. Mapping of Course LO and PLO:

Learning Outcome (LO) of the Course	Program Learning Outcome (PLO)											
	1	2	3	4	5	6	7	8	9	10	11	12
ILO1	MJ				MN				MN	MN		

5. Contents

ILO	Topic	Teaching Strategy	Assessment Strategy of Los	Number of Sessions
1	Introduction and Basics	Exercise	Q/A, Test, Presentation	2
1	Variables, Datatypes, Operators	Exercise	Q/A, Test, Assignment, Presentation	2
1	Structured Program Development in C: Basic of Flow Chart, Control Statements 1(if, if...else, switch, top-down and stepwise refinement), Program Control: Control Statements 2 (for, do...while, switch, break and continue), Nested Loop, Loop Control Statement(break, continue, goto)	Exercise	Q/A, Test, Assignment, Presentation	6
1	Introduction to Functions (Math Library Functions, Function Definitions, Function Prototypes and Argument, Recursive functions, References and Reference Parameters, passing arguments to functions and passing arguments by reference	Exercise	Q/A, Test, Assignment, Presentation	4
1	Introduction to Arrays (Arrays, Declaring Arrays, Examples Using Arrays, Passing Arrays to Functions, arrays of strings), Searching Arrays, Sorting Arrays, Multidimensional Arrays, passing multi-dimensional array directly to function	Exercise	Q/A, Test, Assignment, Presentation	4
1	Pointers (Pointer Variable Declarations and Initialization, NULL Pointer, Passing Arguments to Functions by Reference with Pointers, Pointer Expressions and Pointer Arithmetic, Arrays of Pointers, Function Pointers), Characters and Strings (String Input, String Manipulation, Comparison Functions, Search Functions, and Memory Functions)	Exercise	Q/A, Test, Assignment, Presentation	5

1	Final Project Submission			1
			Total	24

6. A. Assessment Schedule

Assessment 1	Weekly Lab Assessment	Session	Weekly Basis
Assessment 2	Attendance and Class Participation	Session	
Assessment 3	Lab Viva	Session	Week 6, 12
Assessment 4	Mid and Final Lab Final	Session	As per ULAB schedule
Assessment 5	Final Project	Session	Week 11

B. Weights of Assessments

Assessments	%(CSE-104)
Attendance and Class Participation	10
Weekly Lab Assessment	20
Mid Examination	20
Final	30
FINAL Project (Presentation + Interview)	20
Total	100

C. Grading Policy

Policy	Letter Grade	Grade Point
95% and above	A+	4.00
85% to below 94%	A	4.00
80% to below 84%	A-	3.80
75% to below 79%	B+	3.30
70% to below 74%	B	3.00
65% to below 69%	B-	2.80
60% to below 64%	C+	2.50
55% to below 59%	C	2.20
50% to below 54%	D	1.50
below 50%	F	0.00
--	I	0.00
--	W	0.00
--	AW	0.00

7. List of References

Course Notes	Will be provided during class
Essential Books (Text Books)	Schaum's Outline of Programming with C, 2 nd Edition, by Byron S Gottfried
Recommended Reference Books	Teach Yourself C, 3 rd Edition, by Herbert Schildt
Online Resources	http://www.tutorialspoint.com/cprogramming/

Facilities Required for Teaching and Learning

Course Policies and Procedures

Appendix-1: Program Learning Outcome (PLO)

No.	PLO
1.	Engineering Knowledge
2.	Problem Analysis
3.	Design/Development of Solutions
4.	Investigation
5.	Modern Tool Usage
6.	The Engineer and Society
7.	Environment and Sustainability
8.	Ethics
9.	Communication
10.	Individual and Team Work
11.	Life Long Learning
12.	Project Management and Finance

Generic Skills (Detailed):

1. **Engineering Knowledge (T)** -Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems;
2. **Problem Analysis (T)** – Identify, formulate, research relevant literature and analyze complex engineering problems, and reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences;
3. **Design/Development of Solutions (A)** –Design solutions, exhibiting innovativeness, for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, economical, ethical, environmental and sustainability issues.
4. **Investigation (D)** Conduct investigation into complex problems, displaying creativeness, using research-based knowledge, and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions;
5. **Modern Tool Usage (A & D)** -Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations;
6. **The Engineer and Society (ESSE)** -Apply reasoning based on contextual knowledge to assess societal, health, safety, legal, cultural, contemporary issues, and the consequent responsibilities relevant to professional engineering practices.
7. **Environment and Sustainability (ESSE)** -Understand the impact of professional engineering solutions in societal, global, and environmental contexts and demonstrate knowledge of and need for sustainable development;
8. **Ethics (ESSE)** –Apply professional ethics with Islamic values and commit to responsibilities and norms of professional engineering code of practices.
9. **Communication (S)** -Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions;
10. **Individual and Team Work (S)** -Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
11. **Life Long Learning (S)** -Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

12. **Project Management and Finance (S)** -Demonstrate knowledge and understanding of engineering management and financial principles and apply these to one's own work, as a member and/or leader in a team, to manage projects in multidisciplinary settings, and identify opportunities of entrepreneurship.

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Course Coordinator/ Teacher

Date:

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Head of the Department

Date: