

Basic Information

Faculty	TANGILA ISLAM TANNI					
Office Hour	Available by Email Appointment tangila.islam@ulab.edu.bd					
Contact Details	tangila.islam@ulab.edu.bd					
Course Pre-requisites	CSE-101					
Department offering the course	CSE					
Course Title	Structured Programming					
Course Code	CSE-103 (Theory)	Credit	03	Term	Fall 2020	
Number of Lectures	24	Number of Tutorials		Number of Practical	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, the emphases 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. To **understand** the basic building blocks of structured programming.
2. To **analyse** structured program.
3. To **develop** structured program for solving computational problems.
4. To **design** structured program for complex computational applications.

3. Intended learning outcomes of the course (ILOs)

1. Introduces the fundamental concepts of structured programming, basic data structures, Functions and their usage
2. Analyses mathematical, scientific and technical problems and choose appropriate C programming language commands and constructs to convert algorithms to computer codes.
3. Develop Basic Problems solving skills, Tracing code, Dividing a large problems is manageable sub-problems, Comfortable with C IDEs and Debugging

4. Investigate complex computational problem independently for Problem Solving and Analytical Skills.

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
ILO 1	MJ			MN								
ILO 2	MJ	MJ	MJ									
ILO 3	MJ	MJ	MJ	MN	MJ							
ILO 4		MJ	MJ	MJ	MJ	MJ						

□ Please mark with MJ or MN in each box under PLO (MN=Minor, MJ=Major contribution)

5. Contents

Topic No	ILO	Topic	Teaching Strategy	Assessment Strategy	Number of Sessions
1	1	Introduction to Basics of Computer and Programming, C Fundamentals	Lecture Exercise	Q/A	2
2	1	Introduction to C Programming (input, output, variables, data type, operators, and expressions)	Lecture Exercise	Q/A	2
3	1-3	Structured Program Development in C: Basic of Flow Chart, Control Statements 1(if, if...else, switch, top-down and stepwise refinement)	Lecture Exercise	Q/A Assignment	2
4	1-4	Program Control: Control Statements 2 (for, do...while, switch, break and continue), Nested Loop, Loop Control Statement (break, continue, goto)	Lecture Exercise	Q/A Test Assignment	6
5	1-4	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)	Lecture Exercise	Q/A Test Assignment	4
6	1-4	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	Lecture Exercise	Q/A Test Assignment	2
7	1-3	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)	Lecture Exercise	Q/A Test	1
8	1-3	Characters and Strings (String Input, String Manipulation, Comparison Functions, Search Functions, and Memory Functions)	Lecture Exercise	Q/A Test	4

9		Revision	Submission Exercise		1
				Total	24

6. A. Assessment Schedule

Assessment 1	Quiz 1, 2, 3	Session	Week 4, 8, 10
Assessment 2	Assignment 1, 2, 3	Session	Week 6. 8. 10
Assessment 3	Midterm	Session	As per ULAB schedule
Assessment 4	Final	Session	As per ULAB schedule

B. Weights of Assessments

Assessments	%(CSE-103)
Mid-term Examination	25
Final Term Examination	25
Attendance	10
Assignment	10
Quizzes	15
Class Work	15
Viva	NA
Project	NA
Total	100

C. Grading Policy

Policy

95% and above
 85% to below 94%
 80% to below 84%
 75% to below 79%
 70% to below 74%
 65% to below 69%
 60% to below 64%
 55% to below 59%
 50% to below 54%
 below 50%

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Letter Grade

A+
 A
 A-
 B+
 B
 B-
 C+
 C
 D
 F
 I
 W

Grade Point

4.00
 4.00
 3.80
 3.30
 3.00
 2.80
 2.50
 2.20
 1.50
 0.00
 0.00
 0.00

*Grading policy may change depending on the overall performance of the class

7. List of References

Course Notes	Will be made available on Moodle
Essential Books (Text Books)	Teach yourself C, Latest Edition By Herbert Schildt
Recommended Reference Books	Schaum's Outline of Programming with C, 2 nd Edition, by Byron S Gottfried কম্পিউটার প্রোগ্রামিং, তামিম শাহরিয়ার সুবিন https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxkaXB1Y3NIY3ZG1fGd4OjYwOGU0MmUzNDQzNzBjZGY
Periodicals	NA
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):

- Engineering Knowledge (T)** -Apply knowledge of mathematics, sciences, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems;
- 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;
- 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 modelling, 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.

Tangila Islam Tanni



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Course Coordinator/ Teacher

Date: 25-10-2020

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Head of the Department

Date: