

University of Asia Pacific (UAP)
Department of Computer Science and Engineering (CSE)

Course Outline

Program: B.Sc.Engg.

Course Title: Structured Programming

Course Code: CSE 103

Semester: 2nd Semester

Level: 1st Year

Credit Hour: 3.00

Name & Designation of Teacher: Prof. Dr. A.K.M. Ashikur Rahman

Office/Room: Virtual

Class Hours: 3

Consultation Hours: 3

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Rationale: N/A

Pre-requisite (if any): None

Course Synopsis: This course is a basic course to programming languages using C. The objectives of the course are to attain a basic knowledge of programming, an understanding of algorithmic issues and an ability to analyze solutions to real-life interesting mathematical problems. The topics to be covered include introduction and history of C; data types, constants and variables; operators and expressions; type conversion; decision making, branching and looping; arrays and strings; library functions and user defined functions; structures; pointers; and file management.

Course Objectives:

The objectives of this course are to:

1. Provide good programming principles to the design and implementation of C/C++ programs
2. Show the use of industrial-strength software development tools in the programming process
3. Demonstrate algorithmic issues and analyze solutions to real-life interesting problems
4. Apply knowledge of data structures

Course Outcomes (CO) and their mapping with Program outcomes (PO) and Teaching-Learning Assessment methods:

CO No.	CO Statements: Upon successful completion of the course, students should be able to:	Corresponding POs (Appendix-1)	Bloom's taxonomy domain/level (Appendix-2)	Delivery methods and activities	Assessment Tools
CO1	Understand the basic concepts of programming language, the general problems and methods related to syntax & semantics.	1	1	Lecture, multimedia	Quiz, Written exam
CO2	Identify the sequence control and data control.	2	1	Lecture, multimedia	Written exam
CO3	Analyze the subprogram calls and returns.	2	1	Lecture, Problem Solving	Written exam
CO4	Design the concepts of storage management using programming languages.	3	1	Lecture, Group discussion	Assignment
CO5	Conduct different problem solving using the concept of Array and Strings.	5	1	Lecture, multimedia,	Quiz, Written exam

Weighting COs with Assessment methods:

Assessment Type	% weight	CO1	CO2	CO3	CO4	CO5
Final Exam	50%	12	13	5	5	15
Mid Term	20%	5	5	10		
Class performance, Quizzes, Presentation, case study, open book exam, Assignment, Project, reports on field trip/workshop attended Others..	30%	5		5	10	10
Total	100%	22	18	20	15	25

Grading Policy: As per the approved grading policy of UAP (Appendix-3)

Course Content Outline and mapping with COs

Weeks	Topics / Content	Course Outcome	Delivery methods and activities	Reading Materials
1	Overview of computers and programming; history of C; data types, constants and variables; operators and expressions; type conversion;	CO1	Lecture, multimedia	Book- Teach yourself C, Herbert Shildt
2	Decision making: branching and selection structures; if-else and switch statements, conditional operators;	CO2	Lecture, Problem Solving	Book- Teach yourself C, Herbert Shildt, Programming in Ansi C, Balagurusamy
3-4	Repetition and Loop Statements: for loop; while loop; do-while loop; branching and	CO2	Lecture, Case study	Book- Teach yourself C, Herbert Shildt, Lecture Slide

	looping; loop nesting.			
5	Arrays: 1 dimensional, Multidimensional array.	CO5	Case study	Book-Programming in Ansi C, Balagurusamy, Lecture Slide
6	Top-down design with functions; parameter passing conventions, scope rules and storage classes, recursions and library functions.	CO3	Lecture	Book- Teach yourself C, Herbert Shildt, Lecture Slide
7	String manipulation with and without library functions.	CO5	Lecture	Book- Teach yourself C, Herbert Shildt, Lecture Slide
8	Structures, array of structures, structure as function parameter	CO4	Lecture, Problem Solving	Book-Programming in Ansi C, Balagurusamy, Lecture Slide
9	Pointers: Concept, pointer arithmetic, multi-dimensional pointers	CO4	Lecture, multimedia Group discussion	Book- Teach yourself C, Herbert Shildt, Lecture Slide
10	File access. Text vs. binary mode. Different library functions for File I/O	CO4	Lecture	Book- Teach yourself C, Herbert Shildt, Lecture Slide
11	Recursion	CO3	Lecture, multimedia	Book- Teach yourself C, Herbert Shildt, Lecture Slide
12	Dynamic memory allocation, Linked list	CO4	Lecture, Group discussion	Book- Teach yourself C, Herbert Shildt, Lecture Slide
13	Bitwise operators and macros	CO1	Lecture, multimedia	Book- Teach yourself C, Herbert Shildt, Lecture Slide
14	From C to C++, concept of object oriented programming, class,	CO2	Lecture, Group discussion	Lecture Slide

Required Reference(s):

Teach yourself C, Herbert Shildt (3rd Edition) (Mandatory text).

Programming in Ansi C, Balagurusamy (Mandatory text)

Recommended Reference(s):

Turbo C/C++, Herbert Scheldt

Special Instructions:

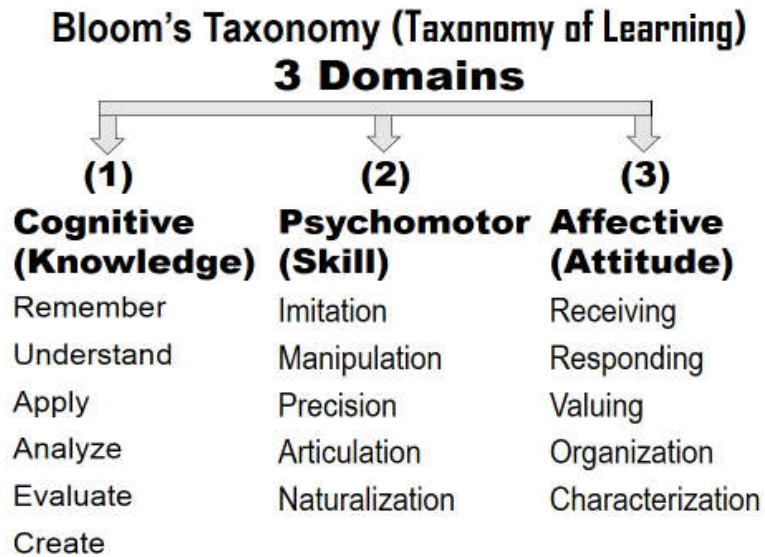
- **Minimum Required Attendance:** 60% of classes
- **Late presence:** Being late by more than 30 minutes will be regarded as absent
- **Assignment submission rules:** Deadlines are strictly followed. No late submission is allowed.
- **Plagiarism policy:** Copying code, assignment, etc will be strictly punished. Will be reported to Chairman and action will be taken according to the university policy.

Prepared by	Checked by	Approved by
Prof. Dr. A.K.M. Ashikur Rahman Course Teacher	Chairman, PSAC committee	Head of the Department

Appendix-1:**Washington Accord Program Outcomes (PO) for engineering programs:**

No.	PO	Differentiating Characteristic
1	Engineering Knowledge	Breadth and depth of education and type of knowledge, both theoretical and practical
2	Problem Analysis	Complexity of analysis
3	Design/ development of solutions	Breadth and uniqueness of engineering problems i.e. the extent to which problems are original and to which solutions have previously been identified or codified
4	Investigation	Breadth and depth of investigation and experimentation
5	Modern Tool Usage	Level of understanding of the appropriateness of the tool
6	The Engineer and Society	Level of knowledge and responsibility
7	Environment and Sustainability	Type of solutions.
8	Ethics	Understanding and level of practice
9	Individual and Team work	Role in and diversity of team
10	Communication	Level of communication according to type of activities performed
11	Project Management and Finance	Level of management required for differing types of activity
12	Lifelong learning	Preparation for and depth of Continuing learning.

Appendix-2



Appendix-3

UAP Grading Policy:

Numeric Grade	Letter Grade	Grade Point
80% and above	A+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A-	3.50
65% to less than 70%	B+	3.25
60% to less than 65%	B	3.00
55% to less than 60%	B-	2.75
50% to less than 55%	C+	2.50
45% to less than 50%	C	2.25
40% to less than 45%	D	2.00
Less than 40%	F	0.00