COURSE OUTLINE

Course Code: SCP1103
Course Name: C Programming Techniques
Total Contact Hours: 42 hours
Course Pre-requisite: None

SYNOPSIS

As a fundamental subject, this course equips the students with theory and practice on problem solving techniques by using the structured approach. Students are required to develop programs using C programming language, in order to solve simple to moderate problems. The course covers the following: preprocessor directives, constants and variables, data types, input and output statements, text files, control structures: sequential, selection and loop. It may also include arrays and basic library functions.

LEARNING OUTCOMES

By the end of the course, students should be able to:

No.	Course Learning Outcome	Programme Learning Outcome(s) Addressed	Assessment Methods
1.	Solve problems systematically using a structured logic approach.	PO1 (C3, , P2, A2)	LE, Q, A, T, F
2.	Construct a C++ program correctly from the analyzed problems using structured approach.	PO2(C3, P2, A2)	LE, Q, A, T, F
3.	Construct or develop complete C++ programs for simple to moderate problems individually.	PO2 (C3, P2, A2)	LE, A, T, F
			(T – Test ; Q – Quiz; A – Assignment; LE – Lab exercise ; F – Final Exam)

STUDENT LEARNING TIME

Teaching and Learning Activities			Student Learning Time (hours)	
Face to face Learning	• Lecturer Centered	Lecture	21	
	• Student Centered	- Practical/Lab/Tutorial	21	
	• Others		0	
Sub Total				42
Self Learning	• Non Face to face or Student Centered Learning (SCL)		34	
	• Revision		18	
	• Assessment Preparation		15	
	• Others		0	
Sub Total				67

Formal Assessment	• Continuous Assessment	8	
	• Final Examination	3	
	• Others	0	
	Sub Total		11
	TOTAL SLT		**120**

TEACHING METHODOLOGY

Lecture and Discussion, Co-operative Learning, Lab Activities

WEEKLY SCHEDULE

Week	Topics	Activities/hours
Week 1	**1.0 Introduction to Computers and Programming** 1.1 Introduction to a Program 1.2 Computer Systems: Hardware and Software 1.3 Programs and Programming Languages 1.4 Procedural and Object-Oriented Programming	Lecture/Lab: 3
Week 2 - 3	**2.0 Problem-solving process** 2.1 Input, Processing, and Output 2.2 The Programming Process 2.3 System Development **3.0 Problem-solving techniques** 3.1 Pseudocode 3.2 Flowchart 3.3 Structured chart	Lecture/Lab: 6
Weeks 4	**4.0 Introduction to C** 4.1 Variables 4.2 Identifiers 4.3 Data types 4.4 Basic arithmetic operators	Lecture/Lab: 3 **Assessment:** **Assignment 1:** **Pseudocode/Flowchart**
Week 5	**5.0 Arithmetic Expression** 5.1 Mathematical Expressions 5.2 Type Conversion 5.3 Overflow and Underflow 5.4 Type Casting 5.5 Named Constants 5.6 Multiple Assignments and Combined Assignment	Lecture/Lab: 3 **Assessment:** **Quiz 1** **Lab Exercise 1**
Week 6	**6.0 Input/Output operations** 6.1 Formatting Output 6.2 Formatted Input 6.3 Focus on debugging: Hand tracing a Program 6.4 Focus problem solving: A case study 6.5 Introduction to File Input and Output	Lecture/Lab: 3

Week 7	**7.0 Control structure: Selection/Branch** 7.1 The if statement 7.2 The if/else statement 7.3 The if/else if statement 7.4 The switch statement 7.5 The break, continue statement	Lecture/Lab: 3 **Assessment:** **Quiz 2** **Assignment 2:** if statement **Mid-Semester Test**
Week 8	**8.0 Control structure: Loop** 8.1 The for loop 8.2 The while-do loop	Lecture/Lab: 3 **Assessment:** **Lab Exercise 2**
Week 9	**8.0 Control structure: Loop (CONT.)** 8.3 The do-while loop 8.4 Nested loop	Lecture/Lab: 3
Week 10- 11	**9.0 Function:** 9.1 Predefined/library function 9.2 User-defined function	Lecture/Lab: 6 **Assessment:** **Lab Exercise 3**
Week 12	**10.0 Array: One dimension** 10.1 Declaration and definition 10.2 Accessing arrays	Lecture/Lab: 3 **Assessment:** **Assignment 3: Array** **Quiz 3**
Week 13-14	**11.0 Array: Two dimension** 11.1 Declaration and definition 11.2 Accessing arrays	Lecture/Lab: 6 **Assessment:** **Lab Exercise 4**
Week 15-16	**STUDY WEEK** **EXAMINATION WEEK**	

REFERENCES : **Courses Notes:**
From text book or any other reliable resources.

Main Text:
1. H.M Deitel, P.J Deitel. *C How to Program,* 6th edition. 2007. Pearson Education.

Other References:
1. Byron, S. Gottfried. Programming with C. 2nd .Edition, 2007, McGraw Hill.
2. Delores M. Etter, *Engineering Problem Solving,* 3rd edition. 2004. Pearson (Prentice-Hall).
3. Jeri R. Hanly, Elliot B. Koffman, *Problem Solving and Program Design in C ,* 5th edition. 2007. Addison-Wesley.
4. Dayang Norhayati Abang Jawawi dan Rosbi Mamat, *Pengenalan Mudah Pengaturcaraan C,*2001.
5. Any C Programming books.

GRADING

No.	Assessment	Number	% each	% total
1	Assignments	3	8.33%	25
2	Quizzes	3	5%	15
3	Lab Exercises	4	2.5%	10
4	Mid-Semester Exam	1	20%	20
5	Final Exam	1	30%	30
	Overall Total			**100**