

CS - 201 (Principle of Computer Science I)

Semester II

Course Description

Course Code Number	CS-201	Course Title	Principle of Computer Science I
Semester Hours	Total 5 hours per week Lecture 2 hours per week Lab 2 hours per week Extra lab 1 hour to practice and submit exercises	No. of Credit Units	3
Prerequisite	None	Course Coordinator	Dr. Thi Thi Soe Nyunt Faculty of Computer Science
Course Length	15 Weeks	Type of Instruction	Lecture + Lab

Course Objective

This course introduces the fundamental concepts of computer programming, which is the foundation of Computer Science. It provides a comprehensive introduction to programming for both computer science and technology student. The objective of this course is to understand structured programming and to increase the depth of students' knowledge about implementation and writing code efficiently, communicate effectively and improve software development practices.

Course Outline

This course is designed to teach students the fundamental programming concepts with examples and applications using the C++ language. These concepts are applicable to programming in any language. Topics covered include basic principles of programming using C++, algorithmic and procedural problem solving, program design and development, programming principles and constructs, such as input and output statements, basic data types, control structures, functions, arrays, pointers, and console & file input/output and the mechanisms of running, testing, and debugging programs.

Learning Outcomes

On completion of the course the student will be able to:

- understand the basic features of C++ programming language
- understand modular programming by designing programs
- develop programs using fundamental concepts of programming
- understand the ability to run, test, and debug programs
- adapt in problem solving activities using programming as the tool
- understand how programming could be applied in the real-world application

Text Book

[1] Object-Oriented Programming in C++ (Fourth Edition) by Robert Lafore

Reference Books

[1] Programming Logic and Design Comprehensive (Sixth Edition) by Joyce Farrell

[2] Data Structures using C++ by Varsah H. Patil

[3] C++ Language Tutorial (e-book)

[4] C Programming for Engineering & Computer Science by H.H. Tan and T.B. D’Orazio

Course Organization

Student participation in this course will involve the following activities:

- Attending the lectures
- Lab
- Test (Moodle)
- Quiz
- Assignments
- Exam

Assessment Plan for the Course

Paper Exam	50 %
Assignment	15 %
Quizzes/ Moodle	15 %
Class Participation	10 %
Lab Test	10 %

Grading System

UCSY follows a letter grade system comprising of grades A, A-, B+, B, B-, C+, C, C-, D and F. All marks obtained by students during the semester will be used in the grading process. A grade of “C” or better is required in this course because it is a prerequisite for other courses in the program. **The student who gets the grade point less than 2 must sit Re-Exam.**

The grading scale for this course is:

Marks obtained	Letter Grade	Grade Point
≥ 90	A	4
85 – 89	A-	3.75

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80 – 84	B+	3.25
75 – 79	B	3
70 – 74	B-	2.75
65 – 69	C+	2.25
60 – 64	C	2
55 – 59	C-	1.75
50 – 54	D	1
0 – 49	F	0

Fail Grade and Re-Exam: C-, D, F (Grade point <2)

Class Attendance and Participation Policy:

- **Attendance :** Class attendance is **mandatory**. Most of the material you will learn will be covered in the lectures, so it is important that you not miss any of them. You are expected to show up on time for class, and stay for the whole lecture. Students are expected to attend each class, to complete any required preparatory work (including assigned reading) and to participate actively in lectures, discussions and exercises.
- Mobile phones **must** be silenced and put away for the entire lecture unless use is specified by the instructor. You may not make or receive calls on your cell phone, or send or receive text messages during lectures.
- You are responsible for all material sent as email. Ignorance of such material is no excuse. You are responsible for all materials presented in the lectures.
- Your conduct in class should be conducive towards a positive learning environment for your class mates as well as yourself.
- **Assignments, Quizzes, Labs and Test with Moodle**

Students take a short 3 to 5 quiz for every lecture and 10 or 20 points quiz / Moodle test after each lecture or chapter. The intent of the quiz/Moodle is to discover early where the areas of misunderstanding may lie. They will account for 20% of the student's grade. The Any assignment or quiz is simply missed, regardless of the reason why (e.g. illness, work, traffic, car trouble, computer problems, death, etc.), and earns a grade of zero. You are strongly encouraged to complete all assignments and attend all quizzes so that you can check that you understand the material and can throw out bad grades, or grades for which you had to miss an assignment or quiz for a valid reason. Late submissions will not be accepted for any graded activity for any reason. Students will have the opportunity to review the quizzes and see the correct answers once they have been graded. Student need to answer test which will announce by lecturer.

- **There are no extra credit opportunities.**

Students may not do additional work nor resubmit any graded activity to raise a final grade.

- **Test**

Test will start after one or two chapters finished and the coordinator will announce the date for the test.

- **Exam**

The exam will be conducted on-campus, in a classroom. The dates/times/locations will be posted on Board as soon as possible.

For this course, the following **additional requirements are specified**:

All work submitted for a grade must have been prepared by the individual student. Students are expressly prohibited from sharing any work that has been or will be submitted for a grade, in progress or completed, for this course in any manner with a person other than the instructor and teaching assistant(s) assigned to this course). Specifically, students may not do the following, including but not limited to:

- Discuss questions, example problems, or example work with another person that leads to a similar solution to work submitted for a grade.
- Give to, show, or receive from another person (intentionally, or accidentally because the work was not protected) a partial, completed, or graded solution.
- Ask another person about the completion or correctness of an assignment.
- Post questions or a partial, completed, or graded solution electronically (e.g. a Web site).
- All work must be newly created by the individual student for this course. Any usage of work developed for another course, or for this course in a prior semester, is strictly prohibited without prior approval from the instructor.
- Posting or sharing course content (e.g. instructor provided lecture notes, assignment directions, assignment questions, or anything not created solely by the student), using any non-electronic or electronic medium (e.g. web site, FTP site, any location where it is accessible to someone other than the individual student, instructor and/or teaching assistant(s)) constitutes copyright infringement and is strictly prohibited without prior approval from the instructor.
- **Programming Style and Documentation**

Each assignment program must start with comments stating your name, the assignment number, and a brief description of the program's purpose. Students are expected to follow the Programming Style recommendations given in class and in the text. For example (but not limited to):

- Indent statement
- Use descriptive identifier naming conventions
- Use single blank lines to separate sections of the program
- Align opening and closing braces
- Include appropriate comments throughout the program.

Note: Student who does not follow good programming practices will result in a deduction from the grade for that assignment.

Tentative Lecture Plan

No.	Topics	Week	Remark
	C++ Programming Basics		Chapter (2)
1.	C++ Basic Program Input and output statements Directives Comments Variables, Constants	Week 1	

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2.	Escape sequence and setw Manipulator Arithmetic Operators Expressions Precedence and associativity Library Function Introduction	Week 2+3	Chapter (2)
	Loops and Decisions		
3.	Relational Operators Logical Operators Selection statements <ul style="list-style-type: none"> - If and if else if statements - Switch statements - Conditional operator The getch() Library function	Week 3 + 4	Chapter (3)
4.	Control Statements <ul style="list-style-type: none"> - for loop - while loop - do.. while loop Nested loop	Week 4 + 5	Chapter (3)
	Arrays and Strings		
5.	Array Fundamentals <ul style="list-style-type: none"> - Defining Arrays - Array Elements - Accessing Array Elements - Initializing Arrays Multidimensional Arrays	Week 6 + 7	Chapter (7)
6.	C-Strings <ul style="list-style-type: none"> - Character array - standard functions 	Week 7 + 8	Chapter (7)
7.	File <ul style="list-style-type: none"> - File declaration - File Opening - Writing data to the file - Reading data from the file - File Closing 	Week 9	Refer to Reference book [4]
	Structures		Chapter (4)
8.	Structures Enumerations	Week 10 +11	
	Functions		Chapter(5)
9.	Simple Functions <ul style="list-style-type: none"> - Passing Arguments to Functions - Returning Values from Functions - Inline Functions and Default Argument 	Week 12+13	

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	- Overloaded Functions Recursion		
	Pointers		Chapter (10)
10.	Pointer <ul style="list-style-type: none">- Addresses and Pointers- Pointers and Arrays- Pointers and Functions- Parameter Passing Memory Management <ul style="list-style-type: none">- new and delete- A Linked List- Queue- Stack	Week 14 + 15	
11.	Revision	Week 15	Lab Test