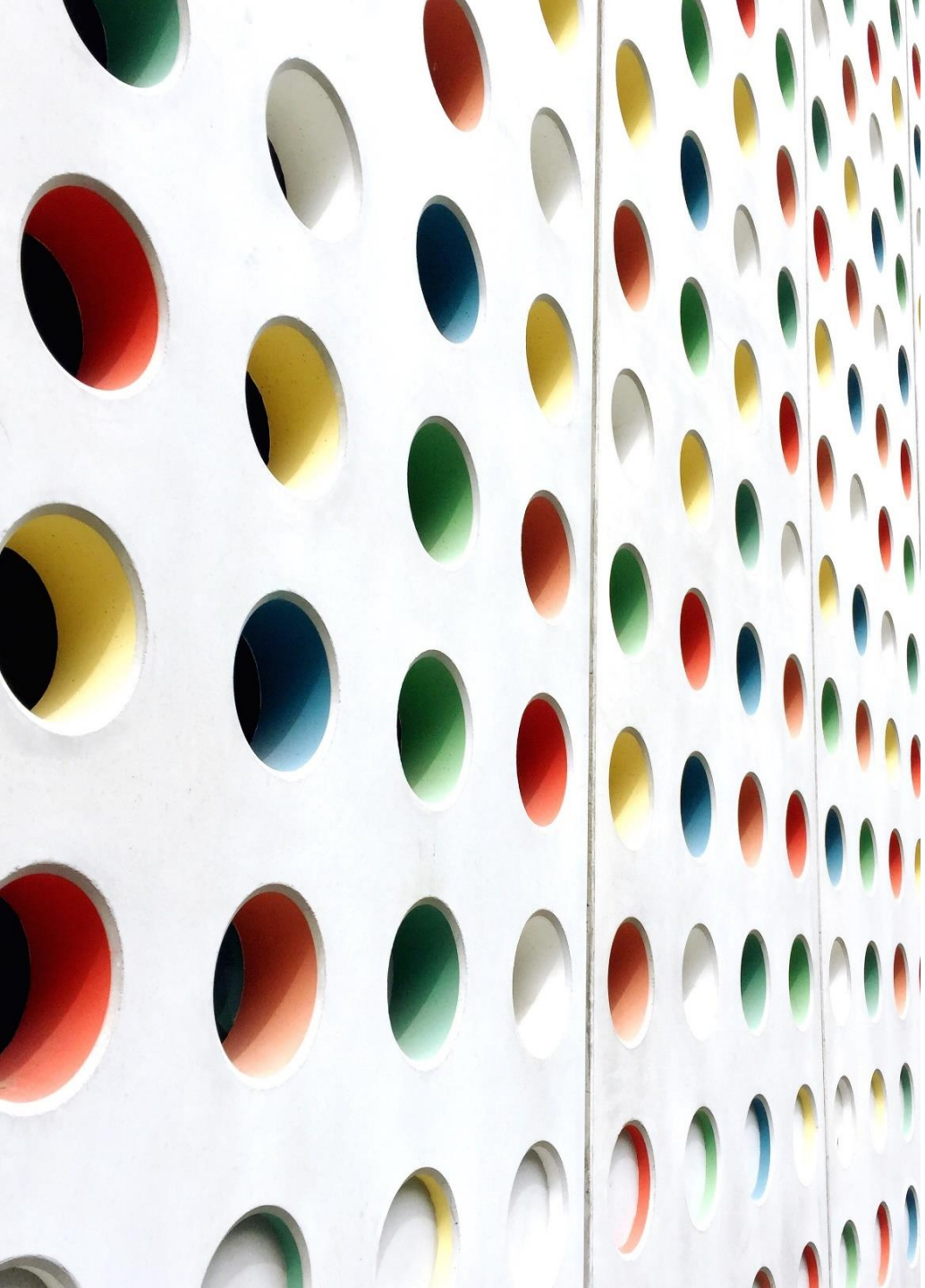

Fundamental of
Programming II

[SoEng2051]

By: Sinodos G.

Objective

- concepts of modular programming (functions) in solving problems.
- concepts of Structures in solving problems.
- how to manage files using C++.
- program development;
- aspects of a computing problem, and to develop appropriate solutions

Course Contents

- **Chapter 1: Overview of Programming**
  - Introduction
  - Basic Programming
  - Array, String and Pointers
    - One-dimensional array
    - Multi-dimensional array
  - Working with string
  - Pointers in C++

Chapter 2: Advanced Functions

- Introduction
- Function Declaration and definition
- Calling function and Scope of Variables
- Function Arguments
- Return Values
- Default Parameters
- Parameters passing
  - Call by value
  - Call by reference
- Function Overloading
- Recursive function
- Inline function

Chapter 3: Structures

- Overview of Structure
- Declaring structure
- Defining structure in structure
- Initializing structure
- Manipulating structure
  - Array of structure
  - Nested structure
- Structure, Reference and Pointer
- Passing structure to function
- Passing value of structure to a function
- Passing address of a structure to a function

Chapter 4: Object Oriented programming in C++

- C++ Class and Objects
- Inheritance in C++
- Polymorphism in C++
- Encapsulation in C++
- Function Overloading in C++
- Operator Overloading in C++
- Constructor and Destructor
- Exception Handling in C++

Chapter 5: Input Output Streams

- The iostream Library
- Predefined Streams
- operator<<
- Overloading << for User-Defined Classes
- Overloading >> for User-Defined Classes
- Manipulators
- Stream States
- Formatted I/O
- Disk Files
- Internal Transmission of Data
- Reading & Writing Objects

References

- *"C++ Primer" by Stanley B. Lippman, Josée Lajoie, and Barbara E.*
  - *covering fundamental concepts and best practices.*
- *"Effective C++" by Scott Meyers*
  - *Focuses on practical programming techniques and best practices for C++ developers.*
- *"The C++ Programming Language" by Bjarne Stroustrup*
  - *Written by the creator of C++, this book provides in-depth coverage of the language.*
- *"Programming: Principles and Practice Using C++" by Bjarne Stroustrup*
  - *Aimed at beginners, this book introduces programming concepts through C++.*
- *"C++ How to Program" by Paul Deitel and Harvey Deitel*
  - *An accessible guide with numerous examples and exercises for hands-on learning.*

Evaluation Methods

- ***Teaching-learning***
  - Lecture
  - Assignments
    - Reading Assignments
    - Self Learning
  - Projects
    - Group Project (G1,G2,G3,G4)

Assessment/Evaluation

- Quiz: 5 %
  - Any Time [TBA]
- Mid-Exam: 30 %
  - After Chapter Two
- Project: 20%
  - Documentation: 15%
  - Presentation: 5%
  - Start After Chapter 1 & Submitted: Before Final Exam
- Final Exam: 45%
  - **Based on the Schedule – Class End**

Total: 100%

Question