Wollo University

Kombolcha Institutes of Technology

College of Informatics

Department of Information System (IS)

Fundamental of Programming II

INSY 2031

Prepared By Daniel G.

ጦጋ ቢ ት 2013 ዓ.ም

Course Title	**Fundamentals of Programming II**	
Module Title	Fundamentals of Programming	
Module code	INSY-M2021	**Course Code: INSY2031**
CP/ECTS	5	
Study Hour	Lec:30%	Lab:70%
Instructor's Information	Name: Daniel Getaye	
	Phone:+251 960733730	
	Email: daniel1543getaye@gmail.com	
	Office Location:Informatics college	
	Consultation Hours:Tue 4:00 - 6:00	
Course Information	Academic Year: II	
	Semester: I	
	Class Room:1706	
	Prerequisite(s): Fundamental of Programming I	
	Mode of Delivery: Parallel	
Course Description	The course is designed to introduce problem solving techniques by dividing large programs in to sub modules through the concept of function in C++. Such	

	programming technique simplifies programming tasks by re-use of modules in different programs or in the same program, facilitates understanding, debugging and maintaining the program. The course also introduces Advanced data structures such as pointers enable dynamic allocation and de-allocation of memory, 64 structures help to store and access records in an easy way, File Operations (File Input/output). Laboratory exercises are dedicated to practice the all basics on writing simple C++ programs and will reinforce basic programming concepts, logic flows and structured programming design using C++ function concepts, structure and pointer data types and file management.
Learning Outcomes	At the end of the course students will be able to ➢ understand the basic concept and need of function ➢ understand the principles of data storage and manipulation ➢ Write a program that uses each of the following fundamental programming constructs: Structures, Arrays, pointers ➢ Identify elements of OOP Elements.

Course Content

	Topic	Duration(Week)
1	**Chapter 1: Functions in C++** 1.1. Basic concept and need of function 1.2. Declaring and defining a function 1.3. Function components (parameters and arguments)	W1

	1.4. Calling /invoking function by value and reference parameters 1.5.functions Recursion	
2	**Chapter 2: Arrays and structure** 2.1. Homogeneous and heterogeneous data types 2.2. Difference b/n Arrays and Structure data types 2.3. Declaring, accessing and processing arrays 2.4. String manipulation using arrays 2.5. Multidimensional arrays 2.6. User defined data types (UDT)	W2
3	**Chapter 3: Pointers** 3.1. Basic concept of pointers 3.2. Pointer variables and declaration 3.3. Pointer expression, operation and arithmetic 3.4. Strings and pointers 3.5. Relationship between pointers and arrays 3.6. Revisiting function calling by reference (using pointers)	W3
4	**Chapter 4: File Operations (File Input/output)** 4.1. Introduction 4.2. Stream classes 4.3. Writing and reading modes 4.4. Writing to and reading from files 4.5. Types of files (Text and Binary)	W4

	4.6. File access methods (sequential and random access files)	
5	**Chapter 5: graphics** 5.1 The Graphics Screen. 5.2 Color Options. 5.3 Graphics Mode. 5.4 Drawing Lines 5.5 Line Style 5.6 Clearing the Screen. 5.7 Plotting Points.	W5

Teaching Strategy	The course will be delivered in the form of lectures, Lab practice and individual and group project works	
Assessment Criteria	The evaluation shall be based on both formative and summative assessment which include:	
	Assessment Forms	% of credit allotted
	Lecture (100%)	
	✓ Quizzes and Assignments	10-15%
	✓ Test	15-20%
	✓ Lab Exam	10%
	✓ Project	20%
	Final examination	40%

		Total 100%
Role of Instructor(s)	Delivers lectures, conduct lab session, prepares reading assignments and topics for group discussion, prepares projects by discussion with student, gives 66 consultation and advises students on project works and assignments, prepares and evaluates quiz, assignment, midterm and final examination.	
Role of Students	Attend lectures, lab session and presentation, work in team on group work, participate in group discussion, discusses with the instructor on topics of interest for project work, delivers and presents project work, attend quiz, midterm and final examination.	
Required software and/or hardware	Desktop computer, Dev C++ compiler or other C++ compilers	

Reference	***Web Resource*** ✓ ***https://eopcw.com/*** ✓ ***https://www.learncpp.com/*** ✓ ***https://beginnersbook.com/2017/08/c-plus-plus-tutorial-for-beginners/*** ✓ ***https://www.w3schools.com/cpp/*** ***Text Book*** ✓ Walter Savitch, Problem Solving with C++(6th ed), USA, Addison Wesley,2006 ✓ Dromey, R.G., How to solve it by computer, UK, Prentice Hall Inc. ,1982 ***References*** ✓ GaddisTony, Starting out with C++, USA , Scott/Jones Inc. Publishers, 2001 ✓ Schildt Herbert, C++ - The Complete Reference(4th ed), USA, McGraw Hill Inc. 2001

Prepared By

Name : Daniel Getaye

Signature: 

Date: 01/03/2013

Department Head

Name:Kedir Abdu

Signature:_____

Date: 01/03/2013