Kurdistan Region Government
Ministry of Higher Education
and Scientific Research
Erbil Polytechnic University

زانکۆی پۆلیتەکنیکی هەولێر
ERBIL POLYTECHNIC UNIVERSITY

Module (Fundamental of Programming I) Catalogue

2022-2023

College/ Institute	Erbil Technology Institute
Department	Information & Communication Technology Engineering (ICTE)
Module Name	Fundamental of Programming I
Module Code	FOP204
Degree	Technical Diploma ✱ Bachelor ☐ High Diploma ☐ Master ☐ PhD ☐
Semester	Two
Qualification	Master degree in computer science
Scientific Title	Assistant Lecturer
ECTS (Credits)	5
Module type	Prerequisite ☐ Core ✱ Assist. ☐
Weekly hours	5	
Weekly hours (Theory)	(2) hr Class	(91)Total hrs Workload
Weekly hours (Practical)	(2) hr Class	(71)Total hrs Workload
Number of Weeks	12
Lecturer (Theory)	Chiman haidar salh
E-Mail & Mobile NO.	Chiman.salh@epu.edu.iq
Lecturer (Practical)	Naila faiq othman
E-Mail & Mobile NO.	Naila.faiq.othman@gmail.com
Websites	

Course Book

Course Description	This course could be considered as main course where basic concepts will be explained. These concepts are frequently repeated in the other programs. From the nineties to the present day, the world has witnessed rapid development and prosperity in the field of science especially in the field of information technology. As a result of this rapid development, people must provide the means and mechanisms to control and organize this information. Electronic device are designed and operated by one of operating system which developing by one of the programming language such as: C, C++, C#, Visual Basic and so on. Therefore any operating system or any application programs' that you want to create it in the purpose of executing any specific job must be made by one of those programming languages which classified as a high level language. C++ is an important programming language to create application program, therefore you need to know or learning the basic concepts in the C++ language to create this kind of programs. Then you have to have a good background in C++ because this will be your fundamental step and help you to learn easily the Object Oriented Programming in second stage. Finally, the programming considered as a backbone for computer science or information technology
Course objectives	This course gives students an opportunity to know the basic concepts in programming specially the fundamentals steps and how to writing a program in C++ language, So in this course the student will learn how to build flow chart for any program and how to convert it to program and vice versa, also will get a good information about variables and constants and how to deal with them and also will learn how to apply the operator and mathematical operations' in C++ languages. Additionally, this course is the base part in understanding other programming languages.
Student's obligation	The Students should be attendant in class at less 1:30 hours during lecturing and to pass this course should be fulfilled the following requirements: 1. The absence should be less than 9%. 2. The student has to submit almost the assignments, essays and reports and also. 3. The student must be passing the exams and quizzes which have been done during study year. Activations & good behavior is important in class for student and also present seminar if required.

		Task	Weight (Marks)	Due Week	Relevant Learning Outcome

Required Learning Materials	The ways that we are using in our teaching for this course are: 1. Data show. 2. White Board. 3. Word Documents. 4. Notebook. 5. Group activity. 6. Computer Lab.				

		Task	Weight (Marks)	Due Week	Relevant Learning Outcome
Evaluation		Paper Review	0		0
	Assignments	5	5%		14%
		2	2%		2%
		0	0%		8%
		10	10%		8%
		0	0		0
		0	8%		0%
	Quiz		8		8%
	Lab.		10		10%
	Midterm Exam		25		25%
	Final Exam		40		40%
	Total		100		100%
Specific learning outcome:	Fundamental Programming course is gives students an opportunity to know how to programming specially the fundamentals steps and how to writing a program in C++ language, Additionally, this course is the base part in understanding other programming languages. The main goal in this course is to improve student programming skills'. In the first stage the student took basic information about how to programming, and how to write statements code in the C++ language and then running the program. In the second stage the student will improve his/her skill in programming and how to doing sample project. Therefore, So in this course the student will learn how to build flow chart for any program and how to convert it to program and vice versa, also will get a good information about variables and constants and how to deal with them and also will learn how to programming in procedural model and apply the operator and mathematical operations' in C++ languages. Therefore, by taking this course will help the student in contacting with the reality life and individually will help the student easily finding a job especially in the programming field. Nowadays, IT has a very important role in the all fields of life because of the facility and speed which are provided by IT. So, the programming is very				

	important in the IT world and can be considered as a backbone of IT. That's why interest in programming is very important and directed relation with the companies and the other job marketing needs. By this course the student can be easily improve his/her programming by doing big projects and continuing practices on the programming and individually fulfilling the governmental and un governmental jobs and this course will provides fundamental entries to other associated programming.
Course References:	1. A GETWAY TO THE C++ LANGUAGE. ARAM M. KHAYAT, 2008. 2. Object Oriented Programming with C++, E. BALAGURUSAMY 3. Object Oriented Programming in C++, Robert Lafore. 4. Fundamental of C++ Programming and Numerical Analysis, Twana Kamal Hagi, 2008. 5. https://www3.ntu.edu.sg/home/ehchua/programming/cpp/cp3_OOP.html 6. http://www.cplusplus.com/doc/tutorial. 7. http://www.studytonight.com/cpp/cpp-and-oops-concepts.php 8. www.cprogramming.com/tutorial.html.

Course topics (Theory)	**Week**	**Learning Outcome**
Detail of the topics, Computer languages' and its types (Low and High level languages).	1	Machine, Assembly and types of High-level languages
Detail of the topics, Computer languages' and its types (Low and High level languages).	2	Machine, Assembly and types of High-level languages
Program structure (writing Simplest C++ program with rules and explaining the lines one by one) and Comments.	3	Simplest C++ program
Operators, Simple assignment operators, Arithmetic operators with priority, Logical operators, Boolean in C++	4	operators ,Arithmetic, Logical operators, Boolean in C++
Basic input_ output (using (cin and cout) commands	5	cin, cout
Conditional Statements (iF Statement, iF-else Statement and Nested iF Conditions)	5	iF-else
Conditional Statements (iF Statement, iF-else Statement and Nested iF Conditions)	6	Nested if

		Switch case statement
Conditional Statement (Switch case statement), break and continue command and the different between them.	7	Switch case statement
Loops (while, do-while) and then explaining the different between them.	8	while, do-while
Loop (For), Nested loop and using break and continue command in loops	9	Loop (For)
Loop (For), Nested loop and using break and continue command in loops	11	Switch case statement
Scope of Variables.	12	Variables
Practical Topics	**Week**	**Learning Outcome**
Detail of the topics, Computer languages' and its types (Low and High level languages).	1	Machine, Assembly and types of High-level languages
Detail of the topics, Computer languages' and its types (Low and High level languages).	2	Machine, Assembly and types of High-level languages
Program structure (writing Simplest C++ program with rules and explaining the lines one by one) and Comments.	3	Simplest C++ program
Operators, Simple assignment operators, Arithmetic operators with priority, Logical operators, Boolean in C++	4	operators ,Arithmetic, Logical operators, Boolean in C++
Basic input_ output (using (cin and cout) commands	5	cin, cout
Conditional Statements (iF Statement, iF-else Statement and Nested iF Conditions)	5	iF-else
Conditional Statements (iF Statement, iF-else Statement and Nested iF Conditions)	6	Nested if
Conditional Statement (Switch case statement), break and continue command and the different between them.	7	Switch case statement
Loops (while, do-while) and then explaining the different between them.	8	while, do-while
Loop (For), Nested loop and using break and continue command in loops	9	Loop (For)

Loop (For), Nested loop and using break and continue command in loops	11	Switch case statement
Scope of Variables.	12	Variables

Questions Example Design

1. For loop
2. If condition
3. while
4. Function
Answers:
1.
For(initialization; start point;
{
Statements;
}
2.
If (condtion)
{
Statements;
}
Else
{
Statements;
}
3.
While(expression)
{
Statements;
}
4.
return-value-type function-name(parameter-list)
{
declarations and statements;}

Q2/ What is the conclusion for the following program?
#include <iostream>
#include <string> using
namespace std; struct
Books
{

```cpp
char title[50]; char
author[50]; char
subject[100]; int
book_id;
};
int main( )
struct Books Book1; // Declare Book1 of type Book struct
Books Book2; // Declare Book2 of type Book
// book 1 specification
strcpy( Book1.title, "Learn C++ Programming");
strcpy( Book1.author, "Chand Miyan");
strcpy( Book1.subject, "C++ Programming");
Book1.book_id = 6495407;
// book 2 specification
strcpy( Book2.title, "Telecom Billing");
strcpy( Book2.author, "Yakit Singha");
strcpy( Book2.subject, "Telecom");
Book2.book_id = 6495700;
// Print Book1 info

cout << "Book 1 title : " << Book1.title <<endl;
cout << "Book 1 author : " << Book1.author <<endl; cout
<< "Book 1 subject : " << Book1.subject <<endl; cout <<
"Book 1 id : " << Book1.book_id <<endl;
// Print Book2 info
cout << "Book 2 title : " << Book2.title <<endl;
cout << "Book 2 author : " << Book2.author <<endl; cout
<< "Book 2 subject : " << Book2.subject <<endl; cout <<
"Book 2 id : " << Book2.book_id <<endl;
system("pause");
return 0; }
```

Q3: Write the statuses that don't be allowed from naming of variables.
Answer:-
1. Variable should not begin with anything except letter and underscore.
2. Variable should not be contains any blanks, commas, or special symbols, such as (( ), @ $ &).
3. Variable should not be a keyword, such as (Auto, default, goto...etc).
4. Variable should not be more than 31 characters.

Q4: Correct the following program code:

```
#include<streamio>
Using namespce std;
{
Cout>>My First program>>endl
}
```
Answer:-
```
#include<iostream.h>
void main()
{
cout<<"My First program"<<endl;
}
```

Q5: Write a program to the following flowchart:-
Start
Input L,
W
A= L*W
Print A
Answer:-
```
#include<iostream.h>
void main()
{
double L,W, A;
cout<<"Pleas enter L = ";
cin>>L;
cout<<"Please enter W = "; cin>>W;
A=L*W;
cout<<"Area = "<<A<<endl; }
```

Extra notes:
Dear Student...
As we know there is some factors or reasons (the postponement of the study, Holidays, National holidays, Eids, etc.) are causing the inability to study (30) lectures in the annual study (30 weeks). Therefore, to improve the scientific level and maintain the standardization for diploma programs in the field of IT we will try to finishing 80% from the prescribed curriculum in (20) weeks rather than 30 weeks. This mean we will try to take or study more subjects than what is prescribed to study every week.

External Evaluator

I have been reviewed this course book, its perfect and feet for this subject in the level of institute student, so I have no suggestion.

Zanyar Shwan Ahmed

Assistant Lecture(Erbil Technology Institute) Information technology department