COURSE DESCRIPTION FORM

Course Description

This course description provides a summary of the most important characteristics of the course and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the learning opportunities available. It must be linked to the program description.

1 .Educational institution	**University of Basrah**
2. Scientific department/center	**Computer Science**
3. Course name/code	**Structured Programming**
4. Available forms of attendance	**Actual presence**
5. Semester/year	**Annual**
6. Number of study hours (total)	**60Hours**
7.The date this description was prepared	**12-12-2022**

8. Course objectives

1-Study the principles of algorithms, flowcharts, and how to solve the problem.
2 -Learn programming concepts including program structure, data types, arithmetic expression, logical expression, statement, and functions.
3- Learn the principles and concepts of functions, one-dimensional and multi-dimensional arrays, time complexity algorithm (best, average, worst), array search algorithm (sequential algorithm and bubble sort algorithm), arrays and pointers, and structure.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Learn how to write an algorithm to solve a specific problem

A2- Learn how to formulate a flow chart

A3- Learn the basic concepts of the C++ programming language

A4- Learn how to use conditional instructions and repetition instructions

A5- Teaching how to build a program consisting of functions and methods and how to call functions

A6- Learn how to deal with arrays, indicators, symbolic strings, and graphical structures

B - The skills objectives of the course

B1 - Familiarity with how to transform the solution to the problem from the algorithmic language to the C++ programming language

B2 - Familiarity with designing, writing and developing programs to solve complex problems

B3 - Enable the student to solve problems related to arrays, pointers, and symbolic threads

B4- Enabling the student to work within a group to solve problems related to functions and methods

Teaching and learning methods

1- Providing the student with basic and secondary topics related to algorithms and flow charts

2- Finding solutions to mathematical, numerical and applied problems and converting them into computer programs

3- Requiring the student to study computer programs related to theoretical vocabulary

Evaluation methods

1- Homework

2- Daily surprise exams

3- Monthly exams

4- Mid-year and final exams

C- Emotional and value goals

C1- The student listens to the professor's explanation

C2- Submit homework on time and participate in the class

C3- The student encourages his classmates to remain calm in class

C4- The student should develop his relationships with his colleagues to achieve the best, so that he always behaves honestly and ethically in all his dealings

Teaching and learning methods

1-Giving the student an opportunity to explain a small part of the class to his classmates to enhance his self-confidence

2- Make a simple portion of the homework to encourage students to complete the solution

3- Giving class assignments and working in groups to solve these assignments

Evaluation methods
1- Supporting viewpoints in solving programming problems 2- Assistance in preparing programming projects 3-Participate in scientific discussions to solve programming assignments

D - Transferable general and qualifying skills (other skills related to employability and personal development.(D1- Self-education skill and originality D2- Time and data management skill D3- The skill of managing and motivating individuals D4- The skill of working within a group

10. Course structure

Evaluation method	Teaching method	Name of the unit/topic	Required learning outcomes	Hours	Week
Exams	Lectures	Algorithms and Flowcharts	Learn algorithms and flowcharts	2	2-10-2022
Exams	Lectures	Algorithms and Flowcharts	Learn algorithms and flowcharts	2	9-10-2022
Exams	Lectures	The Basics in C++ programming & Program style	Learn the basics of programming in C++	2	16-10-2022
Exams	Lectures	Data type and Input & Output Statements	Learn data types and statements for input and output	2	23-10-2022
Exams	Lectures	Assignment statements and Expressions: Arithmetic & Boolean Logical operator.	Teaching the statement of assignment and arithmetic and logical expression	2	30-10-2022
Exams	Lectures	Assignment statements and Expressions: Arithmetic & Boolean Logical operator.	Teaching the statement of assignment and arithmetic and logical expression	2	6-11-2022
Exams	Lectures	Control structures (Selection). IF Statement	Learn control statements	2	13-11-2022
Exams	Lectures	Control structures (Selection). IF –else, and nested -if Statement	Teaching the normal and nested control statement	2	20-11-2022
Exams	Lectures	Control structures (Selection). IF –else, and nested -if Statement	Learn the normal and nested control statement	2	27-11-2022
Exams	Lectures	Control structures (Selection). Switch case Statement	Learn the control statement with selection	2	4-12-2022
Exams	Lectures	Designing a loop (for, while, do while).	Learn loop statements	2	11-12-2022
Exams	Lectures	Designing a loop (for, while, do while).	Learn loop statements	2	18-12-2022
Exams	Lectures	Designing a loop (for, while, do while).	Learn loop statements	2	25-12-2022
Exams	Lectures	Predefined functions (function, Procedure, User defined function, Scopes of variables)	تعلم الدوال وانهجة المعالجة	2	1-1-2023
Exams	Lectures	Predefined functions (function, Procedure, User defined function, Scopes of variables)	Learn functions and procedure approaches	2	8-1-2023
Exams	Lectures	Function (Passing arrays to functions, Calling functions)	Learn to send parameters via functions	2	19-2-2023
Exams	Lectures	Function (Passing arrays to functions, Calling functions)	Learn to send parameters via functions	2	26-2-2023

Exams	Lectures	One Dimensional Arrays	Learn to program one-dimensional arrays	2	5-3-2023
Exams	Lectures	Applications in arrays: search and sort	Learn to program search and sort operations within arrays	2	12-3-2023
Exams	Lectures	Applications in arrays: search and sort	Learn to program search and sort operations within arrays	2	19-3-2023
Exams	Lectures	Introduction to 2-Dimensional arrays	Learn to program two-dimensional arrays	2	26-3-2023
Exams	Lectures	Applications of 2-Dimensional arrays	Learn to program two-dimensional arrays	2	2-4-2023
Exams	Lectures	Applications of 2-Dimensional arrays	Learn to program two-dimensional arrays	2	9-4-2023
Exams	Lectures	Pointers : declaration and operations	Learn to declare and program pointers	2	16-4-2023
Exams	Lectures	1-D Arrays and Pointers.	Learn 1D arrays with pointers	2	23-4-2023
Exams	Lectures	2D-Arrayes and pointers	Learn 2D arrays with pointers	2	30-4-2023
Exams	Lectures	Structure: Declaring and Defining a structure variable.	Learn to define structures	2	7-5-2023
Exams	Lectures	Applications of structures	Learn to program structure applications	2	14-5-2023
Exams	Lectures	Array and Structure	Learn matrices with structures	2	21-5-2023
Exams	Lectures	Array and Structure	Learn matrices with structures	2	28-5-2023

11. Infrastructure

1- Required prescribed books	Text Book: Structured Programming with C++, Kjell Backman, BookBoon, 2012
2- Main references (sources)	References: A Tour of C++, BJARNE STROUSTRUP, by Pearson Education, Inc., 2014
3- Recommended books and references (scientific journals, reports, etc.)	References: A Tour of C++, BJARNE STROUSTRUP, by Pearson Education, Inc., 2014
4- Electronic references, Internet sites,.....	https://www.w3schools.com/cpp/

12. Course development plan

Access to the structured programming curriculum in the rest of the Iraqi and foreign government universities