Republic of Iraq

Ministry of Higher Education and Scientific Research Supervision and Scientific Evaluation Apparatus

College: Shatt Al-Arab University College

Department: Civil Engineering

Stage: 2ⁿᵈ stage

Lecturer name: Dr. Wisam Abdulla Najim

Academic title: Lecturer

Course Weekly Outline

Name	Dr. Wisam Abdulla Najim AlHalfi
E-mail address	Engwisam7@gmail.com
Course name	Computer programming (CE217)
Course objective	**Knowledge and Understanding** 1. Familiarity with the Fortran programming language. 2. Learn how to write a program in Fortran. 3. Implement many engineering programs using the Fortran programming language. 4. Use the physical problem using Fortran 5. Identify variables and constants in the programming language. 6. Identify loops, arrays and subroutines.
Course description	1. Write an engineering program in Fortran. 2. Convert any problem into a program written in Fortran. 3. Reserve places for engineering data in the program memory and use them. 4. Link information to engineering reality. This unit covers a wide range of topics in Fortran 90 to provide the basic knowledge and foundations applied to various civil engineering problems. It is a simple language for high-performance computing and is used for programs that benchmark and classify the world's fastest supercomputers. This unit provides an introductory study of the program, inputs, outputs, constants, variables, arithmetic operations, IF and DO statements, Format and GOTO statements, arrays and examples of all these topics and their relevance to civil engineering. It is a general-purpose imperative programming, particularly suitable for numerical and scientific computing.
References	1. المرجع الأساسي في برمجة و تطبيقات فورتران 90 للـ(د. عوض منصور و د. محمود اباظة). 2. FORTRAN FOR SCIENTISTS & ENGINEERS 4th Edition, by Stephen Chapman. 3. فورتران 77 مدخل الى برمجة الحاسبات للـــــ(د. محمد زكي محمد و د. نبيل جليل)
External sources	1. Computing for Scientists: Principles of Programming with Fortran 90 and C++ R. J. Barlow, A. R. Barnett. 2. Fortran 90 for scientists and engineering for Brian D. Hahn.

Course assessment	**Quizzes and assessment**	**Lab.**	**Classwork and absences**	**report**	**Mid-term exam**	**Final exam**
	10	**10**	**10**	**10**	**10**	**50**

General notes	

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Course Weekly Outline

Week No.	Theoretical	Experimental	Aims
1	Introduction to Fortran Programming (Initialization Section, Program Structure)	Introduction to Fortran Programming.	This unit covers a wide range of topics in Fortran 90 to provide the basic knowledge and foundations applied to various civil engineering problems. It is a simple language for high-performance computing and is used for programs that benchmark and classify the world's fastest supercomputers. This unit provides an introductory study of the program, inputs, outputs, constants, variables, arithmetic operations, IF statements, DO, Format, GOTO, arrays and examples of all these topics and their relevance to civil engineering. It is a general-purpose imperative programming, particularly suitable for numerical and scientific computing.
2	Variables and Constants (How to Write Variables and Constants)	Variables and Constants	
3	Inputs and Outputs (How to Get Started Writing Inputs and Outputs)	Inputs and Outputs.	
4	GOTO and FORMAT (sentence and its types)	GOTO and FORMAT.	
5	Control Statements (Understanding Control Statements)	Control Statements.	
6	DO Loop Statements (Using Loop Rules)	DO Loop Statements.	
7	IF Statements and Their Types (Arithmetic and Logical IF Statements)	IF Statements and Their Types.	
8	Relationship rules and examples (some relationships between DO and IF)	Relationship Rules and Examples.	
9	Multiple Selection Examples (Set of Examples)	Multiple Selection	
10	A collection of general notes and summaries of previous chapters.	Examples of previous topics.	
11	Introduction and properties of arrays.	Introduction and properties of arrays	
12	DIMENSION SENTENCE RULES	DIMENSION SENTENCE	
13	Use more than one method to read and print Read and print arrays.	arrays	
14	Where statement specifies the domain of the array.	Where statement	
15	External and internal functions Sub-programs.	Sub-programs	