Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Authority
Department of Quality Assurance and Academic Accreditation

Academic Program Description Form for Colleges and Institutes Academic Year

University: Shatt Al-Arab
College/Institute: Engineering
Scientific Department: Civil
Date of Form Completion: 01/09/2024

Signature
Name of Head of Department:

Asst. Lecturer Nabeel Najm Abdullah

Signature

Name of Scientific Assistant: Dr. Jawad Kadhim

Reviewed by:
Quality Assurance and University Performance Division
Name of Division Director: Dr. Jasem Mohsen Yasser

Signature:

الدكتور
جاسم محسن ياسر
Dr.Jasim Al-Battat

جامعة شط العرب
كلية الهندسة
العمادة
SHATT AL-ARAB UNIVERSITY

أ.م.د. احسان قاسم محمد
عميد كلية الهندسة

Dean's Approval

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Computer programming**			**Module Delivery**	
Module Type	**Supportive**			☐ **Theory** ✓ **Lecture** ✓ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CE217**				
ECTS Credits	**2**				
SWL (hr/sem)	**30**				
Module Level	3		**Semester of Delivery**	1,2	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Jasim Mohsin		**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**	PH.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2024		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	Fortran is a general-purpose programming language mainly used by the scientific community. It is fast, and portable and it has seamless handling of arrays and parallelism. It is one of the earliest high level programming languages, and many recognize the original versions which used punched cards to encode the programs. Its name is a contraction of FORmula TRANslation (old versions of the language are typically stylized as FORTRAN) and its creation marked the representation of mathematical expressions with more ease than lower-level assembly language. It is still widely used today in numerical weather prediction, physical and chemical modelling, applied mathematics, and other high-performance computing purposes. Fortran has a rich array of mathematical libraries and scientific codebases available. The newer standards continuously add modern functionality and are fully backward compatible.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A- Knowledge and Understanding 1- Familiarity with the programming language FORTRAN. 2- Learn how to write the program in the FORTRAN language. 3- Applying several engineering programs using the FORTRAN programming language. 4- Use physical problem using FORTRAN 5- Identify the variables and constants in the programming language. 6- Identify loops, arrays, and subprograms. B. Subject-specific skills 1- Writing an engineering program in Fortran. 2- Convert any problem to a program written in Fortran. 3- Reserving locations for engineering data in the program's memory and using them. 4- Linking information to engineering reality.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	• Weekly homework and sudden daily and weekly tests. Giving homework and activities in the classroom. As well as guiding students to important scientific sources and taking some exercises to train on them. The practical side also contributes to applied knowledge.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ 15 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	58	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	42	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)		
	Assignments	2	10% (10)		
	Projects / Lab.	1	10% (10)		
	Report	1	10% (10)		
Summative assessment	**Midterm Exam**	2 hr	10% (10)		
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to the Fortran language Program(initialization section, program structure)
Week 2	Variables and constants (how to write variables and constants)
Week 3	Inputs and outputs (how to start writing inputs and outputs)
Week 4	GOTO and FORMAT (statement and its types)
Week 5	Control statement (recognize control statement)
Week 6	DO loop statements (use Loop rules)
Week 7	IF statements and their types (Arithmetic and Boolean IF statements)
Week 8	Relationship rules and examples (some relationships between DO and IF)
Week 9	Multiple selected examples (A collection of examples)
Week 10	A collection of notes, general summaries of the previous chapters
Week 11	Introduction and properties of ARRAYs
Week 12	DIMENSION statement rules
Week 13	Using more than one method for reading and printing Reading and printing Arrays
Week 14	Where statement selects the domain of the matrix
Week 15	External and internal functions Sub Routines
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Learn how to operate a computer with FORTRAN software
Week 2	Application on Variables and constants in FORTRAN language

Week 3	Start writing inputs and outputs in FORTRAN language with application
Week 4	Use GOTO and FORMAT statements with examples in Lab.
Week 5	Application of Control statements
Week 6	Learn to use DO loop statements and its rules in computer
Week 7	Apply IF statements and their types in PC.
Week 8	Use some relationships between DO and IF statements in the Lab.
Week 9	A collection of examples for civil engineering application part1
Week 10	A collection of examples for civil engineering application part2
Week 11	Use ARRAYs in the Lab. For Fortran language
Week 12	Apply DIMENSION statement rules
Week 13	Applications for students
Week 14	Use Where statement and apply it
Week 15	Learn how to use External and internal functions Sub Routines and application

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	FORTRAN FOR SCIENTISTS & ENGINEERS 4th Edition, by Stephen Chapman	--
Recommended Texts	Computing for Scientists: Principles of Programming with Fortran 90 and C++ R. J. Barlow, A. R. Barnett	--
Websites	https://fortran-lang.org/en/learn/	

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group	**A -** Excellent	امتياز	90 - 100	Outstanding Performance

(50 - 100)	**B -** Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.