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: 01/09/2025

Signature	**Signature**
Name of Head of Department:	**Name of Scientific Assistant**
Lecturer Nabeel Najm Abdullah	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	**Hydraulic Structures**			**Module Delivery**	
Module Type	**Core**			☐ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	**CE414**				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	4		**Semester of Delivery**	2	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader			**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**		
Module Tutor			**e-mail**		
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	1\9\2025		**Version Number**	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية	
Module Aims أهداف المادة الدراسية	1- To study and design the different types of hydraulic structures. 2- Understand the causes of failure of the hydraulic structures and its solutions. 3-To choose a suitable hydraulic structures in the project.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Discuss the types of hydraulic structures according to its purposes. 2- Discuss the causes of failure of hydraulic structures. 3- Explain the different methods of floor design of the hydraulic structures. 4- Define and explain of the energy dissipation structures. 5- Define and design of stilling basins. 6- Explain and design of different types of culvert. 7- Discuss and design of pipe aqueduct and flume. 8- Define and design of siphon. 9- Study and design a steel vertical gates.
Indicative Contents المحتويات الارشادية	Indicative content includes the following: 1- Types the hydraulic structures , causes of failure and design of floor . (16 hrs) 2- Design of regulator and stilling basin with hydraulic jump . (12 hrs) 3- Design of crossing hydraulic structures .(16 hrs) 4- Study the sliding gates and its design. (6 hrs) 5- Revision problem classes. (6hrs)

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The students participation in the exercises and solved a problem in the class to expand the thinking skills .

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ 15 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	142	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	10
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	108	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	250		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3 , 7	All
	Assignments	2	10% (10)	2,4,6,8,10,12	All
	Class activity	1	10% (10)		
	Report	1	10% (10)		
Summative assessment	Midterm Exam	1 hr	10% (10)	10	1-5
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction, types of hydraulic structures.
Week 2	Steps for design of hydraulic structures, site conditions.
Week 3	Causes of failure of hydraulic structures, Bligh's creep theory.
Week 4	Lane's weighted creep theory.
Week 5	Khosla 's theory.
Week 6	Solved problems of pervious methods.
Week 7	Hydraulic design of regulators.
Week 8	Solved problems about design of the regulators.
Week 9	Hydraulic jump and solved problems.
Week 10	Design of vertical drop.
Week 11	Design of stilling basins.

Week 12	Design of pipes and box culverts.
Week 13	Design of pipe aqueduct and flume.
Week 14	Design of siphon .
Week 15	Design of sliding steel gates .
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1- Irrigation, water power and water resources engineering. By Arora (2007) 2- Hydrulic structures by (Novak) (2007)	Yes
Recommended Texts	Theory and design of Irrigation structures. By (Gupta).	No
Websites		

Grading Scheme مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	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.