

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

Name of Head of Department:

Lecturer Nabeel Najm Abdullah



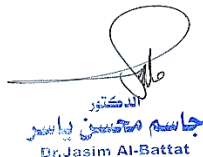
Signature

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 محمد ياسر
Dr. Jasim Al-Battat



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	Highway Pavement		Module Delivery
Module Type	Core		☐ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	CE415		
ECTS Credits	8		
SWL (hr/sem)	200		
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	

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Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1- The course aims to present the basic elements of geometric design for highways and deals with the dimensions and layout of visible features of the highway. The features normally considered are the cross-section elements, sight distance consideration, horizontal curvature, gradients, and intersection. 2- The course aims to present the basic element for designing the pavement (flexible & Rigid) also analyze all stresses and applied loads on the pavement and take into consideration choosing the materials used in the pavement construction.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Gives us an idea about the roads of ancient times. 2- The emphasis of the geometric design is to address the requirement of the driver and the vehicle such as safety, comfort, efficiency, etc. 3- The characteristics of cross-sectional elements are important in highway geometric design because they influence safety and comfort. 4- Horizontal alignment is one of the most important features influencing the efficiency and safety of a highway. 5- Knowledge and Understanding of highway design features. 6- Bituminous materials, Natural Asphalt, constituents of asphalt cement, and test of asphalt. 7- The emphasis of the different aggregate characteristics with size and gradation, and methods of blending for dry mix design. 8- Bituminous mix design, with the objective of mix design. 9- Study of stress distribution through the pavement with the calculation of flexible pavement stresses and deflections. 10- Knowledge and Understanding of pavement design and analysis.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: Part A – Highway Engineering - Proper design of a horizontal curve, including elements within a single curve and consistency of curvature along a highway. 3 Module Evaluation - Design speed is the single most important factor that affects the geometric design. - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems. - Soil stabilization methods and classification. - Highway Drainage and Design Equation Part B – Pavement Design and Analysis - Study of stress distribution through the pavement with the calculation of flexible pavement stresses and deflections. - Flexible pavement design methods (CBR method and AASHTO Design method). - Rigid pavement types and types of joints in the rigid pavement, and temperature stresses.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	Scientific and research skills are developed through teaching and learning activities. Analysis and design-solving skills are further developed by employing a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

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
Week 2	Bituminous Materials, Test for Asphalt
Week 3	Bituminous Materials, Test for Asphalt
Week 4	Aggregate, Physical Properties of Aggregate, Methods of Blending
Week 5	Aggregate, Physical Properties of Aggregate, Methods of Blending

Week 6	Bituminous Mix Design, Marshal Mix Design
Week 7	Bituminous Mix Design, Marshal Mix Design
Week 8	Stress distribution through the pavement, Calculation of stresses and deflections
Week 9	Stress distribution through the pavement, Calculation of stresses and deflections
Week 10	Design Introduction to Pavement, Types of Pavements, CBR Design Method
Week 11	Design Introduction to Pavement, Types of Pavements, CBR Design Method
Week 12	Stabilized Bases & Subbases, Earthworks & Subgrades, Control of Embankment Construction
Week 13	Flexible pavement design methods, AASHTO Design Methods
Week 14	Rigid Pavement, Rigid Pavement Types, Types of Joints in Rigid Pavement
Week 15	Rigid Pavement, Critical load position, Temperature Stresses
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	California Bearing Ratio CBR Test
Week 2	Bitumen Penetration Test
Week 3	Bitumen Ductility Tests
Week 4	Specific Gravity Test of Bitumen
Week 5	Bitumen Softening Test
Week 6	Viscosity Test of Bitumen, Flash Point Tests of Bitumen
Week 7	Marshall Tests

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Handbook of Transportation Engineering. By Myer Kutz.2004.	Yes
Recommended Texts		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.