Ministry of Higher Education and
Scientific Research - Iraq

University of Warith Al_Anbiyaa….
College of Engineering
Oil and Gas Department

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	**Statistical and Optimization**	**Module Delivery**
Module Type	**Basic**	☒ **Theory**
Module Code	**ENG216**	☐ **Lecture**
ECTS Credits	**5**	☐ **Lab**
SWL (hr/sem)	**125**	☒ **Tutorial**
		☐ **Practical**
		☐ **Seminar**

Module Level	UGII	**Semester of Delivery**	1
Administering Department	OGE	**College**	Engineering
Module Leader	Sabah Rasoul Dakhel AL-Jabiri	**e-mail**	
Module Leader's Acad. Title	Professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	1	**e-mail**	
Peer Reviewer Name	Asst. Lect..Yahya hadi	**e-mail**	yahya.hadi@uowa.edu.iq
Scientific Committee Approval Date	01/06/2023	**Version Number**	1.0

Relation with other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	CALC123	Semester	2
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Foundation material in probability and statistical inference. Topics include sample spaces, conditional probability, random variables, discrete and continuous probability distributions, expectation, estimation, and hypothesis testing as well as Simple linear regression, model and equation.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Learn the language and core concepts of probability theory. 2- Use software and simulation to do statistics. 3- Become an informed consumer of statistical information.
Indicative Contents المحتويات الإرشادية	1- Dealing with numbers and variables and identifying the methods of dealing with them. Studying Central tendency measures as important tools in dealing with many variables Define the Probability theories and determine how to deal with all variables according to the correct method of probability, and using suitable methods to deal with methods of continuous and discrete variables. 2- Using suitable software to deal with the large number of variables of all kinds. Recognition through exercise to determine the quality of variables and calculate central tendency measures and measures of variation. 3- Finding the relationship between dependent and independent variables and construct the correlation coefficient and degree of correlation as well as the studying the regression models and determining the equation. learning how to draw the relationship of the different variables.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	As a basic strategy .. students try through this course to identify the correct statistical methods in dealing with the numbers and the multi variables that they might deal with regarding of oil and gas engineering applications, in addition to studying the systems, concepts and theories of probability through which it can infer accurate facts and information which will be highly beneficial in their field and its practical applications through the use of a set of specialized software.
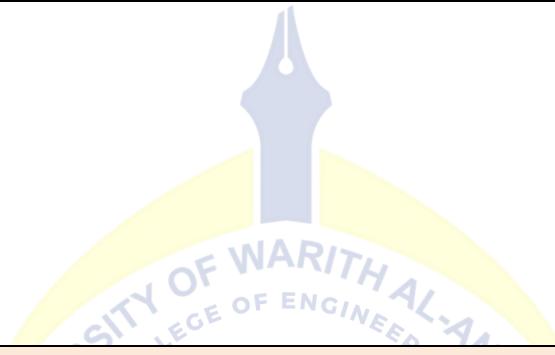
Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	75	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	1-4	1
	Assignments	1	10% (10)	5-8	1,2
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	1,2,3
Summative assessment	Midterm Exam	2 hr	10% (10)	8	1,2,3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction and Fundamental elements of statistics.
Week 2	Types of data, Methods of describing data.
Week 3	Measures of central tendency.
Week 4	Measures of variation.
Week 5	Probability and Discreet of random variable.
Week 6	Probability and Continuous random distribution.
Week 7	Normal Distribution.
Week 8	Applications .
Week 9	Testing of Hypothesis.
Week 10	Traditional Methods.
Week 11	z Test for a Mean and Chi-square
Week 12	Simple linear regression.
Week 13	The coefficient of correlation.
Week 14	Regression model.
Week 15	Regression equation.
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Allan G. Bluman, 2007. Elementary Statistics: step by step approaches , Mc. Graw Hill, 7th edition.	Not sure
Recommended Texts	-	
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.