MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Statistics**			**Module Delivery**	
Module Type	**Core learning activity**			☒ **Theory** ☐ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	CE106				
ECTS Credits	**5**				
SSWL (hr/sem)	**63**				
USSWL (hr/sem)	**62**				
SWL (hr/sem)	**125**				
Module Level	1		**Semester of Delivery**	2	
Administering Department	CE		**College**	GE	
Module Leader	Emad Talib		**e-mail**	emad.talib@alnaji-uni.edu.iq	
Module Leader's Acad. Title	Prof.		**Module Leader's Qualification**	Ph.D.	
Module Tutor			**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**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 Objectives أهداف المادة الدراسية	An engineer is someone who solves problems of interest to society by the efficient application of scientific principles. The field of **statistics** deals with the collection, presentation, analysis, and use of data to make decisions, solve problems, and design products and processes. Because many aspects of engineering practice involve working with data, obviously some knowledge of statistics is important to any engineer. Specifically, statistical techniques can be a powerful aid in designing new products and systems, improving existing designs, and designing, developing, and improving production processes.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	As a wide-ranging discipline, statistics concerns numerous procedures for deriving information from data that have been affected by chance variations. On the basis of scientific experiments, the engineer may record and make summaries of observations, quantify variations, or other changes of significance, and compare data sequences by means of some numbers or characteristics. At a more sophisticated level of analysis and interpretation, the engineer can, for instance, test hypotheses using the inferential approach developed during the twentieth century. statistics can be a complementary and a valuable aid to technology. In prudent hands it can lead to the best practical assessment of what is partially known or uncertain.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Part A Descriptive Statistics (Data Presentation and Description) based Principles and Tools of Descriptive Statistics (Numerical and Graphical Methods). [16hrs] Part B Inferential Statistics (Probability and counting Rules, Discrete and Continuous Probability) conclusion are drawn based of Probability Theory and Probability Models [22 hrs] Part C Confidence Intervals to determine the probability of representing the Population by a parameter (the probability that the estimated interval will contain the parameter) using central limit theorem. [12 hrs] Part D Test of Hypothesis to select or test a suitable Probability Model that cam match and simulate a specific sample Data [12 hrs]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main adopted strategy in delivering this module, encourage students' participation in the exercises, refining and expanding their critical thinking skills comprised: 1. Lectures. 2. Tutorials. 3. Homework and Assignments. 4. Tests and Exams. 5. In-Class Questions and Discussions. 6. Connection between Theory and Application. 7. Extracurricular Activities. 8. In- and Out-Class oral conservations.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
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)	3,6,11, and 15	LO #1 & #2, #3 and # 6, #4 and #5
	Assignments	1	10% (10)	--	--
	Seminar	1	10% (10)	...	---
	Report	1	10% (10)	--	---
Summative assessment	**Midterm Exam**	2hr	10% (10)	8	LO #1 - #3 and # 6
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**The Nature of Probability and Statistics**
Week 2	**Frequency Distributions and Graphs**
Week 3	**Data Description**
Week 4	**Probability and Counting Rule**
Week 5	**Probability and Counting Rule**
Week 6	**Discrete Probability Distributions**
Week 7	**Discrete Probability Distributions**
Week 8	**The Continuous Distributions.**
Week 9	**The Continuous Distributions.**
Week 10	**Confidence Intervals**
Week 11	**Hypothesis Testing**
Week 12	**Hypothesis Testing**
Week 13	**Determination of Probability Distribution Models.**
Week 14	**Correlation and Regression**
Week 15	**Correlation and Regression**
Week 16	**A preparatory week before the Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	---

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Elementary Statistics: A Step by Step Approach, by Allan G. Bluman, 6th edition.	Yes
Recommended Texts	1- Statistics: A First Course by Donald Sanders and Robert Smidt, 6th Edition. 2- Statistics for Engineering and the Sciences, by William Mendenhall and William Mendenhall, 5th Edition.	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.