MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

<table>
<tr><th colspan="5">Module Information
معلومات المادة الدراسية</th></tr>
<tr><td>Module Title</td><td colspan="2">ENGINEERING STATISTICS</td><td colspan="2">Module Delivery</td></tr>
<tr><td>Module Type</td><td colspan="2">Basic</td><td colspan="2" rowspan="5">☒ Theory
☒ Lecture
☐ Lab
☐ Tutorial
☐ Practical
☐ Seminar</td></tr>
<tr><td>Module Code</td><td colspan="2">ENG010</td></tr>
<tr><td>ECTS Credits</td><td colspan="2">4</td></tr>
<tr><td>SWL (hr/sem)</td><td colspan="2">100</td></tr>
<tr><td>Module Level</td><td>UGIV</td><td>Semester of Delivery</td><td>6</td></tr>
<tr><td>Administering Department</td><td>CV101</td><td>College</td><td colspan="2">Civil Engineering College</td></tr>
<tr><td>Module Leader</td><td>Dr. Yousif A. Mansoor</td><td>e-mail</td><td colspan="2">Yousif.mansoor@uoanabr.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Professor</td><td>Module Leader's Qualification</td><td colspan="2">Ph.D.</td></tr>
<tr><td>Module Tutor</td><td></td><td>e-mail</td><td colspan="2">E-mail</td></tr>
<tr><td>Peer Reviewer Name</td><td>Name</td><td>e-mail</td><td colspan="2">E-mail</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>01/06/2023</td><td>Version Number</td><td colspan="2">1.0</td></tr>
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<tr><th colspan="4">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</th></tr>
<tr><td>Prerequisite module</td><td>Calculus</td><td>Semester</td><td>1,2,3,4</td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td></td></tr>
</table>

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The goals of this course are to enable students to: 1. Organization the data 2. Analysis of data
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of successful completion of this course, the student will be able to: 1. Differentiate between a random process and a deterministic process. 2. Deal with sampled data; analyses it using several measures, and present it graphically. 3. Be familiar with probability theory and its applications. 4. Link the normal distribution to many populations in practice. 5. . Judge statistical hypotheses by carrying statistical tests, using different significance levels.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. **Chapter one** Introduction : Definitions and reviews, - statistics : Classification and Select definitions , [2 hrs] **Chapter Two** Data types ,,,classification and presentation [6 hrs] **Chapter Three** *Tendency measurement„„mean„average„„variance…* [12 hrs] **Chapter Four** Application of tendency measurement [12 hrs] **Chapter Five** Probability : addition rule, conditional probability *multiplication rule and Bayes Theorem* [12 hrs] **Chapter Six** *Discrete random variables. Probability mass function. Mean and variance of discrete random* *variables* [12 hrs] **chapter seven** *Probability Distribution functions: Uniform, Binomial, Geometric and Negative Binomial,Hyper-geometric and Poisson Distribution. {12 hr}* **chapter eight** *Normal Distribution. Approximation to Binomial and Poisson Distribution. Exponentia ,distribution. Other continuous distributions, Joint probability function. Multiple discrete and continuous random variablesParameter*

	estimation. Properties of estimators. Method of Moments. { 21 hr} **Chapter nine**, Correlation, *Interval estimation. Inference on the mean of a population: variance known or unknown. Inference on the variance of a normal population, Hypothesis testing about the mean and Proportion: Small and Large Sample,, {21 hr.}*

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	Statistics engineering courses require effective learning and teaching strategies to ensure students develop a strong understanding of complex concepts and their practical applications. The range of strategies that can enhance the learning experience for students in Statistics engineering courses. These strategies include lecture-based teaching, practical applications, problem-solving assignments, group work and discussions, technology integration, field trips and site visits, guest speakers, assessments and feedback, continuous learning, and encouraging self-directed learning. By incorporating these strategies, educators can create an engaging and comprehensive learning environment that equips students with the knowledge, skills, and critical thinking abilities necessary for success .

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.47
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**	4	10% (10)	3, 6,10,14	LO #1, 3,4, and 5
	Assignments	2	5% (5)	2, 12	LO # 4 and 5
	Projects / Lab.	1			
	Report	1	5% (5)	13	LO # 2,3 and 4
Summative assessment	**Midterm Exam**	2 hr	20% (20)	7	LO # 1-5
	Final Exam	3hr	60% (60)	16	All

Total assessment	100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction
Week 2	, Data Summary and Presentation
Week 3	Tendency measurement .
Week 4	Application of tendency measurement
Week 5	Probability: Addition rule, conditional probability, multiplication rule and Bayes Theorem
Week 6	Discrete random variables. Probability mass function. Mean and variance of discrete random
Week 7	variables
Week 8	Probability Distribution functions: Uniform, Binomial, Geometric and Negative Binomial,
Week 9	Hyper-geometric and Poisson Distribution.
Week 10	Mid-term Exam
Week 11	Normal Distribution. Approximation to Binomial and Poisson Distribution. Exponential
Week 12	distribution. Other continuous distributions.
Week 13	Joint probability function. Multiple discrete and continuous random variables
Week 14	Parameter estimation. Properties of estimators. Method of Moments
Week 15	*Hypothesis testing: Two Populations*
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1:
Week 2	Lab 2:
Week 3	Lab 3:
Week 4	Lab 4:
Week 5	Lab 5:
Week 6	Lab 6:

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	William Mendenhall and Terry Sincich, Statistics for Engineering and the Sciences, Prentice Hall,	Yes
Recommended Texts	Elementary Statistics: A Step by Step Approach, by Allan G. Bluman, 6th edition	Yes
Websites	https://www.uoanbar.edu.iq/Bank-Section.php	

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.