

MODULE DESCRIPTION FORM

Module Information				
Module Title	Statistics		Module Delivery	
Module Type	Optional		☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	STAT220			
ECTS Credits	3			
SWL (hr/sem)	125			
Module Level	2	Semester of Delivery		4
Administering Department	Laser engineering and optoelectronics		College	College of Engineering
Module Leader	Hussam Wheed Maktooff		e-mail	H564127@gmail.com
Module Leader's Acad. Title	Asst. Lec.		Module Leader's Qualification	MSc
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date			Version Number	1.0

Relation with other Modules			
Prerequisite module	NON	Semester	
Co-requisites module	NON	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Introduction, to the concepts of statistics, Organize data using a frequency distribution Standard Deviation, Variance, and Range, Measures of Position, Standard Score (Z-score), Classical definition of Probability, The Addition Rules for Probability, The Multiplication Rules and Conditional Probability, Probability and Counting Rules



Module Learning Outcomes	Knowledge	A2	A2.1: Define the fundamental concepts of descriptive and inferential statistics, including exploratory data analysis, graphical representation of data, descriptive methods, class intervals, and data distributions. A2.2: Demonstrate the ability to summarize and interpret datasets using descriptive statistics, graphical techniques, and exploratory analysis to identify patterns, trends, and relationships within data. A2.3: Apply statistical estimation methods and hypothesis testing procedures, including parametric tests such as Student's t-test and regression tests, as well as modified Cochran t-test and paired t-test, to analyze sample data.
		Skills	B1
	B2		B2.1 Communicate effectively – graphically with a range of audiences using contemporary tools. B2.2 Communicate verbally and in writing with a range of audiences using contemporary tools.
	Ethics	C1	C2.1 Recognize professional and ethical responsibility. C1.2 Adhere and respect diversity.
Indicative Contents	Indicative content includes the following. Unit 1: Introduction to the concepts of statistics, Organize data using a frequency distribution, Histograms, Frequency Polygons, and Ogives, [8 hours]. Unit 2: Measures of Central Tendency, Mean, Measures of Central Tendency, Median, Mode, and other measures, Measures of Position, Percentiles, Deciles, and Quartiles, [8 hours]. Unit 3: Measures of Variation, Mean Deviation, Standard Deviation, Variance, and Range, Measures of Position, Standard Score (Z-score), Classical definition of Probability [8 hours]. Unit 4: The Addition Rules for Probability, The Multiplication Rules and Conditional Probability [6 hours].		
	Learning and Teaching Strategies		
Strategies	• Presentations • Discussions • Tutorial and graphics • Problem solving • Brain storming • Research and reporting • Problem Solving 		



- Report & discussion assessment

Student Workload (SWL)

Structured SWL (h/sem)	92	Structured SWL (h/w)	6.13
Unstructured SWL (h/sem)	33	Unstructured SWL (h/w)	2.2
Total SWL (h/sem)	125		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered	LOs
Week 1	Introduction to the concepts of statistics.	
Week 2	Organize data using a frequency distribution.	A2, B1, B2, C1
Week 3	Histograms, Frequency Polygons, and Ogives.	A2, B1, B2, C1
Week 4	Measures of Central Tendency, Mean.	A2, B1, B2, C1
Week 5	Measures of Central Tendency, Median, Mode, and other measures.	A2, B1, B2, C1
Week 6	Tutorial.	A2, B1, B2, C1
Week 7	Measures of Position, Percentiles, Deciles, and Quartiles.	A2, B1, B2, C1
Week 8	Mid-term Exam.	A2, B1, B2, C1
Week 9	Measures of Variation, Mean Deviation, Standard Deviation, Variance, and Range.	A2, B1, B2, C1
Week 10	Measures of Position, Standard Score (Z-score).	A2
Week 11	Classical definition of Probability.	A2, B1, B2, C1
Week 12	The Addition Rules for Probability.	A2, B1, B2, C1
Week 13	The Multiplication Rules and Conditional Probability.	A2, B1, B2, C1
Week 14	Probability and Counting Rules.	A2, B1, B2, C1



Week 15	Rubric Exam Preparatory week before the final Exam	A2, B1, B2, C1
---------	---	-------------------

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	A2
	Assignments	2	10% (10)	2, 4,6,8,10,12 and 14	A2
	Classroom interaction	ALL	10% (10)	ALL	A2
	Presentation	1	10% (10)	13	A2,B1,B2
Summative assessment	Midterm Exam	1hr	10% (10)	7	A2
	Final Exam	3hr	50% (50)	15	A2
Total assessment			100% (100 Marks)		

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	·D. Backman, "Advanced Calculus Demystified", MoGraw HM, 2007. -S.A. Wirkus, and R. J. Swifi, "A Course of Ordinary Differential Equations", Tayior & Francis Group, LLC, 2015.	Yes
Recommended Texts	1. Principles of Statistics 2. Descriptive, applied, and biological statistics 3. Principles of descriptive and inferential statistics	No
Websites	https://eng.alayen.edu.iq//colleges/e/42	

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.

