	Ministry of Higher Education and Scientific Research - Iraq University of Technology Computer Science Department Software Branch	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		

Module Title	STATISTICS AND PROBABILITY		Module Delivery	
Module Type	CORE		**Theory** **Lecture** **Tutorial** **Practical**	
Module Code	STPR113			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level		1	Semester of Delivery	1
Administering Department		Type Dept. Code	College	Type College Code
Module Leader	Dr. Ali Adil		e-mail	ali.a.saeid@uotechnology.edu.iq
Module Leader's Acad. Title		Professor	Module Leader's Qualification	Ph.D.
Module Tutor	None		e-mail	None
Peer Reviewer Name			e-mail	
Review Committee Approval		01/06/2023	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 Aims أهداف المادة الدراسية	1. Understand the laws of statistics and data distribution. 2. Enable the student to transform large data into understandable shapes and illustrations, and to deduce statistical data. 3. provide the students with details statistics and data population. 4. Define and explain the basic of probabilistic metrics like event, outcome, trial, simple event, sample space, Venn Diagram ,tree diagram, and calculate the probability that an event will occur. 5. Define and explain the basic of statistical measurements like Data Organization, variation, of central tendency. 6. Express the concepts and principal of counting techniques (factorial , combination) and the basic principles of Probability Theory 7. Solve the problems about permutation, combination and Binomial Theorem.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. provide the students with details Probability and its theories and how apply them on game theory. 2. Enable the student to transform large data into understandable shapes and illustrations, and to deduce statistical data 3. Express the concept of probability and its features. Explain the concept of a random event, addition and multiplication probabilities lows . 4. Understand the laws of statistics and data distribution 5. Express the concepts of factorial and the basic principal of counting. Solve the problems about permutation, combination and Binomial Theorem. 6. enable the students with knowledge of the problems and solutions that may face in future and depend on probability theory to solve them
Indicative Contents المحتويات الإرشادية	Part A - statistic 1-Population, samples, type of samples, Random variables discrete variable, continuous variable, Data Organization. [4] 2- frequency distribution, histogram [8] 3- Measurement of central tendency - mean, median, mode. [6]. 4- measurements of variation -standard deviation, variance.[6] 5- Coefficient of variation, Correlation and Regression. [8]

	Part b – probability.
	1- Probability Theory -sample space, events, rules of probability. [4] 2- Venn Diagram, tree diagram, probability theorems -Addition theorem.[4] 3- Multiplication theorem.[4] 4- Combinations ,Conditional probability[4] 5- Bayes theorem, Independent of events, Discrete Probability distributions.[4] 6- Binomial distribution, Multinomial distribution.[4] 7- Poisson distribution, Continuous Probability Distributions-Uniform distribution.[4] 8- Normal distribution, Exponential distribution[4].

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple examples involving some sampling activities that are interesting to the students.

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	86	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	64	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
	Quizzes	2	6% (10)	5, 10	LO #2,4, and 5

Formative assessment	Assignments	2	4% (10)	2, 12	LO # 2 and 5
Summative assessment	Midterm Exam	1 hr	20% (10)	7	LO # 1-5
	Final Exam	2hr	70% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Population ,samples , type of samples, Random variables discrete variable, continuous variable, Data Organization.
Week 2	frequency distribution, histogram
Week 3	measurement of central tendency - mean ,median, mode.
Week 4	measurements of variation -standard deviation, variance ,coefficient of variation
Week 5	Probability Theory -sample space, events ,rules of probability, Venn Diagram.
Week 6	tree diagram, probability theorems -Addition theorem.
Week 7	Mid-term Exam
Week 8	Multiplication theorem.
Week 9	Counting techniques :Factorial, Permutations, Combinations ,Conditional probability
Week 10	Bayes theorem, Independent of events, Discrete Probability distributions.
Week 11	Binomial distribution, Multinomial distribution.
Week 12	Poisson distribution, Continuous Probability Distributions-Uniform distribution.
Week 13	Normal distribution, Exponential distribution.
Week 14	Correlation and Regression.
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		Yes

	1. Probability and statistics, theory and applications, Gunnar Blom 2. Probability and statistics for engineers, Richard L. Scheaffer 3. Statistics: theories and applications, Joseph Inungo, 2006. 4. Introductory Statistics , Ronald J. Wonnacott	
Recommended Texts	Introduction to Statistics and Data Analysis	No
Websites	https://www.spps.org/cms/lib/MN01910242/Centricity/Domain/859/Statistics%20Textbook.pdf	

APPENDIX:

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**	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:	
NB 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.	