



Module (Course Syllabus) Catalogue 2023-2024

College/ Institute	Erbil Technical Engineering College	
Department	Technical Civil Engineering	
Module Name	Engineering Statistics	
Module Code	ENS405	
Degree	Technical Diploma <input type="checkbox"/>	Bachelor <input checked="" type="checkbox"/>
	High Diploma <input type="checkbox"/>	Master <input type="checkbox"/> PhD <input type="checkbox"/>
Semester	4 st Semester	
Qualification	B.SC	
Scientific Title	Engineer	
ECTS (Credits)	5	
Module type	Prerequisite <input type="checkbox"/>	Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours	3 hours	
Weekly hours (Theory)	(3)hr Class	(128)Total hrs Workload
Weekly hours (Practical)	(0)hr Class	()Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)	Mohamed Moafak Aziz	
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Lecturer (Practical)	-	
E-Mail & Mobile NO.	-	
Websites		

Course Book

<p>Course Description</p>	<p>"Engineering Statistics" is a dynamic course designed to equip students with essential statistical tools and methodologies tailored for engineering applications. This course delves into the principles of data collection, analysis, and interpretation, emphasizing their relevance in solving real-world engineering challenges. Students will gain proficiency in using statistical methods, charts, and graphical presentations, with a focus on practical applications within the engineering domain. The course also introduces the utilization of the Statistical Package for the Social Sciences (SPSS) to enhance data organization and analysis, empowering students to make informed decisions and effectively communicate their findings in engineering projects.</p>
<p>Course objectives</p>	<ul style="list-style-type: none"> • Learn the concept of statistics to collect data to get the digital data or descriptive by accuracy for a particular phenomenon • Learn the hypothesis specific and organizing, tabulating the data. this data is sorted every phenomenon in the form of the group, to classified on the basis using the statistical relationships. • Present data to the Graphical presentation. There are many ways to graph data, histograms, frequency polygon, bar chart. • Using statistical laws and their practical applications by Measure of Central Tendency, Measures of dispersion General rules in probability (Combinations, Permutation), Basic concepts of probability & Correlation Simple linear regression. • How to extract the numerical values, meanings and interpretations to get the results? • Using the statistical inferential deals with the forecasting estimation, conclusions, results by visual diagrams & SPSS program to do the project & presentation the seminar by Microsoft office power point.
<p>Student's obligation</p>	<p>Students must attend all lectures. They also do quick daily exams. Furthermore, they are required to do their homework and duties that will be assigned to them. They must do seminars and projects. Finally, they must pass the final and midterm exam.</p>
<p>Required Learning Materials</p>	<p>During lecturing the data show is used for showing lecture notes using power point program while the white board is used for explanation and solving problems and using software to analysis data.</p>

Evaluation	Task		Weight (Marks)	Due Week	Relevant Learning Outcome
	Paper Review		-	-	-
	Assignments	Homework	10%		
		Class Activity	2%		
		Report	8%		
		Seminar	-		
		Essay	-		
		Project	8%		
	Quiz		8%		
	Lab.		-		
	Midterm Exam		24%		
	Final Exam		40%		
	Total		100%		
Specific learning outcome:	<p>At the end of course, participants should be able to:</p> <ol style="list-style-type: none"> 1. Introduce the statistics and how to collecting data and facts about the phenomenon, the Process of data collection, through the field sources or historical sources then organizing & tabulating present data to the Graphical presentation, histograms, frequency polygon, bar chart, ... 2. Organize & tabulate the data for facilitates the process of analysis to using the Frequency Distribution Table. 3. Use the practical applications by Measure of Central Tendency, Measures of dispersion, standard deviation and variance. 4. Use General rules in probability (Combinations, Permutation) & Basic concepts of probability 5. Apply on binomial, normal, T- distribution 6. Use the statistical relationships statistical laws, to extract the numerical values, meanings and interpretations to find the Correlation, Simple linear regression to get the results. different statistical methods and practical applications statistical analysis to solve various problems by using Statistical SPSS program, to do the project & presentation the seminar by Microsoft office power point. 				
Course References:	<ol style="list-style-type: none"> 1) Michael J. Crawley, "statistics an introduction using R ", imperial college London, UK, 2005. 2) Willian Navidi, "statistics for engineers & scientists ", 2011. 3) Jessica Mutts, 2010, Mind on Statistics, University of California, Irvine, Fourth Edition. 				

Course topics (Theory)	Week	Learning Outcome
Introduction of description and inferential statistics Pictorial description of data & data classification.	1	
Central Measures	2	
Measures of Variation	3	
Frequency distribution & cumulative frequency Distribution	4	
Mean Deviation, Standard deviation, Variance, Coefficient of variation, Standard Score	5	
Histogram, frequency polygon	6	
Correlation and regression	7	
Analysis of linear regression	8	
Normal distribution	9	
Binomial distribution, Poisson distribution & normal distribution	10	
Computer application	11	
Computer application	12	
Practical Topics	Week	Learning Outcome

Questions Example Design

Q1/ Construct a frequency table for below discrete data and find:

1- Mean. 2- Mode. 3- Median.

50, 40, 29, 20, 31, 30, 33, 61, 69, 24, 55, 45, 20, 15, 71, 60, 50, 25, 66, 10, 13, 14, 15, 25, 27.

Q2/ Create a frequency Table for the following data gives the Appreciation of Students and show them in a pie Chart with percentages:

Excellent, very good, Excellent, very good, poor, Fair, Excellent, poor, Fair, good, poor, Fair, Excellent, Fair, good, Fair, poor, good, good, Excellent, good, Excellent, very good, Excellent, very good, good, Fair, poor, Excellent, very good.

Q3/ in this below data& weights find weighted mean:

Weight: 1 2 3 4 5 3

Data: 20 30 40 20 10 20

Extra notes:

External Evaluator