زانکۆی پۆلیتەکنیکی هەولێر
ERBIL POLYTECHNIC UNIVERSITY

Kurdistan Region Government
Ministry of Higher Education
and Scientific Research
Erbil Polytechnic University

Module (Course Syllabus) Catalogue

2025-2026

College/ Institute	**Erbil Polytechnic University**	
Department	Artificial intelligent and robotics engineering	
Module Name	Probability and statistics	
Module Code	PRS403	
Degree	**Technical Diploma** ☐ **Bachler** ■ **High Diploma** ☐ **Master** ☐ **PhD** ☐	
Semester	4	
Qualification	PhD	
Scientific Title	Prof.	
ECTS (Credits)	5	
Module type	**Prerequisi** ✓ **Core** ☐ **Assist.** ☐	
Weekly hours		
Weekly hours (Theory)	**(2) hr Class**	**(108) Total hrs Workload**
Weekly hours (Practical)	**(2) hr Class**	**(48) Total hrs Workload**
Number of Weeks	**14**	
Lecturer (Theory)	Ismael Akray	
E-Mail & Mobile NO.	Ismael.ahmed@epu.edu.iq	
Lecturer (Practical)	M.Shadan abdalwahid	
E-Mail & Mobile NO.	shadan.abdalwahid@epu.edu.iq	
Websites		

Course Book

Course Description	• This course is about the mathematics that is most widely used in the engineering core subjects. Probability and Statistics provide an introduction to discrete and continuous probability distributions, correlation and regression analysis, sampling distributions and sampling inferences. Topics include the properties of both single and multiple random variables for the discrete and continuous probability distributions, correlation and regression analysis for bivariate as well as multivariate distributions, Estimation, sampling, testing of hypothesis for both large and small samples			
Course objectives	1. To identify a random variable that describes randomness or an uncertainty in certain realistic situation. It can be either discrete or continuous type. 2. To learn important probability distributions like: in the discrete case, study of the Binomial and the Poisson Distributions and in the continuous case the Normal Distributions. 3. To build the linear relationship between two variables and also to predict how a dependent variable changes based on adjustments to an independent variable. 4. To interpret the types of sampling, sampling distribution of means and variance, Estimations of statistical parameters. 5. To give comprehensive knowledge of probability theory to make inferences about a population from large and small samples. To understand a random variable that describes randomness or an uncertainty in certain realistic situations which can be either discrete or continuous type. 2. To learn functions of multiple random variables through joint distributions since the random situations are described as functions of multiple random variables.			
Student's obligation	• attend the university for the full academic year; • attend classes punctually and regularly; • you must all be ready to learn and ask questions. To get a lot from this course, you must invest time in the readings and assignments – this is where the depth and synthesis will happen. • collaboration on the weekly questions and on assignments is encouraged, but I expect each person to turn in their own work. I strongly advise you to consult each other once you have already attempted to figure something out; i.e., do not lean too heavily on others to get you through the assignments, or you will find yourself having a tough time on the exams.			
Required Learning Materials				
Evaluation	**Task**	**Weight (Marks)**	**Due Week**	**Relevant Learning Outcome**

	Paper Review				
	Assignments	Homework	10	2	
		Class Activity	2		
		Report	6		
		Seminar	10		
		Essay			
		Project			
	Quiz	8	11		
	Lab.				
	Midterm Exam	24			
	Final Exam	40			
	Total	100			
Specific learning outcome:	**After successful completion of the course, the student will be able to:** Describe randomness in certain realistic situation which can be either discrete or continuous type				
Course References:	**I) Introduction to Probability and Statistics for Engineers and Scientists by Sheldon M.Ross.** **II) Probability and Statistics for Engineers by Dr. J. Ravichandran.**				

Course topics (Theory)	**Week**	**Learning Outcome**
Frequency distributions	1	
Sample spaces	2,3	

Conditional properties	4	
DISCRETE RANDOM VARIABLES	5,6,7	
SPECIAL DISCRETE RANDOM VARIABLES	8	
CONTINUOUS RANDOM VARIABLES	9,10,11	
SPECIAL CONTINUOUS RANDOM VARIABLES	12,13	
SAMPLE STATISTICS	14	

19. Examinations (samples of questions)

Find

Extra notes:

External Evaluator

I confirm that the syllabus given the attached course book is sufficient and covers the required areas needed for the students.