Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF256	Probability	3	3	0	0	3	5

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	Help students to perceive basic concepts related to probability and to achieve proficiency in using their methods (probabilities of events, rules for random variables and the concept of moment, important distributions, compound probability functions).
Content	• The concept of probability, especially random variables in relation to uncertain events. • Different probability distributions • Probability theory in the problems they may encounter in the business world, especially in the analysis of uncertainty. • Probability concepts in industrial applications
References	• Sheldon M., Ross, M., Introduction to probability models, Academic Press, 2003, 8th Ed. • İmdat Kara – Olasılık, Bilim Teknik Yayınevi – 2000.

Theory Topics

Week	Weekly Contents
1	Introduction to probability, sets theory
2	Conditional probability
3	Total Probability Theorem, Inference and Bayes' Rule
4	Independence, Conditional Independence
5	Counting Principle, Combination, Permutation, Partition
6	Discrete Random Variable: Introduction, probability mass function, special discrete random variables (Bernoulli, binomial, geometric, poisson)
7	Random Variable functions: Expected value, variance and standard deviation
8	Midterm exam
9	Joint probability mass function and conditionality of discrete random variables
10	Independence of Discrete Random Variables
11	Expected Value and Moments
12	Introduction, continuous uniform random variable, probability density function, exponential random variable
13	Cumulative distribution function, normal random variable and normal distribution
14	Sürekli Rassal değişkenlerde koşulluluk ve bağımsızlık