Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
ING241	Probability	3	3	0	0	3	4

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	This course, which is offered as a compulsory course in the program, will help students perceive the basic concepts of probability theory and achieve proficiency in using the methods related to this discipline (probabilities of events, rules regarding random variables and the concept of moment, transformations of random variables, Gauss' suggestions). In this context, the objectives of the course are determined as follows: • Introduce the student to the concept of probability, especially random variables in relation to uncertain events. • To ensure that students master different probability distributions • To enable students to benefit from probability theory in the problems they may encounter in the business world, especially in the analysis of uncertainty.
Content	Week 1: Course introduction and introduction to probability Week 2: Probability of an event, probability axioms, conditional probability, independent events, Bayes theorem Week 3: Random variables and probability distributions Week 4: Probability distribution function, probability mass function, probability density function Week 5: Expected value, variance and standard deviation Week 6: Two and higher dimensional random variables Week 7: Moments Week 8: Midterm Exam Week 9: Some important discrete distributions Week 10: Some important discrete distributions (continued) Week 11: Some important discrete distributions (continued) Week 12: Some important sustained distributions Week 13: Some important continuous distributions (continued) Week 14: Some important continuous distributions (continued)
References	• Soong, T.T., Fundamentals of Probability and Statistics for Engineers, John Wiley & Sons, 2004. • Akdeniz, F., Olasılık ve İstatistik, Baki Kitapevi, Eylül 1998. • Ross, S.M., Introduction to probability models, Academic Press, 2003, 8th Ed. • Lipschutz, S., Lipson, M., Olasılık, Schaum serisi, Nobel Akademik Yayıncılık, 2013.

Theory Topics

Week	Weekly Contents
1	Course introduction and introduction to probability
2	Probability of an event, probability axioms, conditional probability, independent events, Bayes theorem
3	Random variables and probability distributions
4	Probability distribution function, probability mass function, probability density function
5	Expected value, variance and standard deviation
6	Two and higher dimensional random variables
7	Moments
8	Midterm Exam
9	Some important discrete distributions
10	Some important discrete distributions
11	Some important discrete distributions
12	Some important continuous distributions

Week	Weekly Contents
13	Some important continuous distributions
14	Some important continuous distributions