



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Stochastic Processes							
Course Code		MTK534		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		This course intruduces fundamental stochastic processes							
Course Content		Theory of stochastic processes, Markov chains, Markov processes, Poisson processes, Birth and death processes, Random walk, Renewal processes, Brownian motions, Branching processes.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	50
Assignment	1	20

Recommended or Required Reading

1	İnal C.Olasılıksal Süreçler (Stochastic Processes) Hacettepe Üniv.Fen-Ed Fak Yayınları1988 .
2	Parzen E., Stochastic Processes Holden-day Inc. NewYork 1962
3	Karlin S. Taylor H.M., A first course in Stochastic processes Academic press. NewYork 1975.
4	Papoulis A., Probability,Random Variable and Stochastic Processes McGraw Hill Book com. 1965

Week	Weekly Detailed Course Contents	
1	Theoretical	Theory of stochastic processes
2	Theoretical	Markov chains
3	Theoretical	Markov processes
4	Theoretical	Poisson processes
5	Theoretical	Birth and death processes
6	Theoretical	Birth and death processes
7	Theoretical	Random walk
8	Theoretical	Renewal processes
9	Theoretical	Renewal processes
10	Intermediate Exam	Midterm Exam
11	Theoretical	Brownian motions
12	Theoretical	Brownian motions
13	Theoretical	Branching processes
14	Theoretical	Branching processes
15	Theoretical	Branching processes
16	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	3	84
Assignment	1	20	2	22
Midterm Examination	1	40	2	42
Final Examination	1	50	2	52
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	To be able to comprehend theory of stochastic processes
2	To be able to comprehend Markov property.
3	To be able to comprehend birth and death processes
4	To be able to comprehend branching processes.
5	To be able to use mathematical concepts in solving certain types of problems

Programme Outcomes (*Mathematics Master*)

1	To be able to have an adequate theoretical and practical domain knowledge.
2	To be able to comprehend the interdisciplinary interaction associated with Mathematics.
3	To be able to use theoretical and practical domain knowledge gained in the field of Mathematics.
4	To be able to interpret knowledge from different disciplines integrating knowledge in the field of mathematics and produce new information.
5	To be able to define, analyse, model and to solve the problems by scientific methods in Mathematics.
6	To be able to conduct a math related specialistic study independently.
7	To be able to develop new strategic approaches to solve problems occurred in unforeseen and complex math-related applications by taking responsibility.
8	To be able to lead in situations that require solving problems related to the mathematics.
9	To be able to criticize his/her knowledge and skills acquired in the field mathematics.
10	To be able to transfer his/her ideas and suggestions for solutions to problems by supporting quantitative or qualitative data verbally and in writing.
11	To be able to communicate both orally and written in a foreign language.
12	To be able to use computer hardware and information technologies with software required by Mathematics.
13	To be able to contribute to the solution of the social, scientific, cultural and ethical problems related to the Mathematics, and being able to support the development of social, scientific, cultural and ethical values.
14	To be able to develop mathematics-related strategies, policies and operational plans, and to evaluate the results obtained within the framework of quality processes.
15	To be able to use his/her knowledge in the field of mathematics and practical problem-solving skills in interdisciplinary studies.

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	3	4	4	4	4
P2	3	4	4		
P3	3	4	4	4	4
P4	3	4	4		
P5		4	4		
P7		4	4		
P12	3			5	4
P15	4	4	4	3	

