AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Stochastic Hydrology						
Course Code		ZTY521		Couse Level		Second Cycle (Master's Degree)		
ECTS Credit	7	Workload	175 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To teach basic concepts of hydrological processes, methods used to determine persistence and the most widely used stochastic models in streamflow series.						
Course Content		Hydrological stochastic processes and time series, autoregressive (AR) models, moving-average (MA) models, autoregressive moving-average (ARMA) models,						
Work Placement		N/A						
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study, Problem Solving				
Name of Lecturer(s)								

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Bayazıt, M., (1981) Statistical Methods in Hydrology (Hidrolojide İstatistik Yöntemler). İTÜ İnşaat Fakültesi, İstanbul
2	Bayazıt, M. (1996) Probabilistic Methods in Civil Engineering (İnşaat Mühendisliğinde Olasılık Yöntemleri). İTÜ İnşaat Fakültesi, İstanbul
3	Chow, V.T. (1964) Handbook of Applied Hydrology, Mc Graw-Hill.

Week	Weekly Detailed Course Contents	
1	Theoretical	Stochastic processes and time series
2	Theoretical	General characteristics of hydrological series
3	Theoretical	Statistical techniques and principles in modelling time series
4	Theoretical	Estimation of periodic parameters
5	Theoretical	Autoregressive (AR) modelling of annual time series
6	Theoretical	Autoregressive (AR) modelling of periodic time series
7	Theoretical	Practical applications of Autoregressive (AR) models
8	Intermediate Exam	Mid Term Exam
9	Theoretical	Moving-average (MA) models
10	Theoretical	Practical applications of moving-average (MA) models
11	Theoretical	Autoregressive moving-average (ARMA) modelling-1
12	Theoretical	Autoregressive moving-average (ARMA) modelling-2
13	Theoretical	ARMA modelling of periodic time series
14	Theoretical	Generating annual synthetic series-1
15	Theoretical	Generating annual synthetic series-2
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	8	3	154
Midterm Examination	1	7	2	9
Final Examination	1	10	2	12
			Total Workload (Hours)	175
			[Total Workload (Hours) / 25*] = **ECTS**	7
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Being able to comprehend the aim and structure of stochastic hydrology
2	Being able to generate synthetic series for hydrologic variables
3	Being able to use appropriate methods to determine persistence in stochastic processes
4	Being able to construct mathematical models appropriate to stochastic processes
5	To able to apply stocahstic processes in hydrology

Programme Outcomes *(Agricultural Structures and Irrigation Master)*

1	Ability to use, evaluate and improve the knowledge gained from field of study at an expert level
2	Ability to reach necessary the knowledge
3	To able to conduct scientific studies (research) related to the field
4	Ability to consider academical and ethical values the studies
5	Ability to improve editing method and evaluate the results of researches
6	The studies, the ability to reach result and application, develop new approaches
7	A topic in the field of written, verbally and visually as the ability to express
8	Effective use of Turkish language and ability to communicate in a foreign language both written and verbal

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	5	5	5	5	4
P2	4	4	4	4	5
P3	4	4	4	4	3
P4	3	2	2	2	2
P5	3	3	3	3	3
P6	4	4	3	3	4
P7	2	1	1	1	5
P8	2	1	1	1	2