AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Signal and Data Analysis Methods						
Course Code		FZK620		Couse Level		Third Cycle (Doctorate Degree)		
ECTS Credit	7	Workload	178 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To analyze the accuracy of the data obtained from the experiment.						
Course Content		In physics the concept of error, precision and accuracy, probability, probability spaces and distributions, special probability distributions, binomial, Poisson, and Gaussian distributions, random variables, the mean and variance, error analysis and error analysis applications, the chi-square statistics, the least squares method and the applications, probability tests, finding a fit and applications, Monte-Carlo (MC) methods and techniques, the MC applications in physics, computer data analysis applications in physics,						
Work Placement								
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	20
Final Examination	1	30
Practice	7	7
Quiz	2	8
Attending Lectures	14	28
Assignment	7	7

Recommended or Required Reading

1	An introduction to statistical methods and data analysis. R. Lymann Ott, Michael T. Longnecker
2	Sayısal Fizik. Bekir Karaoğlu

Week	Weekly Detailed Course Contents	
1	Theoretical	In physics the concept of error, precision and accuracy, probability
2	Theoretical	Probability spaces and distributions, special probability distributions
3	Theoretical	Binomial, Poisson and Gaussian distributions
4	Theoretical	Random variables, the mean and variance
5	Theoretical	Error analysis and error analysis applications
6	Theoretical	Chi-square statistics
7	Theoretical	And applications of the method of least squares
8	Intermediate Exam	Midterm exam
9	Theoretical	And applications of the method of least squares
10	Theoretical	Probability tests, finding a fit and applications
11	Theoretical	Monte-Carlo (MC) methods and techniques
12	Theoretical	MC applications in physics
13	Theoretical	Computer data analysis applications in physics
14	Theoretical	Computer data analysis applications in physics
15	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	3	98
Assignment	12	2	2	48
Quiz	4	1	1	8
Midterm Examination	1	7	5	12

Final Examination	1	7	5	12
Total Workload (Hours)				178
[Total Workload (Hours) / 25*] = **ECTS**				7

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To analyze the accuracy of the data obtained from the experiment.
2	To analyze the error of experimental data
3	Being able to analyze the data with the help of computer programs.
4	To be able to apply them to new problems
5	Learning data analysis

Programme Outcomes *(Physics Doctorate)*

1	
2	
3	
4	
5	
6	
7	
8	

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