1. GENERAL DESCRIPTION

Code	Course Title	Type of Course	Year of Study	Semester	ECTS Credits
ISL462	Time Series Analysis-II	Elective	Fourth Year	Spring Semester	4

2. LEVEL OF THE COURSE

First Cycle (Undergraduate)

3. OBJECTIVE OF THE COURSE

The aim of this course is to teach students the basic concepts of time series analysis, regression forecasting, univariate AR, MA, and ARIMA Models.

4. NAME OF LECTURER(S)

Assoc. Prof. Dr. Ali Sait ALBAYRAK

5. LEARNING OUTCOMES

LO1	Know basic time series analysis concepts.
LO2	Choose the appropriate univariate time series analysis method and techniques.
LO3	Analyze annual and seasonal time series with regression analysis and make medium-term forecasting.
LO4	Develop univariate AR, MA and ARIMA models and make long-term forecasting.

6. MODEL OF DELIVERY

Face to face

7. PREREQUISITES AND CO-REQUISITES

None

8. RECOMMENDED OPTIONAL PROGRAM COMPONENTS

None

9. COURSE CONTENTS

Basic Time Series Concepts, Regression Forecasting, Univariate AR, MA, and ARIMA Models.

10. WEEKLY DETAILED COURSE CONTENTS

Week	Theoretical
1	Time Series Analysis and Regression Analysis: Basic Concepts and Technical Details
2	Time Series Analysis and Autoregressive Methods-1
3	Time Series Analysis and Autoregressive Methods-2
4	Autoregressive Models (AR) and the Moving Averages Method (MA)
5	Autocorrelation and Partial Autocorrelation Coefficients
6	Autoregressive Models (AR): Identification of AR Models and Preliminary Parameter Estimates
7	Methods Moving Average (MA): Identification of MA Models and Preliminary Parameter Estimates
8	Midterm Exam
9	Integrated Autoregressive Moving Average (Box-Jenkins) Method (ARIMA): Model Description
10	Parameter Estimates of ARIMA Models
11	Investigation of Appropriate ARIMA Models
12	Using the Model for Prediction
13	Method of Seasonal Autoregressive Moving Average (SARIMA) and Model Identification
14	Method of Seasonal Autoregressive Moving Average (SARIMA) and the Preliminary Parameter Estimates
15	Application of Autoregressive Moving Average Methods (SARIMA)
16	Final Exam

11. TEXTBOOK / MATERIAL / RECOMMENDED OR REQUIRED READINGS

✓ Neyran Orhunbilge, *Zaman Serileri Analizi Tahmin ve Fiyat İndeksleri,* Avcıol Basım Yayın, İstanbul, 1999.

12. PLANNED LEARNING ACTIVITIES AND TEACHING METHODS

Activities are Given in Detail in the Section of "Assessment Methods and Criteria" and "Workload Calculation".

13. ASSESSMENT METHODS AND CRITERIA

Type of Assessment	Weight (%)
Midterm Examination	40
Final Examination	60

14. LANGUAGE OF INSTRUCTION

Turkish

15. WORK PLACEMENT(S)

None

16. WORKLOAD CALCULATION

Activities	Number	Time (Hours)	Total Workload (Hours)
Lectures (Face to Face Teaching)	14	3	42
Individual Studies Outside Class	14	3	42
Individual Study for Midterm Examination	1	10	10
Midterm Examination	1	1	1
Individual Study for Final Examination	1	10	10
Final Examination	1	1	1
Total Work Load (Hours)	**32**	**28**	**106**

17. CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAM OUTCOMES

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14	PO15
LO1	4	3	4	3		2	2		2			2		2	
LO2	3	2	3	2		2	2		2			2		2	
LO3	3	2	3	3		2	2		2			2		2	
LO4	4	2	3	4		2	2		2			2		2	

* Contribution Level: 1=Very Low, 2=Low, 3=Medium, 4=High and 5=Very High. LO=Learning Outcome and PO=Program Outcomes.