# AYDIN ADNAN MENDERES UNIVERSITY
# COURSE INFORMATION FORM

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|---|---|---|---|---|---|---|---|---|---|
| Course Title | Artificial Neural Networks | | | | | | | | |
| Course Code | FEK526 | | Couse Level | Second Cycle (Master's Degree) | | | | | |
| ECTS Credit | 5 | Workload | 125 *(Hours)* | Theory | 3 | Practice | 0 | Laboratory | 0 |
| Objectives of the Course | To understand and implement articial neural networks in real life | | | | | | | | |
| Course Content | This course presents an overview of neural networks and machine learning techniques and their implementation in real life. | | | | | | | | |
| Work Placement | N/A | | | | | | | | |
| Planned Learning Activities and Teaching Methods | Explanation (Presentation), 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 | Introduction to Machine Learning, E. Alpaydin, MIT Press, 2009 |

| Week | Weekly Detailed Course Contents | |
|---|---|---|
| 1 | Theoretical | Introduction |
| 2 | Theoretical | Supervised learning |
| 3 | Theoretical | Unsupervised learning |
| 4 | Theoretical | Semisupervised learning |
| 5 | Theoretical | Decision Trees, Ripper |
| 6 | Theoretical | Bayesian Algorithms |
| 7 | Theoretical | Bayesian Algorithms |
| 8 | Intermediate Exam | Mid-term |
| 9 | Theoretical | Clustering |
| 10 | Theoretical | Support Vector Machines |
| 11 | Theoretical | K-Means |
| 12 | Theoretical | Multilayer Percoptrons |
| 13 | Theoretical | Neural Networks |
| 14 | Theoretical | Self Organizing Maps |
| 15 | Theoretical | MATLAB |
| 16 | Final Exam | Final |

| **Workload Calculation** | | | | |
|---|---|---|---|---|
| Activity | Quantity | Preparation | Duration | Total Workload |
| Lecture - Theory | 14 | 2 | 3 | 70 |
| Individual Work | 7 | 2 | 2 | 28 |
| Midterm Examination | 1 | 10 | 1 | 11 |
| Final Examination | 1 | 15 | 1 | 16 |
| | | | Total Workload (Hours) | 125 |
| | | | [Total Workload (Hours) / 25*] = **ECTS** | 5 |
| **25 hour workload is accepted as 1 ECTS* | | | | |

| **Learning Outcomes** | |
|---|---|
| 1 | Explore the fundamental principles of machine learning techniques |
| 2 | Assess the basic concepts of supervised and unsupervised algorithms |
| 3 | Convert and normalize collected information into datasets appropriate for analysis |

| | |
|---|---|
| 4 | Implement machine learning techniques over prepared samples |
| 5 | Analyse the results obtained from the executed experiments |

| **Programme Outcomes** *(Econometrics Master)* | |
|---|---|
| 1 | Understanding the concept of econometric |
| 2 | Ability to estimate econometric models |
| 3 | Test to the estimated reliability of the econometric model |
| 4 | Learning time series analysis |
| 5 | Recognition of financial assets and analysis that estimates the decisions of economic units |
| 6 | Be able to use econometric methods developed specifically for analysis of financial data |
| 7 | To be able to use computer programs needed in the field financial economics as well as information and communication technologies in advanced levels |
| 8 | Provision of the information that will be base for the econometric applications on money theories, theories of international trade and finance |
| 9 | Considering a scientific research,to be able to make a profound literature research, analysis,estimations and reporting findings in a scientific work |

**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 | 3 | 3 | 3 |
| P2 | 3 | 2 | 4 | 3 | 3 |
| P3 | 3 | 2 | 3 | 3 | 4 |
| P4 | 3 | 3 | 3 | 4 | 2 |
| P5 | 4 | 4 | 2 | 2 | 3 |
| P6 | 3 | 3 | 5 | 5 | 2 |
| P7 | 5 | 2 | 3 | 3 | 3 |
| P8 | 3 | 3 | 4 | 3 | 4 |
| P9 | 2 | 4 | 3 | 4 | 2 |