



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

|  |   |  |                      |  |   |                                |   |            |   |
|--|---|--|----------------------|--|---|--------------------------------|---|------------|---|
| Course Title                                     |   | Game Theory and Information  |                      |  |   |                                |   |            |   |
| Course Code                                      |   | İKP515   |                      | Course Level                           |   | Second Cycle (Master's Degree) |   |            |   |
| ECTS Credit                                      | 5 | Workload   | 125 ( <i>Hours</i> ) | Theory                                 | 3 | Practice                       | 0 | Laboratory | 0 |
| Objectives of the Course                         |   | To gain knowledge about Game Theory and information and enabling to gain practical experience  |                      |  |   |                                |   |            |   |
| Course Content                                   |   | Dominance, Nash equilibrium, Dynamic Games, Sub-game Perfect Equilibrium, Repetitive Games, Dynamic Games with Imperfect Information, Auctions, Bargaining |                      |  |   |                                |   |            |   |
| Work Placement                                   |   | N/A  |                      |  |   |                                |   |            |   |
| Planned Learning Activities and Teaching Methods |   |  |                      | Explanation (Presentation), Discussion |   |                                |   |            |   |
| Name of Lecturer(s)                              |   |  |                      |  |   |                                |   |            |   |

### Assessment Methods and Criteria

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

### Recommended or Required Reading

|   |  |
|---|--|
| 1 | Oyun Teorisi (Ensar Yılmaz)                                |
| 2 | Ekonomistler İçin Uygulamalı Oyun Teorisi (Robert Gibbons) |
| 3 | Oyunlar ve Enformasyon (Eric Rasmusen)                     |
| 4 | Martin J. Osborne (2004), Oyun Teorisine Giriş             |

| Week | Weekly Detailed Course Contents |   |
|------|---------------------------------|---|
| 1    | Theoretical                     | Games with Complete Information.-Dominant Strategy Balance                                  |
| 2    | Theoretical                     | Nash Equilibrium, Existence and Properties  |
| 3    | Theoretical                     | Mixed Strategies  |
| 4    | Theoretical                     | Dynamic Games with Complete Information, Expanding Form Games                               |
| 5    | Theoretical                     | Backward Inference and Subgame Equilibrium and Multiphase games                             |
| 6    | Theoretical                     | Repetitive Games ( Limited Repetitive Games)  |
| 7    | Theoretical                     | Repetitive Games ( Unlimited Recurring Games, Repetitive Games with Incomplete Information) |
| 8    | Intermediate Exam               | Mid-Term Exam   |
| 9    | Theoretical                     | Static Games with Incomplete Information (Bayesian Games and Bayesian Equilibrium)          |
| 10   | Theoretical                     | Tenders   |
| 11   | Theoretical                     | Dynamic Games with Incomplete Information (Perfect Bayesian Games)                          |
| 12   | Theoretical                     | Signaling Games   |
| 13   | Theoretical                     | Bargain Games   |
| 14   | Final Exam                      | Final Exam  |

### Workload Calculation

| Activity                              | Quantity | Preparation | Duration | Total Workload |
|---------------------------------------|----------|-------------|----------|----------------|
| Lecture - Theory                      | 14       | 2           | 3        | 70             |
| Lecture - Practice                    | 3        | 5           | 5        | 30             |
| Midterm Examination                   | 1        | 9           | 1        | 10             |
| Final Examination                     | 1        | 14          | 1        | 15             |
| Total Workload (Hours)                |          |             |          | 125            |
| [Total Workload (Hours) / 25*] = ECTS |          |             |          | 5              |

\*25 hour workload is accepted as 1 ECTS

### Learning Outcomes

|   |   |
|---|---|
| 1 | The student will be able to make microeconomic analysis with game theory tools.                             |
| 2 | The student will be able to discuss the applications of game theory in economics and other social sciences. |



|   |  |
|---|--|
| 3 | To be able to apply game-theoretic tools to practical situations                                 |
| 4 | Relates real-life situations to formal games seen in the classroom.                              |
| 5 | To be able to suggest simple changes to the rules of the game to achieve desired social outcomes |

**Programme Outcomes** (*Economic Policy Master*)

|   |   |
|---|---|
| 1 | To be able to understand and interpret basic economic concepts, theories and methods  |
| 2 | To be able to apply mathematical, statistical and econometric analysis tools to economic problems                                 |
| 3 | To be able to interpret the structure and characteristics of the markets in the economy by understanding current economic events. |
| 4 | To be able to describe the role of innovation, creativity and technology in the dynamic global economy.                           |
| 5 | Ability to prepare projects and acquire creativity skills   |
| 6 | Ability to analyze macro and micro economic developments  |
| 7 | Being able to adopt the philosophy of lifelong learning   |

**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 | 4  | 4  | 4  | 4  | 4  |
| P2 | 5  | 3  | 3  | 5  | 3  |
| P3 | 3  | 5  | 5  | 3  | 4  |
| P4 | 4  | 4  | 4  | 4  | 5  |
| P5 | 5  | 5  | 5  | 5  | 3  |
| P6 | 3  | 3  | 4  | 3  | 5  |
| P7 | 4  | 4  | 3  | 4  | 4  |

