

Course number and name	END 369/ Game Theory
Credits, contact hours, categorization of credits	3 credits / 42 hours / Engineering topic
Instructor or course coordinator	Kutay TİNÇ
Text book and other supplemental materials	<ul style="list-style-type: none"> • Osborne, Martin, J. <i>An Introduction to Game Theory</i>, Oxford University Press, N.Y., USA (2004) • Eden, C., Ackermann, F. (1998), <i>Making Strategy</i>, Sage Publications, UK II. • Rasmusen E. (2006), <i>Games and Information: An Introduction to Game Theory</i>, Wiley-Blackwell, 4th edition • Watson, J. (2013). <i>Strategy: An Introduction to Game Theory</i>. W.W. Norton&Company, New York, USA, 3rd edition.

Course information	
Content	Using Game Theory techniques to solve multi player strategies and economic applications..
Prerequisites	END 252 Theory of Probability and END 331 Operation Research I
Type	Selected elective

Course learning outcomes
<p>Students who pass the course will:</p> <ol style="list-style-type: none"> I. Identify strategic situations and represent them as games II. Solve simple games using various techniques III. Analyse economic situations using game theoretic techniques IV. Recommend and prescribe which strategies to implement to solve games

Student outcomes	Level of contribution
SO1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	High
SO2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	Partial
SO3. An ability to communicate effectively with a range of audiences.	Partial
SO4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.	Partial
SO5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.	High
SO6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	Partial
SO7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	Little

Week	Topics	Learning outcome(s)
1	Modeling Philosophy, Principles and Art of Modeling	I
2	Data Analysis for Games	I
3	Basic Definitions in Game Theory	I, III
4	Matrix Games	II
5	Strategic Form Games and Dominance	II
6	Nash Equilibrium	II
7	Applications: Bertrand and Cournot Duopoly Games	III
8	Mixed Strategy	III, IV
9	Mixed Strategy	III, IV
10	Maxminimization	III, IV
11	Extensive Games	III, IV
12	Extensive Games	III, IV
13	Bayesian Games	III, IV
14	Bayesian & Extensive Games Applications	III, IV