Course number and name	END 342 / Knowledge Based Systems
Credits, contact hours, categorization of credits	3 credits / 42 hours / Engineering topic
Instructor or course coordinator	Sezi ÇEVİK ONAR
Text book and other supplemental materials	• Hopgood, Adrian, A. *Intelligent systems for engineers and Scientists,* CRC Press, 3rd eddition,2012, ISBN-13: 978-1439821206. • Baral, C. (2003), *Knowledge Representation, Reasoning and Declarative Problem Solving*, Cambridge University Press. • Larose D.T. (2005), *Discovering Knowledge in Data*, Wiley Interscience.

Course information	
Content	Evaluation of qualitative and quantitative data collected and used by the enterprise, innovation oriented and competitive advantage focused thinking, an appreciation for the unique value of knowledge through theories, awareness of collective intelligence created by collaborative usage of knowledge.
Prerequisites	END 311 Statistics
Type	Selected elective

Course learning outcomes

Students who pass the course will:

I. Demonstrate the value of knowledge and knowledge systems in organizational success.
II. Ability to create and evaluate knowledge accumulated in the firm.
III. Gain willingness to share and collaborate using collective systems and sharing knowledge.
IV. Create a paradigm shift based on innovation in current organizational thinking.
V. Assess and evaluate relations of knowledge and innovation.
VI. Assess and evaluate competitive advantage created by knowledge.

Student outcomes	Level of contribution
SO1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	Partial
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.	Not applicable
SO3. An ability to communicate effectively with a range of audiences.	Little
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.	Not applicable
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.	Little
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	The Need for Knowledge Based Innovation	I, V
2	The Need for Knowledge Based Innovation	I, V
3	Innovation Targets	V
4	Query Development	I, II
5	Data Evaluation and Cleaning	I, II
6	Estimation and Forecast	II, IV
7	Estimation and Forecast	II, IV
8	Knowledge Modelling	II, IV
9	Knowledge Modelling	II, IV
10	Knowledge Clustering	II, IV
11	Developing Knowledge Base	IV, V
12	Knowledge Sharing Models	III, VI
13	Knowledge Sharing Models	III, VI
14	Measures in Knowledge Based Innovation	V, VI