

Course number and name	END 426 / Enterprise Resources Planning
Credits, contact hours, categorization of credits	3 credits / 42 hours / Engineering Topic
Instructor or course coordinator	Emre ÇEVİKCAN
Text book and other supplemental materials	<ul style="list-style-type: none"> • Harwood, S. (2003). <i>ERP: The Implementation Cycle</i>, Butterworth – Heinemann, Oxford. • Olson, D.L. (2004). <i>Managerial Issues of Enterprise Resource Planning Systems</i>, McGraw-Hill/Irwin, Boston. • Ustundag, A., Cevikcan, E. (2018) <i>Industry 4.0: Managing The Digital Transformation</i>, Springer, Switzerland.

Course information	
Content	The course begins with introducing planning and control hierarchy in manufacturing systems including Aggregate Production Planning, Master Production Scheduling and Materials Production Planning with their working systematic. Then capacity planning modules are explained in accordance with the aforementioned planning hierarchy. Then, Distribution Resources Planning and Manufacturing Resources Planning are included. Then, Enterprise Resources Planning (ERP) is focused with its modules, implementation plan and critical success factors. Moreover, order management, production planning and transportation management modules of ERP are demonstrated using a contemporary ERP package.
Prerequisites	END 421 Production Planning & Control
Type	Selected Elective

Course learning outcomes
<p>Students who pass the course will be able to</p> <ol style="list-style-type: none"> I. Comprehend production planning and capacity management notions in a better way, and use it to real applications, II. Implement the notions of transformation of a simple enterprise structure into an integrated one and then a network of enterprises, in the framework of theoretical or application which ever required, III. Set up the supplier, manufacturer and customer relationship IV. Distribute goods economically by means of logistics.

Student outcomes	Level of contribution
SO1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	Little
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.	Not applicable
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.	Not applicable
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.	Partial

Week	Topics	Learning outcome(s)
1	Production System and Resources, Resource Planning Concept, Evolution of Resources Planning in Manufacturing Systems	I
2	Bill of Materials (BOM), Master Production Schedule (MPS)	I
3	Material Requirement Planning (MRP),	I
4	Rough-Cut Capacity Planning (RCCP), Closed Loop Material Requirement Planning, Capacity Requirement Planning (CRP)	I
5	Enterprise Resources Planning (ERP): Framework and Modules	II
6	Order Management Application on ERP software	II, III
7	Manufacturing Resources Planning (MRP II)	I, II
8	Production Planning Application on ERP software	I, II
9	Production Planning Application on ERP software	I, II
10	Distribution Requirement Planning (DRP), Distribution Resources Planning (DRP II)	III, IV
11	Transportation Management Application on ERP software	II
12	Transportation Management Application on ERP software	II
13	Enterprise Resources Planning (ERP), Selection and Evaluation of ERP Software	IV, V
14	Implementation Plan and Management of ERP Projects	I, II, III, IV, V