

<b>Course number and name</b>	END 456E / Analytical Credit Risk Management
<b>Credits, contact hours, categorization of credits</b>	3 credits / 42 hours / Engineering topic
<b>Instructor or course coordinator</b>	Mustafa CERAN
<b>Text book and other supplemental materials</b>	<ul style="list-style-type: none"> <li>• Rösch, D., &amp; Scheule, H. (2020). <i>Deep Credit Risk-Machine Learning in Python</i>. Independently Published, United States.</li> <li>• Locatelli, R., Pepe, G., &amp; Salis, F. (2022). Artificial Intelligence and Credit Risk. <i>Springer Books</i>.</li> <li>• Ders sunumları ve notlar.</li> <li>• Anderson, R. A. (2022). <i>Credit intelligence and modelling: Many paths through the forest of credit rating and scoring</i>. Oxford University Press.</li> </ul>

<b>Course information</b>	
<b>Content</b>	Credit evaluation in banking; analysis of financial and non-financial data; sectoral roadmaps for credit evaluation; formation and monitoring of credit decisions.
<b>Prerequisites</b>	--
<b>Type</b>	Selected elective

<b>Course learning outcomes</b>
<p>Students who pass the course will be able:</p> <ol style="list-style-type: none"> <li>I. Learn the processes involved in the formation, monitoring, and closure of credit risks.</li> <li>II. Develop financial statement analysis skills.</li> <li>III. Analyze sectoral differences and develop strategies for credit risk management.</li> <li>IV. Evaluate the success metrics of analytical models to ensure high-quality credit risk management.</li> </ol>

<b>Student outcomes</b>	<b>Level of contribution</b>
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.	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.	High
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, analyse 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.	High

<b>Week</b>	<b>Topics</b>	<b>Learning outcome(s)</b>
1	Introduction to Credit Risk Management Processes and Credit Analysis	I
2	Preparation Process for Credit Risk Analysis and Basic Financial Statements	I, II
3	Ratio and Percentage Analysis in Credit Evaluation	I, II
4	Flow of Funds and Cash Flow Statements in Credit Evaluation	I, II
5	Non-Financial Data in Credit Evaluation	III
6	Sectoral Differences in Credit Risk Analysis	III
7	Credit Policies and Application Principles; Legal Constraints and Product-Based Credit Risk Management	I, III
8	Efficient Credit Decision Making with AHP and Case Studies	IV
9	Analytical Early Warning Systems and Real-Time Credit Risk Monitoring	IV
10	Risk Management Applications for Personal Loans and Project Financing	III, IV
11	Credit Risk Management for Financial Institutions	III, IV
12	Credit Portfolio Management under IFRS 9: Expected Credit Loss (ECL), Internal Rating-Based Model (IRB), and Risk-Adjusted Return on Capital (RAROC) Approaches	IV
13	AI + Expert Knowledge = Augmented Intelligence; Analytical Credit Decision Support and Auto Allocation Systems	IV
14	General Assessment and Project Presentations	I, II, III, IV