ISM UNIVERSITY OF MANAGEMENT AND ECONOMICS

APPROVED BY
THE STUDY COMMISSION
Minutes No. 02-12-2025-01
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TECHNOLOGY FOR ECONOMIC, ENVIRONMENTAL, AND SOCIAL IMPACT

Course code	*GRAB008*
Level of studies	*Graduate*
Number of credits	*6 ECTS*; *36 class hours, 72 hours of self-study*
Course coordinator (title and name)	*Dr. Gerda Žigienė* *gerda@tvarumokodas.lt*
Prerequisites	*Undergraduate diploma*
Language of instruction	*English*

COURSE DESCRIPTION AND OBJECTIVES

The urgency of climate change and environmental degradation necessitates innovative technological solutions that drive economic, environmental, and social impact. This course explores how green technologies for decarbonization and fintech solutions for sustainability (including AI, blockchain, and digital finance) are shaping the global transition toward a low-carbon, sustainable economy.

We will analyze how advanced digital technologies are transforming industries and business models, enabling sustainable finance, carbon markets, circular economy practices, and industry decarbonisation solutions. The course will provide case studies, frameworks, and hands-on projects to examine the intersection of technology and sustainability. Additionally, the course will explore the European Green Deal, focusing on legislative measures such as the Net Zero Industry Act and the Carbon Border Adjustment Mechanism (CBAM). These policies aim to foster industrial decarbonization, green investments, and regulatory frameworks that drive sustainability across the European Union and beyond.

Moreover, the course will explore the role of emerging business models and technological ecosystems in accelerating the transition to a sustainable economy. Topics will include climate risk analytics, digital ESG reporting tools, and AI-driven climate impact forecasting. Through interactive discussions students will gain practical knowledge on leveraging digital solutions to meet global sustainability goals while fostering economic and industrial resilience.

LEARNING OUTCOMES

Course learning outcomes (CLO)	Study methods	Assessment methods
CLO1. To understand the role of green technologies in decarbonization and climate mitigation.	Lectures, readings, case studies, self-study, groupwork, in class discussions & presentation	Discussion board, Scientific paper analysis and presentation, peer review and feedback
CLO2. To assess the impact of AI, blockchain, and fintech solutions on sustainability.	Lectures, readings, case studies, self-study, groupwork, in class discussions & presentation	Discussion board, Scientific paper analysis and presentation, peer review and feedback
CLO3. To analyze policy frameworks and market mechanisms supporting green finance and carbon neutrality.	Lectures, readings, case studies, self-study, groupwork, in class discussions & presentation	Discussion board, Scientific paper analysis and presentation, peer review and feedback
CLO4. To explore the role financial technologies in shaping the sustainability development.	Lectures, readings, case studies, self-study, groupwork, in class discussions & presentation	Discussion board, Scientific paper analysis and presentation, peer review and feedback
CLO5. To develop strategic approaches for integrating clean technology and sustainable business models.	Lectures, readings, case studies, self-study, groupwork, in class discussions & presentation	Discussion board, Scientific paper analysis and presentation, peer review and feedback

CLO6. To evaluate the impact of EU Green Deal initiatives, including the Net Zero Industry Act and CBAM, on business and regulatory landscapes.	Lectures, readings, case studies, self-study, groupwork, in class discussions & presentation	Discussion board, Scientific paper analysis and presentation, peer review and feedback
CLO7. To analyze and apply cases and industry examples in explaining the role of strategic technology management for social, economic, and environmental prosperity	Lectures, readings, case studies, self-study, groupwork, in class discussions & presentation	Discussion board, Scientific paper analysis and presentation, peer review and feedback

ACADEMIC HONESTY AND INTEGRITY

The ISM University of Management and Economics Code of Ethics, including cheating and plagiarism are fully applicable and will be strictly enforced in the course. Academic dishonesty, and cheating will lead to a report to the ISM Committee of Ethics.

QUALITY ASSURANCE MEASURES

The lecturer will apply multiple teaching methods to keep the students engaged in the topic. Continuous student feedback will be invited and accommodated to improve class experience. Students are encouraged to e-mail the lecturer between the respective classes for any assistance or clarification needed.

COURSE OUTLINE

Session	Topic	In-class Hours	Reading Assignments
1	The Climate Crisis & Technological Solutions	4	Research papers, case studies
2	Green Technologies for Decarbonization	4	Reports on renewable energy, Net-Zero Industry Act,
3	AI and Big Data for Climate Tech	4	AI applications in energy management
4	Blockchain for Sustainability & Carbon Markets	4	Case studies on tokenized carbon credits
5	Sustainable Fintech: AI in ESG Investing	4	Readings on AI-driven sustainable finance
6	Digital Finance for Green Bonds & Impact Investing	4	Reports on sustainable investment strategies
7	Platform economy for sustainability. Financial inclusion	4	Crowdfunding case study
8	The EU Green Deal & Policy Frameworks for Sustainability	4	European Green Deal reports, Net Zero Industry Act analysis
9	Future of Tech & Sustainability	4	Emerging trends, policy outlook
		Total: 36 hrs.	

FINAL GRADE COMPOSITION

Type of assignment	Self-study hours	% of the total grade
Discussion Board (Individual grading)	22	30
Team Project Presentations (Group grading)	32	45
Peer review, analysis and feedback (Individual grading)	18	25
Total:	**72**	**100**

DESCRIPTION AND GRADING CRITERIA OF EACH ASSIGNMENT

Assessment 1. Discussion Board (30%)

The evaluation of the Discussion Forum is based on the following main groups of criteria:

1. Consistency, analysis, originality. Students are awarded a higher grade if they use the competences of critical thinking, analysis and synthesis of information after analysing sources of data and information, rather than just reporting information or facts. Original thought should be awarded a higher mark.

2. *Reference to sources*, lecture material. Higher marks are awarded to students who illustrate their posts with a variety of literature sources, especially scientific literature. The quality of the literature is also important.

3. Interactivity with peers. Higher marks are awarded to students who react to their peers' statements by presenting arguments or counter-arguments, and by logically explaining the connections between their statements and their peers' ideas. Individual contributions that do not respond to the contributions of colleagues are not assessed positively.

Assessment 2. Team Project Presentations (45%)
The group project presentation task involves analysing a scientific article and preparing a presentation in a specific style. Students will have to select a scientific article according to the topics of the course and analyse it, select the relevant elements and present it in class according to the specified structure and style. Details of the task will be provided at the first meeting. Presentation style requires creativity and time management. A presentation prepared in accordance with a particular style must convey the specified structure, the visuals must be appropriate to the information presented, and the selection of the information to be conveyed must be illustrated by analytical and critical thinking, and the ability to organise and extract information.
Time management is crucial - the aim is to present all the information needed at a specific time, which is why advance preparation for speaking is crucial and develops public speaking skills

Assessment 3. Peer review, analysis and feedback (25%)
Analysis of peer presentations and provision of feedback must be based on specific references to scientific articles, which must be chosen to be relevant to the articles being presented. The articles should be analysed, summarised and compared, used as a basis for formulating rebuttal questions and for initiating a scientific debate.

DYSFUNCTIONAL TEAM MEMBERSHIP
At the end of the course, the lecturer will collect peer feedback on team project members' relative performance. In extreme cases where it is determined that a team member did very little, the lecturer reserves the right to lower the grade, or to assign negative grades on the project to that person.

RETAKE
In case of unsatisfactory performance, or in case of missed sessions, students will be asked to write a report for the corresponding class activity (further information will be provided during the class).

REQUIRED READINGS
There is no single textbook for this course, rather a diverse set of articles and reports. A significant part of the preparation for delivery of the groupworks would require research on different sources, scientific articles, industry trends, markets, and particular use cases and scenarios.

Brears, R. C. (2024, October 10). How Blockchain Technology is Transforming Climate Change Initiatives: Carbon Credits, Renewable Global Climate Solutions. https://medium.com/global-climate-solutions/how-blockchain-technology-is-transforming-climate-change-initiatives-carbon-credits-renewable-9941ca4523eb
Carbon Border Adjustment Mechanism—European Commission. (n.d.). https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en
Green tech innovation: Transforming business and reshaping ESG credit. (n.d.-a). https://www.moodys.com/web/en/us/creditview/blog/Green-tech-innovation--transforming-business-and-reshaping-ESG--credit.html
Khan, S., Ullah, A., Liu, Y., & Kashif, M. (2025). Examining the blockchain and green innovation technologies on sustainability (ESG): The moderating role of global financial integration. Journal of Sustainable Finance & Investment, 15(1), 145–181. https://doi.org/10.1080/20430795.2024.2441204
Policy Update: The EU Green Deal's Legacy. (n.d.). https://www.cleantechforeurope.com/policy/policy-update-the-eu-green-deals-legacy
PricewaterhouseCoopers. (n.d.). How the EU's Green Deal is driving business reinvention. PwC. https://www.pwc.com/gx/en/issues/esg/eu-green-deal-reinvention.html
S, S. (2024a, December 9). Green AI Explained: Fueling Innovation with a Smaller Carbon Footprint. Carbon Credits. https://carboncredits.com/green-ai-explained-fueling-innovation-with-a-smaller-carbon-footprint/
The European Green Deal—European Commission. (2021, July 14). https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en