COURSE UNIT (MODULE) DESCRIPTION

Course unit (module) title	Code
Smart Technologies and Digitalization	

Academic staff	Core academic unit(s)
Coordinating: Rima Valentukeviciene **Other:**	Faculty of Economics and Business Administration, Vilnius University

Study cycle	Type of the course unit
Second	Compulsory / Optional

Mode of delivery	Semester or period when it is delivered	Language of instruction
Classroom	Autumn semester	English

Requisites	
Prerequisites: Management	**Co-requisites (if relevant): -**

Number of ECTS credits allocated	Student's workload (total)	Contact hours	Individual work
5	130	32	98

Purpose of the course unit

The purpose of the course unit is to provide students with comprehensive knowledge and practical skills in leveraging cutting-edge digital technologies to drive innovation, efficiency, and competitiveness in global business environments. The course will also foster strategic thinking toward the integration of digital technologies within business models, with regard to ethical and societal implications.

Learning outcomes of the course unit	Teaching and learning methods	Assessment methods
Comprehensive Understanding: Students will gain a comprehensive understanding of smart technologies and digitalization concepts, including business process automation, data management, digital innovation, and the integration of emerging technologies like IoT and AI into business operations.	**Lectures and Presentations, Online Learning Resources and Simulations**: such as interactive simulations, video tutorials, and e-learning modules complement classroom instruction and provide self-paced learning opportunities. **Problem-solving exercises** can challenge students to analyse complex problems related to digital transformation and develop innovative solutions using smart technologies.	**Practical assignments:** require students to apply their knowledge of smart technologies and digitalization concepts to real-world scenarios. They assess students' ability to translate theoretical knowledge into practical solutions and demonstrate technical skills.
Practical Skills Development: Through hands-on exercises and real-world case studies, students will develop practical skills, which requires to understand the smart technologies and digitalisation impact on business environment.	**Case Studies**: Case studies based on real-world business scenarios can help students apply theoretical knowledge to practical situations. **Hands-On Workshops**: allow students to experiment with various	**Presentations and Demonstrations of assignment results of** hands-on exercises and real-world case studies: require students to deliver presentations or

	digital tools, software applications, and technologies discussed in the course. These practical sessions can reinforce theoretical concepts and provide valuable technical skills that students can apply in their future careers. Hands-on exercises and real-world case studies: Require students to deliver presentations or demonstrations on specific topics related to smart technologies and digitalization	demonstrations on specific topics related to smart technologies and digitalization
Critical Analysis: Students will learn to critically analyse the impact of digitalization on business processes, regional and global economies, and international trade, gaining insights into the opportunities and challenges posed by digital transformation.	**Collaborative learning activities** foster critical thinking, communication skills, and peer-to-peer learning.	**Practical assignments:** require students to apply their knowledge of smart technologies and digitalization concepts to real-world scenarios. They assess students' ability to translate theoretical knowledge into practical solutions and demonstrate technical skills.
Strategic Decision-Making: By exploring topics such as AI, machine learning students will enhance their ability to make strategic decisions regarding the adoption and implementation of digital technologies, considering ethical, legal, and security implications.	**Hands-On Workshops**: allow students to experiment with various digital tools, software applications, and technologies discussed in the course. That reinforce theoretical concepts and provide valuable technical skills.	**Hands-on exercises:** require students to deliver decision making solutions and demonstrating an understanding of specific concepts about smart technologies and digitalization
Communication and Collaboration: Through group projects and presentations, students will enhance their communication and collaboration skills, learning to effectively communicate technical concepts, present findings, and collaborate with collegues to solve complex business challenges in the digital era.	**Group project** encourage collaboration and teamwork among students, simulating real-world project environments. Assignments could involve developing digital innovation strategies, designing digital products or services, or implementing business process automation solutions.	**Practical assignments:** require students to apply their communication and collaboration skills and knowledge of smart technologies and digitalization concepts knowledge to solve complex business challenges in the digital era.

Content	**Contact hours**							**Individual work: time and assignments**	
	Lectures	Tutorials	Seminars	Workshops	Laboratory work	Internship	**Contact hours, total**	**Individual work**	**Tasks for individual work**
1. 1. **Business process automation and optimisation:** -Process digitisation and automation -Methodologies and tools for process optimisation -Technologies to manage business processes more efficiently.	2		2				**4**	**12**	Material. Practical assignments and hands on exercises

2. **Digital innovation and product development:** - Digital innovation in enterprises - Innovation management strategies -Digital product development methodologies.	4		4				**8**	**20**	Practical project assignment
3. **Data management and analysis:** - Data digitization and security - Data analytics and business decision-making -Big Data technologies and their use in business.	2		2				**4**	**12**	Material. Practical assignments and hands on exercises
4. **Digitizing business in a regional and global perspective:** - Regional disparities in the digitalization of business -Global trends and challenges in the digitalization of business -Impact of digital transformation on international business.	2		2				**4**	**12**	Material. Practical assignments and hands on exercises
5. **Artificial intelligence and machine learning:** - Applying AI in business and technological systems -Optimizing machine learning algorithms -Ethical and legal aspects of AI.	4		4				**8**	**20**	Group project assignment. Material. Practical assignments and hands on exercises.
6. E-commerce, online shopping and the Internet of Things (IoT): -Development and trends in online commerce Digital marketing strategies -Analysis of e-business platforms -IoT applications in enterprises -Data collection and management on smart devices -Analysis of the suitability of IoT devices in different industries	2		2				**4**	**12**	Practical assignments and hands on exercises
Total	**16**		**16**				**32**	**98**	

Assessment strategy	Weight %	Deadline	Assessment criteria
Project preparation and demonstration	30	During the lecture of selected week for each group	Project evaluation standards (using a 10-point rating system): 1. The capacity to communicate coherently and with confidence as a team. 2. Show the understanding of the problem and use the techniques learned in class to solve it. 3. Show the capacity to back up observations with well-founded conclusions, derived from relevant research data. 4. To exhibit originality in the development and delivery of the presentation material. 5. To adhere to the schedule and ensure the delivery of a presentation that is both impactful and well-organized. 10 = Excellent, 9 = Very Good, 8 = Good, 7 = Highly Satisfactory, 6 = Satisfactory, 5 = Sufficient, 4, 3, 2, 1 = Unsatisfactory

Individual assignment	20	At the end of 2nd lectures	Individual assignment evaluation standards (using a 10-point rating system): 1. Evaluate the extent to which the individual demonstrates a thorough understanding of the subject matter and applies relevant concepts effectively. 2. Assess the individual's ability to analyze problems critically and propose solutions using logical reasoning and evidence-based approaches. 3. Score the individual's capacity to conduct thorough research and support their arguments with credible and pertinent data. 10 = Excellent, 9 = Very Good, 8 = Good, 7 = Highly Satisfactory, 6 = Satisfactory, 5 = Sufficient, 4, 3, 2, 1 = Unsatisfactory
Final exam	50	Exam session	10 = Excellent, 9 = Very Good, 8 = Good, 7 = Highly Satisfactory, 6 = Satisfactory, 5 = Sufficient, 4, 3, 2, 1 = Unsatisfactory

1. Passing Criteria: The final grade is the weighted average of the final exam, project preparation and presentation, and individual assignments.
2. To pass the course, students must:
- Score at least 50% on the final exam.
- Achieve a cumulative grade of 5.0 or higher.
3. Retake Policy:
If student passes the final exam but their cumulative grade is below 5.0, the student must retake the exam until the cumulative grade reaches 5.0 or higher.
External exams are not permitted.
4. Rounding: The final grade is rounded to the nearest whole number according to standard rounding rules: 0.5 or above is rounded up, and below 0.5 is rounded down.

Author (-s)	Publishing year	Title	Issue of a periodical or volume of a publication	Publishing house or web link
Required reading				
Pelin Yildirim Taser	2022	Emerging Trends in IoT and Integration With Data Science, Cloud Computing, and Big Data	1st edition	IGI Global https://10.4018/978-1-7998-4186-9.ch001
Keith Goffin&Rck Michell	2025	Innovation Management Effective Startegy & Implementation	4nd edition	Bloomsbury Academic

Recommended readings

Bruce Sinclair "IoT Inc: How Your Company Can Use the Internet of Things to Win in the Outcome Economy" IoT Inc: How Your Company Can Use the Internet of Things to Win in the Outcome Economy (mheducation.com)
David L. Rogers "The Digital Transformation Playbook: Rethink Your Business for the Digital Age" The Digital Transformation Playbook (degruyter.com)
George Westerman, Didier Bonnet, Andrew McAfee "Leading Digital: Turning Technology into Business

Transformation"
Klaus Schwab "The Fourth Industrial Revolution"
Mark Gates "Smart Contracts: How to Use Blockchain Smart Contracts for Cryptocurrency Exchange" Blockchain smart contracts: Applications, challenges, and future trends | Peer-to-Peer Networking and Applications (springer.com)
Thomas M. Siebel "Dig

5 Trends for 2025
https://www.ibm.com/thought-leadership/institute-business-value/report/business-trends-2025

Cybersecurity 2028: Your workforce, built for the AI frontier
https://www.ibm.com/thought-leadership/institute-business-value/en-us/report/cybersecurity-ai-workforce

https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/digital-at-scale-the-playbook-you-need-to-transform-your-company

https://www.mckinsey.com/capabilities/quantumblack/our-insights/one-year-of-agentic-ai-six-lessons-from-the-people-doing-the-work

Anand Swaminathan, Jurgen Meffert "Digital @ Scale: The Playbook You Need to Transform Your Company")