

WSB University				
Field of study: Management				
Course: IT Tools in Project Management				
Educational profile: practical				
Education level: II -cycle studies				
Number of hours per semester	1		2	
	I	II	III	IV
Full-time studies (L/C/lab/pr/e)		12		
Part-time studies (L/C/lab/pr/e)				
CLASS LANGUAGE	English			
LECTURER	dr. inz Godlove Suila Kuaban			
FORM	Classes (C)			
COURSE OBJECTIVES	The aim of the course is to equip students with the ability to integrate software solutions into key project management functions such as planning, scheduling, resource allocation, risk management, and performance reporting. Participants will gain hands-on experience with widely used project management platforms while also exploring the impact of emerging technologies like AI, cloud computing, blockchain, and collaborative tools. Whether delivered online, in-person, or in a hybrid format, the course equips learners with the digital skills essential for managing projects effectively in today's technology-driven environments.			
Reference to learning outcomes - Field-related learning outcome EFMD	Description of learning outcomes			
	Description of learning outcomes	Teaching and learning methods		Verification of learning outcomes
Knowledge				
Digital Skills and the Use of Information and Communication Technologies LO16 LO17 LO18	Students identify key categories of IT tools used in project management and explain the role of digital transformation in reshaping project management practices. They demonstrate awareness of how different IT tools align with various stages and strategies of project execution. They know the basic functionality of the software solutions dedicated for project planning and scheduling, resource management and cost estimation, risk management and issue tracking, communication and collaboration, and monitoring and reporting,	Teaching Methods: -Lecture presentation with visual aids. -Interactive discussion on how digital transformation is shaping project workflows and organizational agility. -Short quizzes to reinforce understanding and engagement. Learning Methods: -Case study review: Analysis of digital project management strategies in industries undergoing digital transformation. -Group brainstorming activity to classify various tools under the categories discussed		-Regular written/oral quizzes at the end of each lecture/classes. -Grading of tutorial exercises. -Grading of end of semester exams.

	Students explain the role of AI, automation, and blockchain in enhancing project tracking and decision-making.	and associate them with specific project phases and methodologies.	
Skills & Attitudes			
Digital Skills and the Use of Information and Communication Technologies LO16 LO17 LO18	Project Planning and Scheduling Tools Students will demonstrate the ability to: • Develop a Work Breakdown Structure (WBS) for a project using digital tools. • Apply Gantt Charts and the Critical Path Method (CPM) to create effective project schedules. • use digital tools (e.g., Microsoft Project, Primavera P6, or Smartsheet) to plan project tasks, track dependencies, and set milestones. • Develop the ability to analyze and construct a schedule for a chosen project, justifying time and resource allocations.	Teaching Methods: -Lecture presentation with visual aids. -Visual walkthroughs of WBS, Gantt Charts, and CPM examples. -Interactive Q&A sessions focused on project scheduling problems. Learning Methods: -Group work: Collaborative tasks to simulate planning a complex project with shared dependencies. -Case study analysis: Students evaluate and construct a project schedule for a software development project. -Reflection worksheet: Students analyze their own planning process and reflect on tool usage and outcomes.	-Regular written/oral quizzes at the end of each lecture/classes. -Grading of tutorial exercises. -Grading of end of semester exams.
	Resource Management and Cost Estimation Tools Students will demonstrate the ability to: • Allocate human and material resources efficiently using digital resource management tools. • Estimate project costs using bottom-up and analogous budgeting techniques. • Track project expenses and workloads using tools such as MS Project, Primavera, and Excel. •Develop a detailed budget plan for a construction project, considering constraints and risk factors.	Teaching Methods: -Lectures focusing on cost estimation techniques and resource management strategies. -Interactive group discussions on common challenges in resource balancing and budgeting in multi-phase projects. -Instructor-led analysis of real-life budgeting issues in construction projects. Learning Methods: -Excel-based budgeting exercises for creating detailed cost breakdowns and tracking expenses. -Case study assignment: Students work on a simulated construction project, developing a budget and resource plan. -Peer feedback and discussion on cost optimization strategies and resource constraints.	-Regular written/oral quizzes at the end of each lecture/classes. -Grading of tutorial exercises. -Grading of end of semester exams.

	Risk Management and Issue Tracking Tools Students will demonstrate the ability to: • Identify, categorize, and assess project risks using both qualitative and quantitative methods. • Apply tools such as RiskyProject, Risk Matrix, and Jira to develop risk registers and issue logs. • Perform Monte Carlo simulations to evaluate uncertainty and generate probabilistic risk forecasts. • Formulate and document a risk response strategy for an IT project scenario.	Teaching Methods: -Interactive lectures explaining risk concepts, supported by real-world examples. -Guided walkthroughs of Monte Carlo simulation processes and interpretation of results. -Facilitated discussions on lessons learned from major project failures due to unmanaged risks. Learning Methods: -Monte Carlo simulation exercise to explore probability distributions and assess project outcome scenarios. -Issue-tracking practice using Jira to document and monitor project risks, bugs, and team responses. -Case study assignment: Students evaluate and manage risks in a simulated IT project scenario.	-Regular written/oral quizzes at the end of each lecture/classes. -Grading of tutorial exercises. -Grading of end of semester exams.
	Communication and Collaboration Tools Students will demonstrate the ability to: • Use collaboration platforms (Slack, MS Teams, Discord, Zoom, Asana, Confluence) to manage team communication effectively. • Implement document sharing and version control practices using Google Workspace and SharePoint. • Evaluate communication tools for use in different project contexts, especially in remote and hybrid teams. Apply best practices for virtual collaboration, including scheduling, transparency, and accountability.	Teaching Methods: -Interactive lectures to demonstrate the use of tools like Slack, Discord, zoom, MS Teams, and Asana. -Scenario-based discussions on communication breakdowns and collaboration gaps in projects. -Instructor-led tool walkthroughs showing real-time messaging, file sharing, task assignment, and workflow creation. -Discussions or Q&A sessions on virtual collaboration challenges in remote or global project settings. Learning Methods: -Collaboration task: Students work in groups using Confluence or Google Docs to co-edit and version a project document. -Asynchronous collaboration exercise: Using shared platforms to complete tasks across different time zones. -Reflection activity: Students assess the effectiveness of digital communication tools and identify improvement areas.	-Regular written/oral quizzes at the end of each lecture/classes. -Grading of tutorial exercises. -Grading of end of semester exams.
	Monitoring and Reporting Tools Students will demonstrate the ability to: • Track project progress using real-time dashboards and data visualization tools. • Create interactive project dashboards using Power BI, Tableau, or Google Data Studio. • Apply Earned Value Management (EVM) to monitor project cost and schedule performance. • Analyze key performance indicators (KPIs) from an ongoing project and interpret them for stakeholders.	Teaching Methods: -Lectures on KPI dashboards, time tracking, and EVM reporting. -Step-by-step guides for building visual dashboards using Power BI, Tableau, and Google Data Studio. -Interactive discussion of real-world applications and reporting challenges faced by project managers. Learning Methods: -Hands-on exercises in small groups or individually to build project dashboards using real or simulated project data. -Peer review and feedback on dashboard clarity, metric selection, and visual storytelling.	-Regular written/oral quizzes at the end of each lecture/classes. -Grading of tutorial exercises. -Grading of end of semester exams.

	Emerging Technologies and information security Students will demonstrate the ability to: • Evaluate the implications of data security and privacy when using IT tools in project environments. • Assess the suitability of emerging technologies for specific project scenarios. • Evaluate ethical and legal responsibilities in digital project management environments.	Teaching Methods: -Lectures to demonstrate the use of AI-driven tools (e.g., predictive scheduling, automated reporting) in project management. -Real-world examples and use cases illustrating blockchain applications and automation tools in project management. -Discussion-based exploration of data privacy regulations and security incidents in recent project failures. Learning Methods: -Tool exploration activity: Students explore and review current AI-based project management platforms (e.g., ClickUp AI, Wrike AI, monday.com AI). -Research task: Teams investigate how blockchain has been used in project tracking (e.g., supply chain, smart contracts). -Case study analysis: Review and discuss a real-world scenario involving a data breach or cybersecurity issue in a project environment. -Discussion or debate: Pros and cons of automation vs. human oversight in project decision-making.	-Regular written/oral quizzes at the end of each lecture/classes. -Grading of tutorial exercises. -Grading of end of semester exams.
Full- time Participation in lectures = Participation in classes = 12 Preparation to classes = 18 Preparation to lectures = Preparation to an examination = 17 Project tasks = e-learning = Credit/examination = 1 others (indicate which) - consultation = 2 TOTAL: 50 ECTS points: 2 Including practical classes: 12	Part-time Participation in lectures = Participation in classes = Preparation to classes = Preparation to lectures = Preparation to an examination = Project tasks = e-learning = Credit/examination = others (indicate which) = TOTAL: ECTS points: Including practical classes:		
PREREQUISITES	Basic Computer Literacy, Foundational Knowledge of Project Management Concepts, and Basic Math and Analytical Skills		
COURSE CONTENT (Division into contact hours and e-learning)	Contact hours: 12h Module 1: Introduction to IT Tools in Project Management • Overview of IT tools in project management • Importance of digital transformation in project management • Categories of IT tools: planning, collaboration, risk management, monitoring • Overview of methodologies: Agile, Waterfall, Hybrid Module 2: Project Planning and Scheduling Tools • Introduction to Work Breakdown Structure (WBS) • Gantt Charts and Critical Path Method (CPM) • Hands-on: Microsoft Project, Primavera P6, Smartsheet • Task dependencies and milestone tracking		

	- Case study: Scheduling a software development project Module 3: Resource Management and Cost Estimation Tools - Resource allocation and workload balancing - Budgeting and cost estimation - Hands-on: MS Project, Oracle Primavera, Excel for cost tracking - Case study: Budgeting a construction project Module 4: Risk Management and Issue Tracking Tools - Identifying, assessing, and mitigating risks - Hands-on: RiskyProject, Risk Matrix, Jira for issue tracking - Monte Carlo simulations for risk assessment - Case study: Managing risks in an IT project Module 5: Communication and Collaboration Tools - Importance of communication in project management - Hands-on: Slack, Microsoft Teams, Asana, Confluence - Document sharing and version control: Google Workspace, SharePoint - Best practices for remote team collaboration Module 6: Monitoring and Reporting Tools - Real-time project tracking and dashboards - Hands-on: Power BI, Tableau, Google Data Studio - Earned Value Management (EVM) analysis - Case study: Tracking KPIs in an ongoing project Module 7: Emerging Technologies and information security - AI & automation tools in project management - Data Security and Privacy Issues in the Context of IT Tools in Project Management - Blockchain for project tracking and transparency E-learning:
LITERATURE (compulsory reading)	- Lecture notes on IT Tools in Project Management prepared by the lecturer. - Richardson, Gary L., and Deborah Sater Carstens. <i>Project management tools and techniques: A practical guide</i>. CRC Press, 2019. - Botha, Johan, and Darelle Van Greunen. "The Use of Project Management Technology Tools for Managing Digital Solutions Projects: A case example." (2023). - Ershadi, Mahmoud, Marcus Jefferies, Peter Davis, and Mohammad Mojtahedi. "Effective application of information technology tools for real-time project management." In <i>International conference on digital technologies and applications</i>, pp. 719-729. Cham: Springer International Publishing, 2021. - Pereira, Andre Marques, et al. "Comparison of open source tools for project management." <i>International Journal of Software Engineering and Knowledge Engineering</i> 23.02 (2013): 189-209. - Cicibas, Halil, Omer Unal, and Kadir Alpaslan Demir. "A Comparison of Project Management Software Tools (PMST)." <i>Software Engineering Research and Practice</i>. 2010.

OPTIONAL LITERATURE	1. Mikhaylov, Alexander. "A Survey of Artificial Intelligence Tools in Project Management." <i>World Congress of the International Project Management Association</i>. Cham: Springer Nature Switzerland, 2021. 2. Lokhande, Anand. "Use of artificial intelligence smart tools in projects." <i>2022 8th International Conference on Smart Structures and Systems (ICSSS)</i>. IEEE, 2022. 3. El Khatib, Mounir, et al. "The impact of blockchain on project management." <i>ICIC Express Lett</i> 15.5 (2021): 467-474. 4. Sonmez, Rifat, Ferda Özdemir Sönmez, and Salar Ahmadiheykhsarmast. "Blockchain in project management: a systematic review of use cases and a design decision framework." <i>Journal of Ambient Intelligence and Humanized Computing</i> (2023): 1-15. 5. HARAKE, MF. "Integrating Cybersecurity into Project Management: Best Practices, Emerging Trends, and Strategic Approaches." (2025).
SCHOLARLY PUBLICATIONS BY PERSONS WHO CONDUCT CLASSES, WHICH ARE RELATED TO THE MODULE SUBJECT	Some recent articles published by the lecturer include: 1. Kuaban, G. Suila, T. Czachórski, E. Gelenbe, and P. Czekalski, "Time-Dependent Analysis of the Interaction Between Energy Harvesting, Leakage, and Consumption Processes in a Green IoT Device", <i>IEEE Access</i> , 2025. 2. Nwobodo, O. J., G. Suila Kuaban, V. Nkemeni, K. Wereszczyński, and KRZYSZTOF. A. CYRAN, "A Hybrid Adaptive Filter for Head Tracking in Augmented Reality (AR)-based Flight Simulators", <i>IEEE Transactions on Computers</i>, 2025. 3. Kuaban, G. Suila, T. Czachórski, G. Erol, and P. Czekalski, "Time-dependent analysis of the interaction between energy harvesting, leakage and consumption processes in a Green IoT Device", <i>IEEE Access</i>, 13/05/2025. 4. Nwobodo, O. J., G. Suila Kuaban, K. Wereszczyński, and KRZYSZTOF. A. CYRAN, "Enhancing Learning in Augmented Reality (AR): A Deep Learning Framework for Predicting Memory Retention in AR Environments", <i>25th International Conference on Computational Science</i>, Singapore, Springer, Cham, 07/2025. 5. Kuaban, G. Suila, T. Nycz, M. Nycz, T. Czachórski, and P. Czekalski, "Modelling the Transient Evolution of Queues in Plugged-in Electric Vehicles(PEV) Fast Charging Stations", <i>25th International Conference on Computational Science</i>, Singapore, Springer, Cham, 07/2025. 6. Sell, R., P. Czekalski, K. Tokarz, G. Suila Kuaban, A. Nikitenko, K. Berkolds, and L. Lipka, "An international hands-on IoT education platform towards Industry", <i>Proceedings of the Estonian Academy of Sciences</i>, vol. 74, issue 2, 07/05/2025. 7. Kuaban, G. Suila, V. Nkemeni, and P. Czekalski, "An Analytical Framework for Optimizing the Renewable Energy Dimensioning of Green IoT Systems in Pipeline Monitoring", <i>Sensors</i>, vol. 25, issue 10, 15/05/2025.

TEACHING AIDS	The course employs a variety of digital, visual, and interactive teaching aids to enhance student understanding and engagement. These aids are selected to support both the conceptual and practical aspects of project management using IT tools. 1. Multimedia Presentations • PowerPoint slides with visual explanations of project management concepts and tool workflows. • Embedded videos and tutorials demonstrating tool functionalities (e.g., creating a Gantt chart in MS Project or a dashboard in Power BI). 2. Project Management Software Tools Access to and use of any of the following professional tools: 1. Excel, Power BI, Tableau, Google Data Studio (for cost tracking and reporting) 2. Slack, MS Teams, Asana, Confluence (for collaboration) 3. Microsoft Project, Primavera P6, Smartsheet (for planning and scheduling) 4. Jira, RiskyProject, Risk Matrix (for risk and issue tracking) 3. E-Learning Platforms / Learning Management System (optional) • MS Teams or Moodle for lecture materials, assignment submissions, discussion forums, and feedback. • Shared document folders (e.g., SharePoint, Google Drive) for collaborative tasks and version control exercises.
PROJECT (if implemented in the framework of a classes module)	Not applicable Project goal:---- Topic of the project:---- Project form:----
FORM AND CONDITIONS OF ASSESSMENT CRITERIA FOR ASSESSING ACHIEVED LEARNING OUTCOMES.	Evaluation criteria: 1. Attendance in on-site classes. 2. Participation in written/oral quizzes. 3. Completion of practical tutorial exercises. 4. Final end of semester exams. Grading scale: Grading criteria and percentages, outlining the requirements for achieving grades ranging from 5.0 to 2.0. 5.0 - Attendance of at least 80% of class hours, completion of all the assignments, solving a knowledge test with 88%-100% correct answers 4.5 - Attendance of at least 60% of class hours, completion of most of the assignments, solving a knowledge test with 83%-87% correct answers 4.0 - Attendance of at least 50% of class hours, completion of most of the assignments, solving a knowledge test with 66%-82% correct answers 3.5 - Attendance of at least 50% of class hours, completion of part of the assignments, solving a knowledge test with 61%-65% correct answers 3.0 - Attendance of at least 40% of class hours, completion of part of the assignments, solving a knowledge test with 50%-60% correct answers 2.0- Students attending less than 40% of exercise hours will not be eligible for credit.

* L-lecture, C- classes lab- laboratory, pro- project, e- e-learning