Course title	IT Project Management				
Course code	IS503				
Course type	Compulsory				
Level	Postgraduate				
Year / Semester	1st/1st				
ECTS	7.5	**Lectures / week**	1	**Laboratories / week**	
Course purpose and objectives	Every year, billions of dollars are spent on thousands of information technology (IT) projects worldwide. In an era marked by rapid advances in both software and hardware systems, it is no surprise that interest in this field is exploding. Project management today has evolved into a multifaceted discipline that demands not only technical proficiency but also a broad set of people skills as well. IT Project management encompasses the coordination of technology, people, culture and stakeholders, while addressing the complexities of diverse project environments. It requires knowledge of leadership, team building, conflict resolution, negotiation, and influence in equal measure with the traditional, technical skill set. This course takes a holistic and integrated approach to managing projects by exploring both the technical and managerial challenges inherent in modern project execution. Beyond traditional activities—such as planning, scheduling, control, and termination, the course provides a strategic perspective that includes the critical analysis of various project management methodologies. You will learn to assess and compare methodologies (such as predictive, Agile, and hybrid approaches) by considering their strengths, limitations, and applicability to different types of projects. By the end of the course, you will be equipped not only with the practical skills required to execute projects but also with the critical insight needed to select and tailor project management methodologies to real-world challenges. We do not, therefore, only emphasise individual project execution, but also provide a strategic perspective, demonstrating the means with which to manage projects. Our focus, thus, is broadened beyond the traditional project management activities of planning				

	and scheduling, project control and termination to a more general and inclusive perspective of the project management process. Upon completing this course, students will gain a clear understanding and deep knowledge of: ▪ How a project is organized, monitored, and controlled. ▪ How activities and tasks are identified, planned for, and resources are allocated, leveled, and smoothed. ▪ How risks are identified, analyzed, and mitigated. ▪ How stakeholders are identified, analyzed, and managed, including the creation of power/interest grids. ▪ How a project team is formed and the role of the project manager. ▪ How project costs are identified, a project budget is created, and costs are controlled and monitored through techniques such as Earned Value Management (EVM). ▪ How projects can be compressed to meet deadlines without compromising quality or reducing the project scope.
Learning outcomes	After the completion of the course, students will be able to: CLO[1] Demonstrate critical understanding of the processes, practices and techniques involved in managing software projects. CLO[2] Critically evaluate and address the issues relating to the management of time, cost, scope, risk and stakeholders. CLO[3] Critically evaluate various project management methodologies (e.g., plan-based, agile and hybrid approaches) by analyzing their strengths, weaknesses, and suitability in different project contexts. CLO[4] Demonstrate advanced knowledge and ability to create project schedules and budgets and compress them. CLO[5] Demonstrate knowledge and critically apply a range of risk analysis techniques within a project management context.

CLO[6] Demonstrate the ability to effectively self-organize within teams and engage in collaborative work to achieve project goals.

A detailed breakdown of Course Objectives based on the Course Learning Outcomes can be found below:

1. Knowledge	By completing the course, you will be able to: C.O.[1]. Analyze and critically evaluate the organization of complex projects, including the identification of activities and tasks, and the comprehensive assessment, management, and mitigation of risks. C.O.[2]. Examine and apply advanced methodologies and techniques for monitoring and controlling projects, ensuring alignment with strategic objectives. C.O.[3]. Explain the concepts of project and project schedule. C.O.[4]. Develop, evaluate, and monitor comprehensive project budgets, incorporating financial management principles C.O.[5]. Evaluate and optimise the allocation of resources to activities and tasks, applying resource management theories and tools to enhance project efficiency and effectiveness. C.O. [13] Analyse the principles and practices of self-organising teams, including the roles, responsibilities, and behaviours that promote effective collaboration and team cohesion. C.O. [14] Explain the core principles, strengths, and limitations of Agile, plan based, and hybrid methodologies and their suitability for different project contexts (e.g., safety-critical, hardware-intensive, or administrative systems etc.).

		2. Skills	C.O.[6]. Apply compression techniques to IT projects to optimize timelines and resources, ensuring project delivery within constraints. C.O.[7]. Develop and demonstrate critical thinking and analytical skills in addressing complex project management issues and challenges. Apply Critical Path Method (CPM) and identify critical paths, critically assess stakeholder management strategies, and evaluate both predictive and adaptive project life cycles to choose the most appropriate approach for specific projects. C.O.[8]. Prepare and present detailed project management proposals, demonstrating a clear understanding of project requirements. C.O.[12] Utilise advanced collaborative tools and techniques, including AI tools, to enhance communication, coordination, and productivity within project teams.
		3. Competencies (Responsibility and autonomy)	C.O.[9]. Analyse the structural elements of software projects (software project management) autonomously. C.O.[10]. Independently monitor all phases of a project, ensuring adherence to timelines, budgets, and quality standards C.O.[11]. Independently evaluate the outputs of a project to ensure deliverables meet stakeholder expectations and project objectives. C.O.[15]. Demonstrate strategic decision-making by selecting and tailoring the most appropriate project management methodology for diverse project scenarios based on an integrated analysis of risks, requirements, and contextual factors.

Prerequisites		**Required**	
Course content	**Week 1: Course Overview and Introduction to Project Management [CLO1]** The course begins with an overview of the fundamental principles of project management, key challenges, and industry best practices. Core concepts such as project definition, project life cycle, and the primary constraints (time, cost, and quality) are introduced. The significance of project management in achieving strategic organizational success is highlighted. Students will familiarize themselves with essential processes and understand project management as a critical business function. **Week 2: Project Strategy, Processes, and Methodologies – Predictive vs. Agile Project Management [CLO1, CLO2, CLO3]** This week focuses on the strategic role of projects within organizations, their alignment with business objectives, and the key approaches to project management. A comparative analysis of the two main methodologies—Predictive (Waterfall) and Agile—is conducted, emphasizing their advantages, limitations, and the contexts in which they are best applied. Students will gain an in-depth understanding of the foundational principles of each methodology and assess their suitability for various project types. **Week 3: Project Initiation and Scope Management [CLO1, CLO2, CLO3, CLO4]** The session covers project selection processes, business case development, and the assessment of a project's economic value. Project scoring models and the creation of the project charter are discussed. Scope management is explored in detail, including the development of the Work Breakdown Structure (WBS) and the establishment of SMART objectives to ensure that the project remains within its initial plan and specifications. **Week 4: Project Scheduling – Introduction to Network Diagrams (AON and AOA) [CLO1, CLO2, CLO4, CLO6]** This week introduces the fundamentals of project scheduling and the importance of time management. Students will learn to develop network diagrams, including Activity-on-Node (AON) and Activity-on-Arrow (AOA), identify activities and dependencies, and utilize tools such as Gantt Charts for effective project scheduling and time management. **Week 5: Project Scheduling – PERT Analysis, Critical Path Method, and Project Completion [CLO1, CLO2, CLO4, CLO6]** The Program Evaluation and Review Technique (PERT) is introduced for estimating activity durations, alongside the Critical Path Method (CPM) for identifying critical project activities. Students will develop hands-on skills in assessing the impact of delays and managing project completion. The concept of probability in project completion is explored, including the application of Z-score		

	analysis within PERT to determine the likelihood of meeting project deadlines based on normal distribution. **Week 6: Project Resource Management – Allocation, Leveling, and Balancing [CLO1, CLO2, CLO6]** This session covers resource allocation techniques and strategies for optimizing the use of available human and material resources. Key concepts such as resource leveling and smoothing are examined, ensuring project efficiency and minimizing resource-related bottlenecks. **Week 7: Project Risk Management – Identification, Analysis, and Mitigation [CLO1, CLO2, CLO5]** Risk management is a fundamental aspect of project success. Students will learn to identify, analyze, and mitigate project risks using both qualitative and quantitative approaches. Techniques such as risk matrices and Failure Mode and Effects Analysis (FMEA) are introduced to enhance risk assessment capabilities. **Week 8: Project Cost Management – Budgeting and Earned Value Management (EVM) [CLO1, CLO2, CLO4]** This week focuses on project budgeting and cost estimation methods. The Earned Value Management (EVM) technique is presented, providing students with tools to monitor project financial performance concerning planned costs and schedules. **Week 9: Project Acceleration – Schedule Compression Techniques [CLO1, CLO2, CLO4]** Students will explore strategies for accelerating project completion, including Crashing and Fast Tracking techniques, which aim to reduce project duration while minimizing quality compromises. **Week 10: Stakeholder Management and the Role of the Project Manager [CLO1, CLO2, CLO6]** This session examines the role of stakeholders in project management and strategies for balancing their expectations and requirements. The responsibilities of the project manager in ensuring stakeholder engagement and project success are discussed in detail. **Weeks 11 & 12: Introduction to Agile Project Management – The Scrum Methodology [CLO1, CLO2, CLO3, CLO6]** Students are introduced to the principles of Agile project management, with a focus on the Scrum framework. Key roles, ceremonies, and artifacts within Scrum are explored, along with its adaptability across different project environments. **Week 13: Final Course Review and Revision [CLO1, CLO2, CLO3, CLO4, CLO5, CLO6]** The course concludes with a comprehensive review of the key concepts and theories covered throughout the semester. Students will engage in practical application

	exercises and Q&A sessions to consolidate their understanding and prepare for the final assessment.
Teaching methodology	Mix of lectures, active learning techniques, and activities. More precisely: ▪ Interactive face-to-face lectures ▪ Group activities/discussions ▪ In-class activities and tutorials ▪ Formative and Summative Assignments ▪ Case study discussion and peer review exercises ▪ Web links and educational videos ▪ Online quizzes In addition to the final examination and the four interactive assignments, the course assessment includes a major individual project, which constitutes a significant component of the overall evaluation. This project is designed to provide students with hands-on experience in project planning and management within a simulated business environment. Students are expected to define the project's objectives, scope, and key deliverables while developing a comprehensive schedule that outlines milestones, dependencies, and timelines. They will analyze the critical path to determine the sequence of tasks that impact project completion, evaluate and manage potential risks by identifying uncertainties and developing mitigation strategies, and estimate and allocate costs to ensure accurate budgeting and financial planning. Additionally, students will create a detailed project budget, identify key stakeholders involved in the project, and conduct a thorough stakeholder analysis to assess interests, levels of influence, and communication strategies. Through this project, students will not only apply theoretical knowledge in a practical setting but also enhance their critical thinking, decision-making, and strategic project management skills, preparing them for real-world challenges in business and technology-driven environments. Formative assessment is also a fundamental aspect of the course, playing a crucial role in monitoring and supporting students' learning progression. The primary objective of formative assessment is to enhance students' comprehension and knowledge by providing detailed feedback on submitted assignments. This feedback will serve as a mechanism for continuous improvement, allowing students to refine their understanding and enhance their work before the final submission of their major assessment. This assessment approach ensures that students not only acquire theoretical knowledge but also develop essential skills in system analysis, design, prototyping, and professional communication, all of which are critical for their future careers.

Bibliography

Required textbook

1. Maylor H. and L. Turner 2022. Project Management, 5th Edition. Pearson
2. Schwalbe, K. 2021. An Introduction to Project Management, Seventh Edition: Predictive, Agile, and Hybrid Approaches, 7th edition
3. Pinto, K.J., 2019. Project Management: Achieving Competitive Advantage, 5th Edition, Pearson. ISBN-13: 978-0-13-473045-5
4. Schwalbe, K. 2019. Information Technology Project Management. 9th edition. Cengage. ISBN-13: 9781337101356

Further reading

5. Girvan and Paul. 2017. Agile and Business Analysis: Practical guidance for IT professionals, CS, The Chartered Institute for IT; 1st edition
6. Schwaber, K and Sutherland, J. 2020. The Scrum Guide: The Rules of the Game
7. Stellman and Greene. 2014. Learning Agile: Understanding Scrum, XP, Lean, and Kanban. O'Reilly Media

Assessment

	Percentage	CLO1	CLO2	CLO3	CLO4	CLO5	CLO6
4 Interactive Activities	20%	√	√	√	√		√
Main Coursework	20%		√	√		√	√
Final Exam	60%		√	√	√	√	√

Assignment Details:

Written Assignment	Quiz	Oral Presentation	Research Study Analysis	Software Development	Case Study
√	√	√			√

Formative Assessment (Non-Graded):

Peer Evaluation	Discussion Boards / Forums	Multimedia Activities	Wiki	Oral Presentation

	√	√	√	√		
Language	English, Greek					