

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS



Vice Rector for Educational and Methodical Work

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**AGILE AND SCRUM IN WORKING ON PROJECTS**  
syllabus of the academic discipline

Field of knowledge	<b>all</b>
Speciality	<b>all</b>
Educational cycle	<b>first (bachelor)</b>
Educational program	<b>all</b>

Course type

Language of teaching, learning and assessment

**Elective**

**English**

Head of Entrepreneurship  
and Hotel & Restaurant business Department

Maryna SALUN

**Kharkiv**  
**2021**

APPROVED

at the meeting of the Entrepreneurship and Hotel& Restaurant business Department  
Protocol № 3 dated 29.10.2021.

Developer:

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Updates and re-approvals of syllabus

Academic year	Date of the department`s meeting	Protocol №	Head of Department signature

## Introduction

**Abstract of the course.** Agile project management methodology has long become the standard in project development in the IT industry. But right now, flexibility goes beyond software development. Business owners understand that they need to change the way they manage projects in order to be competitive. Flexible management also means working step by step. The Scrum-based approach allows you to constantly improve the product, which ultimately allows you to end up with a product that fully satisfies all stakeholders of the project, since they are involved at all stages of its development.

This course focuses on moving from traditional to agile project management technologies that focus on products and people, rather than the need for high-level documentation of the project development process. In Scrum, one of the key criteria for the effective work of a project team is constant communication with stakeholders, autonomy and self-control when making decisions in the process of performing a particular task. All these advantages allow you to gradually introduce the principles of Agile methodology for managing project teams to improve business performance and optimize its time and resource costs.

**The purpose** of this discipline is to create a system of basic knowledge, abilities, skills and competencies for the implementation of project work on flexible methodologies (Agile and Scrum) to increase the competitiveness and openness of business.

**Main tasks:**

- introduction to the content, essence of project management using flexible technologies;
- the life cycle of the project; mastering the methods of introducing Agile management into business practice;
- formation of practical skills in team building using Scrum;
- practical application of the knowledge gained on the development of Scrum products and their legal support;
- studying and applying in practice the methodological foundations of project planning and control using Scrum;
- risk assessment and their minimization in non-standard situations; justification of the cost, quality and timing of the project.

**The object** of the discipline is the agile project management process.

**The subject** of the discipline is the managerial influence on the process of implementing projects on flexible technologies.

### Characteristics of the discipline

Year	3
Semester	5
ECTS credits	5
Final control	credit

### Structural-logical scheme of the discipline

Prerequisites	Postrequisites
Management	Coursework
Marketing	Graduate work

## Competences and results of discipline studying

Competences	Study results
Ability to manage projects using Agile and Scrum agile technologies	Be able to implement projects using flexible Agile and Scrum technologies, performing certain roles in project activities
Ability to apply the Agile approach to project planning	Be able to apply the Agile approach to project planning to save project execution time
Ability to make quality decisions in Agile product management based on Scrum	Provide flexibility in the project management process
Ability to reduce project risks	Minimize project implementation risks by using flexible technologies

### Syllabus of the academic discipline

#### **Theme 1. Traditional project management methodologies**

Project management standards. Project Management Body of Knowledge (PMBoK), "A Guidebook of Project and Program Management for Enterprise Innovation" (P2M), Projects IN Controlled Environments (PRINCE2).

Projection of areas of knowledge into action groups for the PMBoK.

Business processes in project management. Cascade model.

#### **Theme 2. Agile project management methodologies**

Differences between agile project management technologies and traditional Agile manifesto.

Key success factors for an Agile project. Agile project results.

Agile methodologies: Lean, Scrum, Kanban.

#### **Theme 3. Project life cycle**

Models and examples of the project life cycle.

Transition between phases. Diagram of the relationship of actions by phases of the life cycle.

Classic waterfall project life cycle.

V-model.

Rapid prototyping life cycle.

Agile project life cycle. Mixed life cycle.

#### **Theme 4. Project structuring**

Project structuring as an integral part of project management. Modern direction of project structuring. Approaches to structuring a project: building a project structure based on a product structure; life cycle based; based on goals and objectives; based on the structure of performers.

The hierarchical structure of the project's work.

Creation of a work breakdown structure (WBS): the need for a WBS, approaches to building a WBS, defining hierarchical levels, creating a WBS.

#### **Theme 5. Network and scheduling of the project**

Processes for defining a works list of and their parameters.

Setting the sequence of works. Determination of work links and building a network diagram.

Processes for estimating project duration.

Critical Path Analysis Build a project schedule. Building a Gantt chart.

#### **Theme 6. Cost management and project budgeting**

Characterization processes cost planning.

Planning the resource requirements of the project. Development of the project budget.  
Sources of funding for projects. Composition of estimated costs.

### **Theme 7. Quality management in projects**

Regulatory guidelines for planning quality management processes. ISO 9000 series standards. ISO 21500 standard.

Quality management tools. Pareto chart, Ishikawa chart.

Total Quality Management and Six Sigma concepts.

### **Theme 8. Agile methodology implementation in the company**

Definition and essence of Agile management. Reasons and benefits of moving to Agile management.

Defining the vision of the project.

Business value.

Team building.

Creating a product backlog.

User stories.

Product acceptance criteria.

### **Theme 9. Project team management**

Building a project team. Teamwork.

Staff recruitment.

Adaptation.

Leadership and responsibility.

Personnel training and development.

Dismissal of employees.

### **Theme 10. Scrum team building. Team roles**

The essence and benefits of using Scrum. The role and responsibilities of the Scrum team. Scrum Teams Attributes, Roles and Responsibilities.

Scrum team size. Scrum Master. Owner of the product. Development team. Development team size.

Working with clients, users and other stakeholders. Scaling the product owner role. Errors when working with Scrum.

### **Theme 11. Scrum product development**

Product vision. Minimum Valuable Product (MVP). Customer needs and product characteristics. Working with the product backlog.

Release planning. Collaboration during the sprint. Sprint planning.

Daily Scrum meetings. Sprint backlog. Sprint overview. Sprint retrospective.

### **Theme 12. Legal support of projects**

Types of contracts. Non-Disclosure Agreement (NDA).

General Service Agreement (MSA). Service Level Agreement (SLA).

Terms of reference (SOW). Project Charter (RS).

General Data Protection Regulation (GDPR).

### **Theme 13. Tracking systems**

The essence and concept of task tracking systems.

Features of task tracking systems. Jira. Trello. Google Task Manager. Redmin. PivotalTracker.

#### **Theme 14. Project risks**

Risk categories, risk classification. Identification of project threats. Precaution planning. Risks Management.

Risk functions and the formation of potential project risks; qualitative risk analysis; quantitative risk analysis (assessment of the probability of risk occurrence; sensitivity analysis; scenario analysis; decision tree; Monte Carlo simulation); risk response planning (avoidance, risk insurance, risk diversification, risk acceptance).

Outsourcing and offshoring in project risk management.

#### **Theme 15. Combining Scrum with other project management methodologies**

Using Kanban technology. Stages of introduction. Kanban boards. Backlog in Kanban.

Control of the number of unfinished tasks.

Lean stages and their elasticity. Strengths and weaknesses of Lean.

The list of workshops (seminars), as well as questions and tasks for independent work is given in the table "Rating-plan of the discipline".

#### **Teaching and learning methods**

Teaching the discipline involves the use of such teaching methods as Explanatory-illustrative method, Problem statement method, Heuristic method and modern educational technologies, such as Lectures of a problematic nature (Theme 2, 5, 7, 9, 15), Mini-lectures (Theme 4, 6, 13), Work in small groups (Theme 1–15), Presentations (Theme 2, 3, 6, 10, 13), Project work method (Theme 14).

#### **Evaluation procedure of training results**

The evaluation system takes into account the types of students' activities, which according to the curriculum include lectures and workshops as well as independent work. Evaluation procedure of the students' competencies is carried out on using a 100-point accumulation system. Evaluation procedure include current semester control is carried out during lectures and workshops according to the curriculum schedule. It's estimated by amount of points received (maximum – 100 points; minimum, – 60 points).

Assessment of knowledge during monitoring includes the following:

active work in a lecture provides 1 point for each lecture lesson and provides for participation in discussions in the audience, the ability to substantiate one's position on issues (15 points);

active work in a practical lesson the protection of the results of task performance provides 2 points for each practical lesson or laboratory work and provides for participation in research and calculations in the process of performing individual tasks and tasks submitted for consideration in the classroom (30 points);

current tests on subjects of the discipline are carried out according to the options posted on the website of personal training systems of Simon Kuznets KhNUE and are estimated at a maximum of 10 points (30points);

completing the assignment for independent work provides 1 point for the assignment of each topic of the academic discipline (15 points);

the individual competence oriented assignment with completed developments and on an agreed topic is estimated at a maximum of 10 points.

The evaluation procedure of training results is carried out according to such criteria:

understanding, assimilation level of the theory and methodology of problems, actual material of the discipline; familiarization level on the recommended literature, as well as the modern literature on the actual issues; the ability to combine theory with practice in simulated production situations, in decision-making situations, during solving tasks process, performing

calculations for individual tasks and workshops submitted for consideration in an audience; logic, structure, style of presentation of written works and speeches, ability to substantiate their own position, to generalize information and to draw conclusions; the arithmetic correctness of the individual and complex task; the ability to conduct a critical and independent assessment of problem issues; the ability to explain alternatives and defend their own position, their own point of view on problem issues.

General criteria for evaluation procedure for independent work: the depth and strength of knowledge, the ability to systematize knowledge on specific topics, the ability to make informed conclusions, the understanding of the categorical apparatus, the ability to use skills and techniques to perform practical tasks, the ability to find the necessary information, to systematize it and make processing procedure, self-realization at workshops.

Final control carried out on the basis of current semester control.

A student is certified if the sum of the points earned on the results of the final / semester control is equal to or exceeds 60. The result in points is entered in the "Transcript of Records" for the academic discipline.

### Evaluation Scale: national and ECTS

The amount of points for all types of educational activities	ECTS Score Scale	National Score Scale	
		for exam, course project (work), internship	credit
90 – 100	A	excellent	credited
82 – 89	B	good	
74 – 81	C		
64 – 73	D		
60 – 63	E	satisfactorily	not credited
35 – 59	FX	unsatisfactorily	
1 – 34	F		

### Rating-plan of the discipline

Theme	Forms and types of education		Evaluation	Max point
Theme 1	Classroom work			
	Lecture	Traditional project management methodologies	discussion activity	1
	Workshop	Comparative characteristics of traditional project management methodologies	group work	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 2	Classroom work			
	Lecture	Lectures of a problematic nature: Agile project management methodologies	discussion activity	1
	Workshop	Comparative characteristics of Agile project management methodologies	group work, presentation	2

	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 3	Classroom work			
	Lecture	Project life cycle	discussion activity	1
	Workshop	Structuring works by stages of the life cycle	group work? presentation	2
		Current test Theme 1-3	individual testing	10
	Independent work			
Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1	
Theme 4	Classroom work			
	Lecture	Project structuring	discussion activity	1
	Workshop	Mini-lectures: How to create Work Breakdown Structure Create Work Breakdown Structure (WBS)	group work	2
		Independent work		
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 5	Classroom work			
	Lecture	Lectures of a problematic nature: Network and scheduling of the project	discussion activity	1
	Workshop	Building a network diagram	group work	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 6	Classroom work			
	Lecture	Cost management and project budgeting	discussion activity	1
	Workshop	Mini-lectures: Project budget Types Project budget development	group work, presentation	2
		Current test Theme 4-6	individual testing	10
	Independent work			
Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1	
Theme 7	Classroom work			
	Lecture	Lectures of a problematic nature^ Quality management in projects	discussion activity	1
	Workshop	Using project quality management tools	group work	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 8	Classroom work			
	Lecture	Agile methodology implementation in the company	discussion activity	1



	Workshop	Development of an algorithm for the Agile methodology implementation in the company	group work	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 9	Classroom work			
	Lecture	Project team management	discussion activity	1
	Workshop	Lectures of a problematic nature: Determining the requirements for the composition of the team: selection and recruiting	group work	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 10	Classroom work			
	Lecture	Scrum team building. Team roles	discussion activity	1
	Workshop	Defining Scrum Teams Attributes, Roles and Responsibilities	group work, presentation	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 11	Classroom work			
	Lecture	Scrum product development	discussion activity	1
	Workshop	Implementing a Scrum Product Development Sequence	group work	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 12	Classroom work			
	Lecture	Legal support of projects	discussion activity	1
	Workshop	Determining the contracts specifics in the project management	group work	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 13	Classroom work			
	Lecture	Tracking systems	discussion activity	1
	Workshop	Mini-lectures: How to chose right task tracking systems Project tasks prioritization with using task tracking systems	group work, presentation	2
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 14	Classroom work			
	Lecture	Project risks	discussion activity	1

	Workshop	Project risks assessment	group work	2
		Project work method: Individual assignment presentation	individual work, presentation	10
	Independent work			
	Preparation for classes	Theoretical material review, preparation for Workshop	individual survey	1
Theme 15	Classroom work			
	Lecture	Lectures of a problematic nature^ Combining Scrum with other project management methodologies	discussion activity	1
	Workshop	Features of Kanban and Lean methodologies	group work	2
		Current test Theme 10-15	individual testing	10
	Independent work			
		Preparation for classes	Theoretical material review, preparation for Workshop	individual survey

### Recommended literature

#### Basic

1. Agile Product Management with Scrum : Creating Products that Customers Love [Текст]. – New Jersey, United States : Addison-Wesley Educational Publishers Inc, 2016. – 160 p.
2. Brilliant Agile Project Management: A Practical Guide to Using Agile, Scrum and Kanban [Текст]. – London, UK : Pearson, 2015. – 187 с.
3. Сазерленд Дж. Scrum. Навчись робити вдвічі більше за менший час [Текст]. – Харків : Клуб сімейного дозвілля, 2016. – 280 p.

#### Additional

4. Аппелло Ю. Менеджмент 3.0. Agile-менеджмент. Лідерство та управління командами [Текст] / пер. з англ. Г. Якубовська. – Харків : Вид-во «Ранок» : Фабула, 2019. – 464 с.
5. Кон М. Оцінювання і планування в Agile [Текст] / пер. з англ. Г. Яновська. – Харків : Вид-во «Ранок» : Фабула, 2019. – 356 с.
6. Кеннет Р. Основы Scrum : Практическое руководство по гибкой разработке ПО. – Москва : Вильямс, 2016. – с. 544.
7. Фіндінг П. Дж. Як керувати проектами [Текст] / пер. з англ. О. Якименко. – Харків : Вид-во «Ранок» : Фабула, 2020. – 240 с.
8. Хігні Дж. Основи управління проектами [Текст] / пер. з англ. Я. Машико. – Харків : Вид-во «Ранок» : Фабула, 2020. – 272 с.

#### Internet resources

9. Сайт ПНС ХНЕУ. Agile and Scrum in working on projects [Електронний ресурс]. – Режим доступу: <https://pns.hneu.edu.ua/course/view.php?id=8308>.
10. Гнучке управління проектами: шлях до задоволених клієнтів. [Електронний ресурс]. – Режим доступу: <https://job-wizards.com/ua/hnuchke-upravlinnia-proektamy-shliakh-do-zadovolenykh-kliientiv/>

11. Керівництво РМВОК з від знань з управління проектами. [Електронний ресурс]. – Режим доступу: <https://kd43.ru/uk/questions/rukovodstvo-pmbok-svod-znaniy-po-upravleniyu-proektami-russkaya.html>
12. Сучасні методи управління проектами [Електронний ресурс]. – Режим доступу: <https://sgv.in.ua/off-lifaq/25-suchasni-metodi-upravlinnya-proektami>
13. Якубенко І. М. Agile-менеджмент, як дієве управління проектами для цілеспрямованих команд // Економіка. Менеджмент. Бізнес. 2017. – № 4. [Електронний ресурс]. – Режим доступу: <http://journals.dut.edu.ua/index.php/emb/article/view/1677>
14. Agile-манифест розробки програмного забезпечення [Електронний ресурс]. – Режим доступу : <http://agilemanifesto.org/iso/ru/manifesto.html>
15. Conforto E., Salum F., Amaral D., da Silva S., & de Almeida L. (2014). Can Agile Project Management be Adopted by Industries Other than Software Development? Project Management Journal, June/July, 21–34. doi: 10.1002/pmj.21410. [Електронний ресурс]. – Режим доступу: [https://www.researchgate.net/profile/Luis\\_Almeida23/publication/262809231\\_Can\\_Agile\\_Project\\_Management\\_Be\\_Adopted\\_by\\_Industries\\_Other\\_than\\_Software\\_Development/links/569a630208ae6ea9859c4df1.pdf](https://www.researchgate.net/profile/Luis_Almeida23/publication/262809231_Can_Agile_Project_Management_Be_Adopted_by_Industries_Other_than_Software_Development/links/569a630208ae6ea9859c4df1.pdf).
16. Kanban и Scrum: выжимаем максимум [Електронний ресурс]. – Режим доступу : <http://scrum.org.ua/wp-content/uploads/ScrumAndKanbanRuFinal.pdf>
17. Scrum Guide [Електронний ресурс]. – Режим доступу : <https://www.scrumguides.org/scrum-guide.html>
18. SCRUM [Електронний ресурс]. – Режим доступу: <https://www.scrum.ua/scrum>
19. Team Dynamics [Електронний ресурс]. – Режим доступу: <https://cpb-us-w2.wpmucdn.com/sites.udel.edu/dist/e/299/files/2011/08/Phase-2-Team-Dynamics.pdf>.