



## Syllabus Course Program

# Fundamentals of Project Management

**Specialty****Institute**

Institute of Education and Science in Economics, Management and International Business

**Specialization**

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**Department**

Management (204)

**Educational program****Course type**

Optional

**Level of education**

First (bachelor's level)

**Form of study**

Full-time,

**Semester**

5

**Language of instruction**

English

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## Lecturers and course developers

**Anastasiia Mytrofanova**

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PhD (Economics), Associate Professor of Management Department, Associate Professor

Authored and co-authored over 60 scientific publications. Courses: Fundamentals of Project Management, Project Management, SMM Management

More about the lecturer on the department's website

<https://web.kpi.kharkov.ua/mto/about/staff/mytrofanova/>

## General information

### Summary

The course is devoted to the understanding and using the key concepts to project management via team work in selected by students' field and/or initiated by students projects to implement the project management frames and software, and develop the creative thinking for business and social purposes.

### Course objectives and goals

The course is based on mastering approaches to students understanding of the terms, concepts in project management; to organize and motivate people to move to a common purpose, to work in a team; to identify and solve problems, generate new ideas; to manage the organization, its changes; to develop projects and manage them, to detect initiative and entrepreneurship.

### Format of classes

Lectures - 32 h., Workshops - 16 h., self-study - 72 h. Final control in the form of a differentiated grading.

## Competencies

GC03. The ability to abstract thinking, analysis, synthesis.

GC04. The ability to apply knowledge in practical situations.

SC10. The ability to work in a team and to establish interpersonal interaction in solving professional tasks.

SC07. The ability to choose and to use modern tools of management

## Learning outcomes

LO 10. To demonstrate skills of interaction, leadership, and teamwork.

LO18. To be able to plan business activities and substantiate project proposals

## Student workload

The total volume of the course is 120 hours (4 ECTS credits): lectures - 32 hours, Workshops - 16 hours, self-study - 72 hours

## Course prerequisites

To successfully complete the course, it is necessary to have knowledge and practical skills from the following courses: "Fundamentals of Entrepreneurship", "Fundamentals of Management", "Economics of Enterprise", "Marketing.

## Features of the course, teaching and learning methods, and technologies

Teaching methods include interactive lectures with presentations and discussions. To conduct seminars different tools and techniques will be used: analysis of problematic issues, solving tests and their discussion, doing the economic exercises, the project work using handouts; presentation and discussion of reports. Also, case studies, problem-based learning, peer-to-peer, teamwork are usually implemented.

## Program of the course

### Academic classes

#### Lectures

Topics of the lectures	Hours
<b>Topic 1. Project as a Main Concept in Project Management.</b>	2
1. Concept and main characteristics of the project.	
2. Classifications of projects.	
3. The concept of project life cycle and its stages.	
4. Project environment and its stakeholders	
<b>Topic 2. General Principles of Modern Project Management.</b>	2
1. The concept and genesis of project management as a modern synthetic field of knowledge.	
2. Project management processes.	
3. Functions and subsystems of project management. PMBOK.	
<b>Topic 3. Project Initiation and Planning.</b>	4
1. Initiation of a project and its phases.	
2. Components of a project planning system.	
3. Stages of project planning and making changes to the plan.	
<b>Topic 4. Project Structuring.</b>	2
1. General characteristics and significance of project structuring.	
2. Work Breakdown Structure (WBS) and its features.	
3. Methodological foundations of project structuring.	
<b>Topic 5. Time Planning and Scheduling in Project Management.</b>	4
1. Scheduling project work.	
2. Introduction to Gantt charts.	

3. Network diagrams.
4. Critical Path Method (CPM) and Method of Program Evaluation and Review Technique (PERT).

<b>Topic 6. Project Resource Management.</b>	2
1. Project resources and their types.	
2. Resource planning. Types of Resource Constraints.	
3. Costs and budgeting.	
<b>Topic 7. Project Financing.</b>	2
1. Sources of funding. Crowdfunding.	
2. Assessment of investment attractiveness.	
3. Key performance indicators.	
<b>Topic 8. Risk Management.</b>	2
1. Concept of Risk. Risks Assessment.	
2. Risk strategies. Scenario Planning.	
<b>Topic 9. Managing the Project Team.</b>	2
1. Team Building Process.	
2. Team Roles and responsibilities.	
<b>Topic 10. Project Manager as a Team Leader.</b>	2
1. Understanding of leadership qualities.	
2. Motivation. Reward systems in the project. Conflict resolution.	
<b>Topic 11. Communication Management in the Project.</b>	2
1. Communication management in project management.	
2. Means of information exchange in the team.	
<b>Topic 12. Project Monitoring and Control.</b>	2
1. Monitoring the project. Project Dynamics.	
2. Controlling the project.	
<b>Topic 13. Evolution and Prospects of Modern Project Management.</b>	2
1. Project Management: Traditional Approach and Waterfall.	
2. Agile Manifesto.	
<b>Topic 14. Design Thinking.</b>	2
1. Design Thinking.	
2. Design Thinking Process: IDEO	
<b>Total hours</b>	<b>32</b>

## Workshops

Topics for workshops/seminars	Hours	Weighting coefficients <i>a</i>
<b>Topic 1. A project as an object in project management.</b>	2	1
1. The concept and main characteristics of a project.		
2. Classification of projects.		
3. The concept of a project life cycle and the content of its phases.		
4. The project environment and its stakeholders.		
<b>Topic 2. General principles of modern project management.</b>	2	1
1. Concept and genesis of project management as a modern synthetic field of knowledge.		
2. Project management processes.		
3. Project management functions and subsystems. PMBOK		
<b>Topic 3. Project initiation and planning. Project structuring.</b>	2	1
1. Project initiation and its stages.		

2. Components of the project planning system.
3. General characteristics and significance of project structuring.
4. Work breakdown structure (WBS) and its features.

<b>Topic 4. Time planning and calendar planning in project management.</b>	2	1
1. Planning project work in time. 2. Gantt charts. 3. Network diagrams		
<b>Topic 5. Project Resource Management</b>	2	1
1. Project resources and their types. Resource planning. Types of resource constraints. 2. Costs and budgeting. 3. Project financing.		
<b>Topic 6. Risk management.</b>	2	1
1. The concept of risk. Risk assessment. 2. Risk management strategies. Scenario planning.		
<b>Topic 7. Project team management</b>	2	1
1. Team formation process. Roles and responsibilities within the team. 2. The project manager as team leader. 3. Project communication management.		
<b>Topic 8. Project monitoring and control.</b>	2	1
1. Project monitoring. Project dynamics. 2. Project control. 3. Project closure.		
<b>Total hours</b>	<b>16</b>	$\sum_{i=1}^n a_i = 8$

### Laboratory classes

Laboratory classes are not included in the curriculum

### Control works

#### Comprehensive test on the basics of project management

Weighting coefficients  $b$

<b>Topic: Methodology, principles and practice of modern project management.</b>	1
Questions presented in the test cover traditional and modern approaches to project management; processes of initialisation, planning, implementation, monitoring and control, and closure of projects; project structuring; project scheduling; resource, risk and project team management; communication within the project.	
<b>Total</b>	$\sum_{i=1}^m b_i = 1$

### Self-study

Self-study includes independent work on theoretical materials while preparing for the workshops and completion of individual assignment.

### Work on theoretical materials

Topics for self-study	Hours
<b>Topic 1. A project as an object in project management.</b>	2

The relationship between project management and investment management. The relationship between project management and functional management. Areas of management of relations with project stakeholders.

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**Topic 2. General principles of modern project management.**

2

Integration management in projects. Quality management in project management.

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**Topic 3. Project initiation and planning. Project structuring.**

Typical planning mistakes and their consequences. The relationship between cost estimates and schedule planning.

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**Topic 4. Time planning and calendar planning in project management.**

Possibilities of using Excel for planning and controlling project implementation. Development of Gantt charts. Graphs of project economic indicators dynamics. Project Expert software package. Use of Microsoft Project in project management.

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**Topic 5. Project Resource Management**

Justification of project feasibility. Pre-investment studies.

Project analysis. Assessment of project financial feasibility. Technical and economic justification of the project. Procurement management in the project.

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**Topic 6. Risk management**

Statistical method of risk analysis. Cost-benefit analysis. Expert assessment method. Analytical method. Analogue method.

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**Topic 7. Project team management**

Organising feedback within the team. Training team members. Improving the individual skills of team members. Training in team behaviour.

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**Topic 8. Project monitoring and control.**

Project implementation control methods. Target plans. Control dates and indicators. Cost/schedule control system (C/SCS). Projects in a controlled environment (PRINCE).

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**Total hours**

16

**Topics for individual assignments**

Individual assignment (Project work) is performed in the form of report on a certain project. The stages of preparing the report are the following:

Choose any topic. Build the team (4-5 persons).

Choose software/platform for team collaboration and progress management. Do not forget to manage the progress and make screenshots about project dynamics.

Create Team Canvas. The Team Canvas is Business Model Canvas for teamwork. It is a free tool for leaders, facilitators and consultants to organize team alignment meetings and bring members on the same page, resolve conflicts and build productive culture, fast.

Project initiation phase: Define idea, mission, aim, tasks, scopes of the project. Define project value for stakeholders, etc. methodology for PM

Project planning phase: Define project resources, risks (risk register), KPIs. Build WBS, Gantt chart, Budget plan. Define Team Roles.

Project execution phase: Implement your project into reality.

Project closure phase: Post-project review. Recommendations and conclusions.

Report the project (with screenshots about project dynamics).

Internal structure of the project work report is the following:

-Title page;

- Contents;

- Introduction (relevance of the topic, mission, purposes and tasks of your project);

1. Project initiation phase: (a) Prove why it is a project, not a routine work. Classify your project by different classifications. b) give description of purpose, tasks, scopes of the project, as well as identifying the key deliverables to be produced; c) Define project value for stakeholders) d) Define and background methodology).

2. Project planning phase: a) Develop project roadmap to manage the project variables such as time, cost, quality; b) Define project resources. c) make a forecast of KPIs. d) account risks.
  3. Project execution phase: a) give description of implementing your project into reality – how the events took place (event, workshop, business idea, submission of a scientific paper, presentation of proceedings on the conference, applying for a grant etc.).
  4. Project closure phase: a) analyzing the overall success or failure, mistakes and achievements; b) summarizing the team performance; c) Recommendations and conclusions for the future.
- References.  
- Appendix (if applicable).

### Topics for individual assignments

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Business idea in any industry

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Scientific research with presenting results on conference or submitting the article

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Writing an application for a grant

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Charity event (for children, retirees, assistance for Ukrainian Armed Forces) or Volunteer project

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Career guidance event for schoolchildren

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Master Class/ Workshop / Training about your personal successful project / business experience

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Master Class/ Workshop about your outside interests via Social Media or MS Teams

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**Total hours**

**16**

## Non-formal education

Non-formal education includes professional courses/training, civic education, online education, professional internships, etc. The recognition of learning outcomes acquired in non-formal education applies to both mandatory and elective academic courses/educational components. The elements of non-formal education recommended in the syllabus can be recognized through a simplified procedure without additional validation of the results (without creation of a subject committee).

### Recommended training courses, internships

1.Introduction to Project Management

<https://www.coursera.org/learn/introduction-to-project-management>

2. Foundations of Project Management

<https://www.coursera.org/learn/project-management-foundations?action=enroll>

3. Google Project Management Professional Certificate

<https://www.coursera.org/professional-certificates/google-project-management>

## Literature, training materials, and information resources

A list of sources of information and materials formatted in accordance with the standards. It's possible to split the list into sections, e.g. Main literature and Additional materials, etc.

### Main literature

1. Fundamentals of PM (Joseph Heagney, AManA 2012), URL :

[https://www.nesacenter.org/uploaded/conferences/SEC/2014/handouts/Rick Detwiler/15 Detwiler Resources.pdf](https://www.nesacenter.org/uploaded/conferences/SEC/2014/handouts/Rick%20Detwiler/15%20Detwiler%20Resources.pdf)

2. PMBOK® Guide - Seventh Edition , URL: <https://www.pmi.org/pmbok-guide-standards/foundational/pmbok>

3. Scrum: The Art of Doing Twice the Work in Half the Time Hardcover - September 30, 2014 by Jeff Sutherland
4. SCRUM Approach for Project Management: Introduction to Scrum (CollabNet), URL: <http://www.youtube.com/watch?v=D8vT7G0WATM&list=UURttfRo2G Vp8pPFGqDKVwQ&index=1&feature=plcp>
5. Divergent vs Convergent Thinking - RISE Beyond, URL: <https://www.risebeyond.org/divergent-vs-convergent-thinking/>
6. Design Kit: <http://www.designkit.org/>
7. David Kelley, Tom Kelley Creative Confidence: Unleashing the Creative Potential Within Us All: Crown Business; 1 edition, 2013. - 304 p.
8. Robert S. Kaplan and Anette Mikes Managing Risks: A New Framework , URL: <https://hbr.org/2012/06/managing-risks-a-new-framework>
9. Internal Rate of Return (IRR) , URL: <https://corporatefinanceinstitute.com/resources/valuation/internal-rate-return-irr/>
10. Key Performance Indicator (KPI): Meaning, Types, Examples, URL: <https://www.investopedia.com/terms/k/kpi.asp>
11. Project management: the managerial process / Erik W. Larson, Clifford F. Gray. —5th ed. p. cm. —(The McGraw-Hill/Irwin series, operations and decision sciences), 2011

## Grading system

The final grade for the educational component is determined by the lecturer and is based on topics, types of activities, etc., in accordance with the syllabus. It is an integrated assessment of the results of all types of student learning activities. The final grade should reflect all the grades for the different parts of the educational process, taking into account their weighting coefficients  $k$ :

Continuous assessment (during workshops, seminars, laboratory classes) $k_1$	Control works (if any), $k_2$	Individual assignment (if any), $k_3$	Final assessment (for courses with exams), $k_4$
0,4	0,2	0,3	0,1

The sum of the coefficients must be equal to one:  $k_1 + k_2 + k_3 + k_4 = 1$ . The weighting coefficients for the final assessment are decided by the course developer..

The final grade is calculated using the following formula:

$$G = C \cdot k_1 + K \cdot k_2 + I \cdot k_3 + E \cdot k_4$$

where:  $C$  – weighted average score for the continuous assessment

$I$  – individual assignment grade

$K$  – weighted average score for the continuous assessment

$E$  – final assessment (exam) grade

$$C = \frac{C_1 \cdot a_1 + C_2 \cdot a_2 + \dots + C_n \cdot a_n}{\sum_{i=1}^n a_i}$$

де:  $a_i$  - weighting coefficient for each workshop (seminar) or laboratory class.

$$K = \frac{K_1 \cdot b_1}{\sum_{i=1}^n b_i}$$

де:  $b_i$  - weighting coefficient for each control work.

### Grading scale

The assessments for each component (C, K, I, etc.) are based on a 100-point scale in line with the provisions of the “Criteria and System for Assessing Knowledge

Total points	National	ECTS
90–100	Excellent	A

and Skills, and Rating of Higher Education Students” of the National Technical University “Kharkiv Polytechnic Institute.”	82–89	Good	B
	75–81	Good	C
	64–74	Satisfactory	D
	60–63	Satisfactory	E
The final grade is finalized as the calculated value of $G$ , rounded up to the nearest integer.	35–59	Unsatisfactory (requires additional learning)	FX
	1–34	Unsatisfactory (requires repetition of the course)	F

## Norms of academic integrity and course policy

Students must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": to demonstrate discipline, good manners, kindness, honesty, and responsibility. Conflict situations should be openly discussed in academic groups with a lecturer, and if it is impossible to resolve the conflict, they should be brought to the attention of the Institute's management.

Regulatory and legal documents related to the implementation of the principles of academic integrity at NTU "KhPI" are available on the website: <http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/>

## Approval

Approved by

30.08.2025



**Head of the department**

Nataliia SHMATKO