



Syllabus Course Program



Management of IT projects

Specialty

113 Applied mathematics

Institute

Educational and Scientific Institute of Computer Science and Information Technology

Educational program

Intelligent Data Analysis

Department

Project management in information technologies

Level of education

Bachelor's level

Course type

Special (professional), Selective

Semester

5

Language of instruction

Ukrainian

Lecturers and course developers

**Marina GRINCHENKO**

Marina.Grynchenko@kspi.edu.ua

PhD in Information of Technical Sciences, Head of the department PMIT,
Associate professor

Work experience - 25 years. Author of more than 65 scientific and educational and methodological works. Lecturer in the disciplines: "IT project management", "Algorithms and data structures", "Basics of project management", "Computer modeling of processes and systems "

Google Scholar:

<https://www.scopus.com/authid/detail.uri?authorId=57195064619>

ORCID: <https://orcid.org/0000-0002-8536-285>

Scopus: <https://www.scopus.com/authid/detail.uri?authorId=57195064619>

[More about the lecturer on the department's website](https://web.kpi.kharkov.ua/pm/about_ua/profs_ua/grynchenkoma/)

https://web.kpi.kharkov.ua/pm/about_ua/profs_ua/grynchenkoma/

General information

Summary

The discipline " Management of IT projects " is aimed at developing students' knowledge of IT project management methodology, covering all stages a project goes through, from client requirements to the functioning system. Students will also gain practical skills in project creation, organizational support for project implementation, and evaluating the effectiveness of project decisions using existing software systems (MS Excel, MS Project, Atlassian Jira).

Course objectives and goals

Developing in students a system of knowledge, skills, and practical abilities in the methodology of project preparation and implementation, methods and tools for project development, resource acquisition for project execution, and mechanisms for managing these projects.

Format of classes

Lectures, laboratory classes, calculation tasks, consultations. Final control – credit.

Competencies

GC 2. Ability to apply knowledge in practical situations.

GC 3. Ability to generate new ideas (creativity).

GC 6. Ability to abstract thinking, analysis and synthesis.

SP Ability to develop and manage IT projects using various task and requirements management systems.

Willingness to use different methodologies and techniques to manage IT projects and tasks

Learning outcomes

Have the skills to manage the life cycle of software, products, and information technology services per the requirements and limitations of the customer, and develop project documentation (technical and economic feasibility study, technical conditions, business plan, contract, agreement, contract).

Use specialized software project management in practical work.

Student workload

The total volume of the course is 90 hours (3 ECTS credits): lectures - 28 hours, practical classes - 16 hours, self-study - 46 hours.

Course prerequisites

"Project 1", "Project 2", "Основи економічної теорії"

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

Lectures are held in an interactive mode using multimedia technologies. Laboratory classes are conducted using free software - MS Excel, MS Project, Atlassian Jira. Learning materials are available to students in a Microsoft 365 environment through OneDrive and OneNote and Teams. At the laboratory classes, attention is focused on the practical application of methods of IT project management.

Program of the course

Topics of the lectures

Topic 1. Basic concepts of project management.

- Types of projects. The main phases of the project life cycle.
- A description of the differences between a product company and an outsourcing company.

Topic 2. General provisions of software development project management.

- Determination of the project's goals and objectives, development of project specifications.
- Basic project management standards. SWEBOK.
- Purpose of the SWEBOK methodology.
- The main areas of knowledge of the SWEBOK methodology.
- The main differences between the versions are the list of questions.

Topic 3. Software life cycle.

- Software life cycle models.
- Cascade model, features of its use.
- V-model, advantages and disadvantages.
- Iterative model and incremental model, cancel and use.
- Spiral model, characteristics and features.

Topic 4. Agile technologies in project management.

- General Agile approaches.
- Consider the main principles of implementing Agile methodologies.



- Analyze the distinctive features of flexible methodologies.
- Basic principles of implementation of Agile methodologies.

Topic 5 Project life cycle.. Estimates of the duration of tasks.

- General approaches to planning, structuring and project control.
- Development of a hierarchical structure of project works.
- Determining the duration of project tasks.
- Methods of estimating the duration of tasks.
- Arrangement of relationships between project tasks

Topic 6. Project resource planning.

- Determination of characteristics and features of project resources.
- Assignment of project resources.
- Peculiarities of assigning project resources. Processes of coordination and approval of the basic plan of the project
- The main elements of project cost planning. Allocation of responsibility for project resources.

Topic 7. Project cost estimate. Cost management

- Methods of IT project cost estimation.
- Determination of the IT project budget.
- Project implementation control.
- Project Completion and Cost Forecast.
- Project progress tracking analysis.
- Methodology of mastered volume and its indicators.
- Evaluation and forecast of indicators by the method of mastered volume.

Topic 8. Project team management. Competencies of an effective team leader and management strategies

- Types of organizational structures of the company.
- Defining the functions of IT project team members.
- Defining the role of IT project team members.
- Consideration of the matrix of role substitutions. Tasks and responsibilities of the project manager.
- Competencies of an effective team player.
- Stages of formation of an effective team.
- The main aspects of conflict resolution in the project team.

Topic 9. Risk management in the IT project

- Characteristics of IT project risks.
- Peculiarities of risks in IT projects.
- The main stages of risk management planning.
- Sources of software development IT project risks.
- Identification of risks, methods of identifying risks.
- Qualitative risk analysis.
- Methods of quantitative analysis and modeling of risks.

Topics of the workshops

Not provided for in the curriculum.

Topics of the laboratory classes

Topic 1. Project manager. The main features.

- Basic skills and responsibilities of a project manager.
- The role of the manager in the project and the company.
- Main types of IT companies. Mission of companies.

Topic 2. Idea. goals Tasks of the project.

- Formulation of the project idea, goals, tasks, expected results, selection of tools to achieve project goals.



Topic 3. The main processes of the project. project framework and boundaries, project risks.

- Formation of the main processes and parameters of the project, search and assessment of project risks, risk management.

Topic 4. Project budget. assessment of project works.

- Estimates of the robot on the project.
- Formation of the project budget.
- Protection of the project budget.

Topic 5. Project charter. Project management methodologies.

- Formation of the Project Charter.
- Choosing a transparent project management model.

Topic 6. Project plan.

- Formation of the project plan.
- Use of Gantt charts and critical path in MS Project and others.
- Using the project management system (Jira).

Topic 7. Project implementation control.

- Plan, actual analysis of project stages.
- Replanning of the project.
- Monitoring of project implementation, project analysis, implementation of changes and replanning of the project.

Topic 8. Preparation for project release. Environment. Release Support.

- Preparation and planning for the release of the project (part of the project).
- Gain an understanding of how environments work.

Self-study

During independent work, students study lecture material, do individual homework, prepare for tests, tests and exams. The result of calculations and modeling is drawn up in a written report. Correctly executed IHW are counted, incorrectly - returned for revision. IHWs are evaluated as completed after errors are corrected. Students are also recommended additional materials (videos, articles) for self-study and analysis.

Non-formal education Within the framework of non-formal education, according to the relevant Regulation (<https://blogs.kpi.kharkov.ua/v2/nv/wp-content/uploads/sites/43/2024/01/Polozhennya-pro-poryadok-vyznannya-rezultativ-neformalnoyi-ta-informalnoyi-osvity.pdf>), the educational component or its individual topics may be taken into account in the case of independent completion of professional courses/trainings, civic education, online education, vocational training, etc.

Course materials and recommended reading

References

1. A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Seventh Edition and The Standard for Project Management (ENGLISH) Seventh edition, Kindle Edition, 2021
2. Petrovych Y.M. Project management: a textbook / Y. M., a figure of science and technology of Ukraine Y. M. Petrovych; National "Petrovych, I. I. Novakivskyi University; under the general editorship of Doctor of Economic Sciences, Professor, Emeritus of Lviv Polytechnic". - Lviv: View of Lviv. polytechnics, 2018. - 395 p.
3. Roman Pichler. Agile product management using Scrum. K.: FABULA, 2019 - 128 p.
4. Jeff Sutherland. Scrum. Learn to do twice as much in less time. K.: FABULA, 2022 - 280 p.
5. Project management. Collection of cases [Electronic resource]: teacher. manual / V. M. Prymak. K.: Kyiv National University named after Taras Shevchenko, 2021. 268 p.
6. Joseph Higney Basics of project management. . K.: Fabula, 2020 - 272.



Additional references

1. Agile Transformation: Using the Integral Agile Transformation Framework™ to Think and Lead Differently [1 ed.] Report DMCA / Copyright 2020
2. Succeeding with Agile Hybrids: Project Delivery Using Hybrid Methodologies [1st ed.] Pages XI, 157 [156] Year 2020
3. Doing Agile Right: Transformation Without by Darrell Rigby, Sarah Elk, Steve Berez Chaos Hardcover – Illustrated, May 26, 2020 p.
4. Gordienko V. O. Management of innovative projects and programs: teaching. manual / V.O. Gordienko; University of Customs business and finance. - Dnipro: University of Customs. of affairs and finances, 2019. - 115 p.6. Cicala G. The Project Managers Guide to Microsoft Project 2019. Apress, 2020. - 681 p.
7. Dorling Kindersley How Management Works / Dorling Kindersley. – Dorling Kindersley, 2020. – 224 p.
8. Rob Cole, Edward Scotcher. Brilliant Agile. К.: ФАБУЛІА, 2020 – 192 с..
5. Probability Methods and Time Series Dr. Daniel Cavey, 2022-23, University of Nottingham; Access mode: https://bookdown.org/danielcavey27/lecture_notes/consolidation-of-math1055.html

Assessment and grading

Criteria for assessment of student performance, and the final score structure

The student is recommended to attend both lectures and practical classes. Performing calculation work is a prerequisite for obtaining an assessment. Tests are mandatory. The student's points in the discipline are awarded according to the following ratio:

- tests: 40% of the semester grade;
- independent work: 20% of the semester grade;
- credit: 40% of the semester grade.

Grading scale

Total points	National	ECTS
90–100	Excellent	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactory	D
60–63	Satisfactory	E
35–59	Unsatisfactory (requires additional learning)	FX
1–34	Unsatisfactory (requires repetition of the course)	F

Norms of academic integrity and course policy

The student 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

Date, signature
29.08.2024



Head of the department
Marina GRINCHENKO

Date, signature
29.08.2024



Guarantor of the educational program
Olena AKHIEZER





National Technical University
"Kharkiv Polytechnic Institute"