MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

PLANNING AND IMPLEMENTATION OF PROJECT ACTIVITIES

Syllabus

for Master's (second) degree students
of speciality 073 "Management"

Kharkiv
S. Kuznets KhNUE
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P71

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The thematic plan of the academic discipline and its contents are given according to the modules and themes. The plans of lectures, practical and laboratory studies, materials for consolidation of knowledge (tasks for independent work, test questions), guidelines for evaluation of students' knowledge, professional competences which a student must have after studying the discipline are presented.

For Master's (second) degree students of speciality 073 "Management".

UDC 005.8(07.034)

Introduction

Development of management as a science and art of managing is currently characterized by a high level of dynamism, which has resulted in the emergence of fundamentally new forms of organization management among which project is one of the most topical ones. The project form of management appeared as a separate form, and project management (PM) has gradually led to the formation of organizations which are directly orientated to the realization of projects in the corresponding spheres of activity. One of the most popular examples of such spheres is software development. Accordingly, for such enterprises to successfully function and further develop, it is necessary to have and realize their own conception of management, which is the basis of the academic discipline "Planning and Implementation of Project Activities".

During the study of the discipline students acquire basic knowledge of project management processes in all main areas: maintenance management, integration, time, resources, clearing of parties concerned, purchases, quality, risks. The skills in the development of calendar plans, charts, budgets, registers of risks, changes are formed as a result. In addition, students master the complex of methods which are used in project management: morphological analysis, analysis of power fields, work structuring, matrix method of estimation of risks, cause and effect analysis and others like that. The competences acquired provide students with the opportunity to develop projects in different spheres of economy, at enterprises of all forms of ownership and legal forms.

The academic discipline "Planning and Implementation of Project Activities" is a basic academic discipline for students of speciality 073 "Management".

1. Description of the academic discipline

<table>
<tr><td rowspan="2">Name of indices</td><td rowspan="2">Subject area, speciality, educational degree</td><td colspan="2">Description of the academic discipline</td></tr>
<tr><td>full-time study</td><td>part-time study</td></tr>
<tr><td>Number of credits
for full-time students: 5,
for part-time students: 7</td><td rowspan="5">Speciality 073
"Management"</td><td colspan="2">Basic</td></tr>
<tr><td rowspan="2">Content modules: 2</td><td colspan="2">Year of study</td></tr>
<tr><td>1 M</td><td>1 M</td></tr>
<tr><td rowspan="2">Total number of hours
for full-time students: 150,
for part-time students: 210</td><td colspan="2">Semester</td></tr>
<tr><td>1st</td><td>1st</td></tr>
<tr><td rowspan="11">Hours a week for full-time students:
in class: 4;
self-study: 7</td><td rowspan="11">Master's (second) degree</td><td colspan="2">Lectures</td></tr>
<tr><td>20 h</td><td>20 h</td></tr>
<tr><td colspan="2">Practical</td></tr>
<tr><td>18 h</td><td>22 h</td></tr>
<tr><td colspan="2">Laboratory</td></tr>
<tr><td>2 h</td><td>2 h</td></tr>
<tr><td colspan="2">Independent work</td></tr>
<tr><td>106 h</td><td>162 h</td></tr>
<tr><td colspan="2">Type of control</td></tr>
<tr><td colspan="2">Examination</td></tr>
<tr><td>4 h</td><td>4 h</td></tr>
</table>

Note: The ratio of class hours to self-study is:
for full-time studies: 37.7 %;
for part-time studies: 27.2 %.

2. The purpose and tasks of the academic discipline

The purpose of teaching this academic discipline is to form knowledge and skills in relation to the features of administrative activity in project-oriented organizations.

To achieve the purpose, the following basic tasks are set:

mastering the basic principles of project initiation, its structuration, economic support for its realization;

acquiring skills in planning and implementation of project activities in the spheres of project integration, management maintenance, terms, cost, quality, human resources, communications, risks and supplies.

"Planning and Implementation of Project Activities" is an academic discipline which studies the tools of project management in accordance with the international standards of PMBoK® (The Project Management Body of Knowledge, the standard of PM worked out by the Project Management Institute of the USA) and P2M projects (A Guidebook of Project and Program Management for Enterprise Innovation, a standard of PM based on the experience of Japan).

The object of the academic discipline is the process of project management in organizations.

The subject of the academic discipline is the administrative influence on the process of project realization in organizations.

Students begin the study of this academic discipline having learnt the majority of the academic disciplines of the humanitarian and professional cycles. The theoretical and methodological basis for this discipline includes such academic disciplines as: "Macroeconomics", "Microeconomics", "The Economy of the Enterprise", "Management", "Economic Analysis", "Optimization Methods and Models", "Econometrics", "Statistics". In turn, knowledge of these disciplines provides successful mastering of such academic disciplines as: "Management", "Grounds and Appraisal of Business Projects", as well as completing trainings, interdisciplinary complex term papers, bachelor and master thesis.

In the process of studies students get necessary knowledge during lectures and implementation of practical tasks. The most difficult issues are taken for consideration and discussion during seminars. The independent work of students has a large value in the process of acquiring knowledge.

As a result of study of the academic discipline a student must:

know:

the basic concepts and terms of project activity; the basic instructions and normative acts which regulate project activity;

the instruments of planning the project scope, time, cost, quality, risk, supplies;

be able to:

determine the parameters of the project structure and the functions of the interested persons, the expected results of the project activity;

form, choose and estimate project alternatives;

develop and ground the project conception;

develop the plan of the project maintenance management;

form the hierarchical structure of work, make a list of works and set technological links between them;

develop the plan of the project time management;

calculate the duration of implementation of work, make the project calendar plan on the basis of the network chart;

develop the plan of cost management;

form an estimate and budget of the project;

develop the plan of quality management;

build a diagram of the cause and effect relationship;

develop the plan of risk management;

determine the sources of potential risks;

conduct qualitative and quantitative evaluation of risks;

develop a plan of project team management;

plan the project realization, form an effective project management team;

estimate the project efficiency taking into account risk and uncertainty factors;

apply the got knowledge and abilities to practice.

In the process of teaching the academic discipline the main attention is paid to students' acquiring the professional competences presented in Table 2.1.

The structure and formation of professional competences in accordance with the National Scope of Qualifications of Ukraine are presented in Appendix A.

Table 2.1

Professional competences to be acquired by students after studying the academic discipline

Competence code	Competence name	Competence constituents
1	2	3
PIPA* 1	To manage the life cycle of a project	To initiate a project
		To develop project regulations
		To ground the choice of projects according to the block of criteria (indexes)
		To estimate the project realization efficiency
		To develop the project model
		To conduct monitoring of the project performance terms and costs

Table 2.1 (the end)

1	2	3
		To manage changes and configuration
		To carry out the post-audit of the project
		To control the fulfillment of the plan and terms of financing
		To carry out monitoring of the project maintenance
		To measure the progress of implementation of the project work
PIPA* 2	To manage the areas of knowledge according to the standards of PMBOK®	To develop project documentation
		To develop description of maintenance
		To form the matrix of tasks and delegation of responsibilities
		To form the organizational structure of the project
		To develop the project network and calendar schedules
		To build Gantt charts
		To estimate the project cost and build the base chart of costs
		To plan the project and distribute resources
		To develop the budget of the project
		To develop the strategy of the project personnel management
		To plan human resources
		To develop a model of the project team competences
		To be able to form an effective team
		To plan organization of the project team activities
		To develop a plan of quality management
		To develop a control sheet, a histogram, a Pareto chart, a diagram of variation (dispersion); a diagram of Ishikawa, a check card
		To manage communications as a process of "managing the expectations of the parties concerned"
		To manage conflicts
		To plan the procedure of project supplies
		To plan the response to risks
		To plan the precautions against the project risks

* Planning and implementation of project activities.

3. The syllabus of the academic discipline

Content module 1
Project initiation management

Theme 1. A project as a management object. The project life cycle.

1.1. The basic concepts of project management.

The essence of the project, the task of project management, the typical signs of a project. Classification of projects according to the block of criteria. The essence of an investment project, the program and the system. The features

of strategic and operative project management. The essence of a project life cycle: models and examples. The project environment.

1.2. The process approach to project management.

The standards of project management: The Project Management Body of Knowledge (PMBoK®), A Guidebook of Project and Program Management for Enterprise Innovation (P2M), Projects in Controlled Environments (PRINCE2). A projection of subject areas on the groups of processes by PMBoK. Business processes in project management.

1.3. The essence of the project life cycle.

Models and examples of a project life cycle. Phase-to-phase transition. The level of activity of project management (PM) groups. Overlapping of processes in duration. A chart of intercommunication of processes according to the life cycle phases.

Theme 2. Project initiation activities

2.1. The purpose, strategy and methods of project management.

The stages of the project strategy realization. The methods of project management. The basic stages of the project management system. The aims and results of a project.

2.2. The ground of project expediency.

Project analysis. Methods of project evaluation. A business plan. Feasibility study. Project efficiency investment: basic definitions, evaluations, principles. Priorities of the project investment. Methods of evaluation of investment efficiency.

2.3. The basic forms of the project organizational structure.

The concept of the organizational structure of project management. Organization of the project control system. Choosing the organizational structure of management. Development and creation of the control system organizational structure. "Clean" types of project organizational structures.

2.4. Project initiation.

A list of necessities. Analysis of the project feasibility. Analysis of the project benefits and charges. Development the project of conception and regulations.

Theme 3. Integration management and maintenance of the project

3.1. Planning the project integration activities.

The essence of planning the project integration processes. The features of management objects. The structure of basic project documents. Description of project maintenance and the plan of project implementation.

3.1. Planning project management and project maintenance.

Determination of requirements to project maintenance. Forming a project product vision. Development of the maintenance description. The processes of planning project maintenance. Authentication of key events (control landmarks). The matrix of tasks and distribution of responsibilities.

3.2. Project structuration.

Project structuration as a constituent of project management. Modern directions of project structuration. The approaches to project structuration, in particular: building of the project structure on the basis of the product structure; on the basis of the life cycle; on the basis of the purpose and tasks; on the basis of the project works structure. The work breakdown structure (WBS). Creation of the WBS: requirements to WBS, approaches to the development of WBS, determining the hierarchical levels, creation of the WBS. Making optimal decisions as to the choice of the organizational structure for project implementation under the conditions of initial information uncertainty.

Content module 2
Planning process management and project implementation activities

Theme 4. Planning and implementation of the project time management

4.1. Planning the terms of project realization.

Description of the time planning processes. Setting the task of calendar planning. Determining the list of operations and their parameters. The task of the sequence of operations (the technological links between the project operations).

4.2. Network planning.

Determining the connection of operations and construction of the network chart. The processes of evaluation of the project work duration. The critical analysis path. Determining the project duration in the unlimited period of operations. The basic methods of calculation of the network model parameters, in particular: the tabular, matrix, sectoral, fractional methods.

4.3. Calendar planning.

Calculation of scheduling the project work. Construction of the project calendar plan. Typical errors of planning and their results. Optimization of the

calendar plan. Construction of a Gantt chart. Planning the essence according to the Gantt chart. Individual schedules of project performers.

Theme 5. Planning and implementation of the project cost management

5.1. Cost management.

Description of the processes of cost planning. Evaluation of project costs. The structure of project costs. Construction of a base chart of cost. Types of charges on the project, in particular: investment, operating, financial charges. Profits from realization of the project products, net income, and financial project sourcing.

5.2. Resources management.

Planning project resources (forming the requirements to the project resources, types of resources); setting resources for the project work (resource types, the matrix of responsibilities); optimization of resources. Allocation of resources. Evaluation of the work resources. Construction of resource histograms.

5.2. Project budgeting.

Development of a project budget. Analysis of the project marketability and project plan optimization. Financing due to the issue of shares. Long-term promissory financing. Other sourcings of projects. The composition of the estimate charges, in particular: direct charges on the payment for labour, on exploitation of machines, materials, overhead costs, profit estimate.

Theme 6. Planning and implementation of the project personnel management

6.1. The place of project personnel management in the methodology of project management.

The personnel control system of the enterprise and the project. Development of the project personnel management strategy. Organization of workplaces in the enterprise project office. Planning the project human capital requirements. Methods of hiring and selection of personnel for the project. A plan of studies. Analysis of personnel availability. Taking into account the styles of work of employees. A competence model of the project management team. Management of labour resources at the project implementation phase.

6.2. The project team.

The basic principles and organizational aspects of the formation of an effective team. The basic approaches to the formation and exemplary composition of a team. The basic descriptions of the team formed. Planning the organization of the project team activity.

Theme 7. Planning and implementation of the project quality management

7.1. The essence of quality management in projects.

Description of the processes of quality management in projects. The aspects of quality management in projects. The plan of quality management. Norms and regulations of the planning processes of quality management. ISO Standards of series 9000. ISO Standards of series 21500.

7.2. The instruments of quality management.

The control sheet, the histogram, the Pareto chart, the method of stratification (stratification of data), the diagram of variation (dispersion); the diagram of Ishikawa (the cause-and-effect diagram), the check card. The conceptions of the general quality management and the six sigmas approach.

Theme 8. Planning and implementation of project communications, purchases and supplies

8.1. The essence and principles of project communications.

Planning of project communications. Managing the expectations of project stakeholders. The list of parties concerned with the project. Management as a process of management expectations of the parties concerned. Conflicts and conflict resolution. Communication technologies. The instruments and methods of information distribution at the implementation phase of the project. The technologies of group communication in the system of decision making.

8.2. The processes of planning purchases and supplies.

The concept of purchase and contract. Description of the processes of project purchases planning. Organization of the process and principles of project purchases. The procedures of project purchases. Planning the procedures of project purchases. Planning request for proposals. A request for proposal of salespeople. Selection of salespeople. Administration of contracts. Closing contracts. Organization and realization of auctions after projects. Types of project contracts. Managing project purchases.

Theme 9. Planning and implementation of project activities under the conditions of uncertainty

9.1. Forecasting of project risks and planning preventive measures.

The categories of risks, classification of risks. Evaluation of the portfolio of risks. Identification of threats in relation to a project. Planning preventive measures.

9.2. Risk management.

The functions of risks and forming of potential risks of a project; high-quality analysis of risks; quantitative analysis of risks (evaluation of probability of risks; analysis of sensitiveness; analysis of scenarios; decision tree; imitation design of Monte Carlo); planning the response to risks (avoidance, insurance of risks, diversification of risks, acceptance of risks).

9.3. Outsourcing and offshoring in project management.

The concept and types of outsourcing. Outsourcing of project management. Offshoring.

Theme 10. Management of monitoring, control of implementation and completion of the project processes

10.1. The processes of monitoring and control.

The processes of monitoring and control. Guidance and project implementation management. The essence of project control. Requirements to effective control. Monitoring a project. Monitoring the project integration. Monitoring the project maintenance. Control of fulfillment of the plan and terms of financing. Measuring the progress of implementation of project work. Monitoring project performance with respect to terms and cost. Control of project quality. Monitoring and control of project purchases. Monitoring and managing risks. Monitoring project communications. Change management. Configuration management.

10.2. Completion of a project.

The phase of project completion. Closing the project contracts. Post-audit of a project. Basic software in project management.

4. The structure of the academic discipline

From the beginning of the academic discipline study every student should be acquainted with both the syllabus of the academic discipline and forms

of studies and with the structure, content and volume of each of its educational modules, as well as with all types of control and methods of evaluation of the formed professional competences.

The study of the academic discipline by students consists in the successive and sound working on the educational modules. An educational module is a separate, relatively independent block of the discipline, which logically unites a few educational elements of the discipline in terms of content and interrelations. The thematic plan of the discipline consists of two content modules (Table 4.1).

Table 4.1

The structure of the test credit of the academic discipline

Names of the content modules and themes	Number of hours											
	full-time studies						part time studies					
	all	including					including					
		lectures	practical classes	laboratory classes	final control	independent work	total	lectures	practical classes	laboratory classes	final control	independent work
1	2	3	4	5	6	7	8	9	10	11	12	13
Content module 1. Project initiation management												
Theme 1. A project as a management object	13	2	2	–	–	9	19	2	2	–	–	15
The project life cycle												
Theme 2. Project initiation activities	13	2	–	2	–	9	19	2	–	2	–	15
Theme 3. Integration management and maintenance of the project	14	2	2	–	–	10	19	2	2	–	–	15
Total in content module 1	40	6	4	2	–	28	57	6	4	2	–	45
Content module 2. Planning process management and project implementation activities												
Theme 4. Planning and implementation of the project time management	13	2	2	–	–	9	19	2	2	–	–	15

Table 4.1 (the end)

1	2	3	4	5	6	7	8	9	10	11	12	13
Theme 5. Planning and implementation of the project cost management	13	2	2	–	–	9	21	2	4	–	–	15
Theme 6. Planning and implementation of the project personnel management	14	2	2	–	–	10	19	2	2	–	–	15
Theme 7. Planning and implementation of the project quality management	14	2	2	–	–	10	19	2	2	–	–	15
Theme 8. Planning and implementation of project communications, purchases and supplies	14	2	2	–	–	10	19	2	2	–	–	15
Theme 9. Planning and implementation of project activities under the conditions of uncertainty	14	2	2	–	–	10	20	2	2	–	–	16
Theme 10. Management of monitoring, control of implementation and completion of the project processes	14	2	2	–	–	10	22	2	4	–	–	16
Total in content module 2	96	14	14	–	–	68	139	14	18	–	–	107
Preparation for the examination	**10**					**10**	**10**					**10**
Pre-exam consultations	**2**				**2**		**2**				**2**	
Examination	**2**				**2**		**2**				**2**	
Total hours in two modules	150	20	18	2	4	106	210	20	22	2	4	162

5. The themes of practical classes

Practical classes are a form of lesson, at which the lecturer organizes a detailed consideration of separate theoretical issues of the academic discipline and forms the ability and skills in the practical application of the gained knowledge by means of individual implementation of tasks by students. Realization of such activities is based on preliminary prepared methodical materials – tests for evaluation of the mastery of necessary theoretical issues, a set of tasks of different levels of complexity to be done in class. It includes previous control of knowledge, abilities and skills of students, raising a general issue by the lecturer and solving the problem with the participation of students, performance of tasks with further discussion, control, reviewing and evaluation (Table 5.1).

Table 5.1

The list of themes of practical classes

Content module	Themes of practical classes (according to the modules)	Number of hours	Bibliography
1	2	3	4
Content module 1. Project initiation management	*Task 1.* Carrying out tasks of the expert evaluation of the project approach realization on the basis of initiation according to PMBoK®. Construction of the matrix of indices	2	Basic: [1 – 5]. Additional: [7 – 9; 11; 27; 41 – 43; 49; 51; 52]
	Task 2. The ground for choosing a project based on the groups of indexes with the use of the hierarchy analysis method. Development of the project organizational structure	2	Basic: [1 – 5]. Additional: [6 – 9; 11; 27; 32; 38; 40; 41 – 43; 49]
Content module 2. Planning process management and project implementation activities	*Task 3.* The case study "Development of project regulations with the improvement of the system of project management in the organization engaged in the granting of educational services". *Task 4.* Development of a WBS: formulation of the names of subprojects and components for each of them. Express-questioning on the lecture material	2	Basic: [1 – 5]. Additional: [7; 11; 16; 24; 25; 29; 34 – 36; 38; 41 – 43; 51 – 53]
	Task 5. Defining the packages of work and formulating the list of project work. *Task 6.* Development of a network model and a calendar plan of works. Construction of a Gantt chart	2	Basic: [1 – 5]. Additional: [7; 10; 11; 16; 24; 27; 28; 35; 36; 38; 41 – 43; 53]
	A colloquium on themes 1 – 5	2	Basic: [1 – 5]. Additional: [6 – 11; 19; 26 – 29; 33; 37; 38; 40 – 43; 49 – 53]

Table 5.1(the end)

1	2	3	4
	Task 7. Development of a base plan and a chart of project costs. Identification and resolution of resource conflicts. *Task 8.* Identification of external environment factors that influence the formation of a project team. Determination of requirements to a project team and its basic skills. Staff rotation in a project	2	Basic: [1 – 5]. Additional: [7; 9 – 11; 17; 22; 23; 27; 33 – 40; 50; 51]
	Task 9. Development of a quality management plan. Determination of project standards and criteria of success. Realization of evaluation of the quality cost	1	Basic: [1 – 5]. Additional: [7; 10 – 12; 20 – 25; 34; 35; 49 – 53]
	Task 10. Determination of the basic parties involved in the project. *Task 11.* Evaluation of basic channels of communications and possible barriers. Determination of basic kinds and charts of communications (obligatory and working). *Express-questioning* on the lecture material	1	Basic: [1 – 5]. Additional: [7; 9 – 12; 16; 17; 19; 21; 22 – 25; 33 – 40; 50; 51]
	Task 12. Determination and choice of the methods of risk minimization. Evaluation of the efficiency of the methods of project risk minimization. Development of risk management at every phase of the life cycle	2	Basic: [1 – 5]. Additional: [7; 9 – 11; 17; 19; 21; 24 – 26; 34 – 40; 51; 52]
	A colloquium on themes 6 – 10	2	Basic: [1 – 5]. Additional: [7; 9 – 12; 16; 17; 19; 21 – 27; 33 – 40; 49 – 53]
Total hours for the content modules		18	–

5.1. Examples of typical practical tasks on the themes

Content module 1
Project initiation management

Theme 1. A project as a management object. The project life cycle

Level 1. Work out and describe the underlying organizational structure of project development and production of new pharmaceutical goods.

Level 2. Ground the external organizational structure of a project obtaining new technical equipment by an enterprise subject to a leasing contract.

Level 3. Describe the internal factors of an organization which influence its structure if this organization is: newly set up; the one that has been in the market for a long time; a restructured one.

Content module 2. Planning process management and project implementation activities

Theme 4. Planning and implementation of the project time management

An enterprise extends the production of its goods. A project of reconstruction of one workshop has been worked out. The project foresees the implementation of a number of work types (Table 5.2).

Because of the lack of norms, the duration of work implementation is determined by the expert method. For every type of work the specialists of the enterprise defined the minimum duration for implementation of work under favourable conditions and the maximal duration under unfavourable conditions.

It is necessary to build a network progress chart as for the reconstruction of the workshop of this enterprise.

Table 5.2

The basic types of work for the reconstruction of the enterprise workshop

The list of the types of work	Previous work	Duration, days	
		Minimal	Maximal
1	2	3	4
1. Development and approval of a project for the workshop reconstruction, decision as for the beginning of work	–	30	40

Table 5.2 (the end)

1	2	3	4
2. Dismantling of the unnecessary equipment	1	10	15
3. Purchase of new equipment	1	7	10
4. Delivery of the equipment	3	2	5
5. Building the foundation for new equipment installation	2, 3	15	20
6. Supply of communications to the foundation	2, 3	5	7
7. Taking the new equipment on the bookkeeping balance	4	2	3
8. Installation of the new equipment and realization of commissioning	5, 6, 7	10	15
9. Commissioning	8	1	3

Theme 7. Planning and implementation of the project quality management

Different situations are possible at an enterprise (Table 5.3). Specify reasons for each of these situations. Build a cause-and-effect chain.

Table 5.3

Initial information

Situations	Reasons
A customer is displeased at the quality of the project product. The quality of the project product is below that of the competitors. The charges on the project work exceed the planned budget. The completion of the project work is too long, delayed by a few weeks	Weak control over changes in the designer part of the project. Absence of participation of functional subdivisions on the stage of planning. Unsatisfactory functioning of the project information system. Unreal plans and graphic arts of the implementation of work. Bad knowledge of consumer (customer) requirements. Unsatisfactory work of managers. Absence of clear specification of the product. At the stage of planning some charges were not foreseen in the project work. The resources of company are exhausted

6. The themes of laboratory sessions

A laboratory session is a form of lesson at which a student, under the lecturer's guidance, personally conducts imitation experiments or experiments to prove separate theoretical issues of the academic discipline. During a laboratory session a student acquires professional competences and practical skills in the computer work using a corresponding software. Based on the results of laboratory work students design individual reports and defend them (Table 6.1).

Table 6.1

The list of themes of laboratory work

Theme	Questions	Number of hours	Bibliography
Content module 1. Project initiation management			
Theme 2. Project initiation activities	Task 1. Development of the project based on the process approach. Designing the business processes according to the notation of IDEF0 in the AllFusion Process modeler environment. Task 2. Realization of the hierarchy analysis method in the Microsoft Excel environment	2	Basic: [1 – 5]. Additional: [7 – 11; 23; 28; 38; 40 – 43; 49]
Total hours		**2**	

7. Independent work

Independent work of students (IWS) is a form of organization of the educational process, at which the planned tasks are executed by students independently under the methodical guidance of a lecturer.

The purpose of the IWS is mastering of the syllabus material in full and forming of general and professional competences which play a substantial role in the formation of a future specialist of high qualification.

The educational time allocated for independent work of full-time students is determined by the curriculum and makes 70.7 % (106 hours) of the general educational time provided for the study of the academic discipline (150 hours).

During the independent work, a student should become an active participant in the educational process, learn consciously to gain theoretical and practical knowledge, freely orient in the information space, bear the individual responsibility for the quality of his own professional training. IWS contains: work on the lecture material; working and studying the recommended bibliography, basic terms and concepts on the themes of the discipline; preparation for practical, seminar, laboratory classes; preparation for speaking at seminars; thorough learning of separate lecture themes or questions; carrying out individual tasks (solution and calculation of individual and complex tasks) on the studied theme; writing an essay on the given problem; search (selection) and review of literary sources on a range of problems of the discipline; analytical consideration of scientific publications; final testing of the knowledge based on the questions for self-assessment; preparation for the tests and other forms of current control; preparation for module control (for the colloquium); systematization of the studied material to prepare for the semester examination.

The necessary element of the successful mastering of the material of the academic discipline is independent work of students with the help of domestic and foreign special economic publications, normative acts on the governmental control of economy, statistical materials. The basic types of independent work offered to students for mastering the theoretical knowledge on the academic discipline are given in Table 7.1.

Table 7.1

Tasks for independent work of students and forms of control

Theme name	Contents of independent work of students	Number of hours	Forms of control of IWS	Bibliography
1	2	3	4	5
Content module 1. Project initiation management				
Theme 1. A project as a management object. The project life cycle	Studying the lecture material, review of the theoretical material on the theme. Determination of processes, necessary for the receipt of project results; conducting their classification; setting priority of the process.	9	Presentation of the results	Basic: [1 – 5]. Additional: [7 – 8; 11; 27; 41 – 43; 49; 51; 52]

Table 7.1 (continuation)

1	2	3	4	5
	Lineation of the processes and phases of the project life cycle			
Theme 2. Project initiation activities	Studying the lecture material, preparation for practical classes. Defining the basic requirements and basic limitations on the selected project	9	Presentation of the results	Basic: [1 – 5]. Additional: [7 – 11; 27; 33; 38; 40 – 43; 49]
Theme 3. Integration management and maintenance of the project	Studying the lecture material, preparation for practical classes. Laying down regulations for the project; laying down an extended plan of the project, defining the criteria for efficient processes. Preparation for express testing on the lecture material	10	Presentation of the results	Basic: [1 – 5]. Additional: [7; 11; 16; 27; 29; 34 – 36; 38; 41 – 43; 51 – 53]
Total for content module 1		28		
Content module 2. Planning process management and project implementation activities				
Theme 4. Planning and implementation of the project time management	Search, selection and review of literary sources. Solution of problems during the realization of a calendar plan: a) complete float time considerably exceeds the duration of work; b) critical project work float time appeared on the left-handside instead of the right one	9	Presentation of the results	Basic: [1 – 5]. Additional: [7; 10; 11; 16; 24; 27; 28; 35; 36; 38; 41; 42; 43; 53]
Theme 5. Planning and implementation of the project cost management	Studying the lecture material, preparation for practical classes. Constructing a Gantt chart. Preparation for the colloquium on themes 1 – 5	9	*A colloquium* on themes 1 – 5	Basic: [1 – 5]. Additional: [7 – 11; 27 – 29; 38; 41 – 43; 49 – 53]

Table 7.1 (continuation)

1	2	3	4	5
Theme 6. Planning and implementation of the project personnel management	Search, selection and review of literary sources, on the given themes; preparation for practical classes. Making a list of specialists, necessary for the implementation of the project, the basic requirements in relation to their qualification. Ways of attracting personnel to the project. Building a matrix of responsibility of the project (who is responsible for what work)	10	Presentation of the results	Basic: [1 – 5]. Additional: [6; 9 – 11; 17; 22; 23; 27; 33 – 40; 50; 51]
Theme 7. Planning and implementation of the project quality management	Studying the lecture material, preparation for practical classes. Determination of control events of the project. Quality control plan realization. Development of the Ishikawa diagram	10	Presentation of the results	Basic: [1 – 5]. Additional: [7 – 11; 23 – 25; 34 – 36; 49 – 53]
Theme 8. Planning and implementation of project communications purchases and supplies	Search, selection and review of literary sources on the set themes. Determination of the parties concerned. Determination of basic channels of communications for a selected project. Determination of basic types of communications. Determination of barriers of communications. Forming a plan of project communications. Determination of purchase procedures and development of a calendar plan of the purchase of services. Preparation for express-questioning on the lecture material	10	Presentation of the results	Basic: [1 – 5]. Additional: [7; 9 – 12; 16; 21; 24 – 28; 34 – 36; 50; 51]

Table 7.1 (the end)

1	2	3	4	5
Theme 9. Planning and implementation of project activities under the conditions of uncertainty	Studying the lecture material, preparation for practical studies. Identification of project risks and development of the ways to decrease them	10	Presentation of the results	Basic: [1 – 5]. Additional: [7; 10 – 11; 24 – 25; 34 – 36; 51; 52]
Theme 10. Management of monitoring, control of implementation and completion of the project processes	Search, selection and review of literary sources, on the set themes. Making a plan of monitoring and control of project implementation	10	*A colloquium* on themes 6 – 10	Basic: [1 – 5]. Additional: [7; 9 – 12; 16; 17; 19; 21 – 27; 33 – 40; 49 – 53]
Total for content module 2		68		
Preparation for the examination		**10**		Basic: [1 – 5]. Additional: [7; 9 – 12; 16; 17; 19; 21 – 27; 33 – 40; 49 – 53]
Total for the modules		106		

7.1. Control questions for self-assessment

Theme 1. A project as a management object. The project life cycle

1. Name the basic descriptions of a project.
2. Describe the specific features of the process approach to management.
3. Name the basic groups of processes of project management. Describe the groups of processes.
4. What is a life cycle? Give an example of life cycles.
5. Describe the life cycle of a project product. Give an example.

6. Describe the life cycle of a project. Give an example.
7. What parameters characterize the phases of a project? Give an example.
8. Give comparable description of the methods of project implementation.
9. What does the method of rapid advancement of a project consist of?
10. Describe the process time distribution.
11. Describe the business processes of a project. Give an example.
12. What classifications of processes are there?
13. What processes are described in the methodology of PMI PMBoK?
14. Name the basic stages of the methodology of management processes.
15. What is a chart of a process? Give an example.
16. What parameters of business processes are used?
17. What methods of process analysis are used?
18. What models of business processes exist? Describe every model.
19. What methodologies of business process description are there?
20. What information technologies are used during the design of business processes?

Theme 2. Project initiation activities

1. Give a description of the process, project and scenario approaches to management.
2. Name the basic project documents which are created on the stage of project planning.
3. Describe the basic principles of the systems approach.
4. Define the concepts "project", "program", "system".
5. Name the basic stages of the project portfolio management.
6. Describe the models of maturity of management portfolios, programs, projects.
7. What elements are contained in the description of the project scope?
8. Name the basic stages of the regulations of project formation.
9. What elements are contained in the regulations of a project?
10. What does the method "Will be / will not be" consist in?
11. What plans are the elements of a project management plan?
12. Describe the five-level model of maturity.
13. How is the verification of a project plan carried out?
14. Describe the subjects and objects of project management.
15. Who is responsible for project documents?

Theme 3. Integration management and maintenance of the project

1. Name the basic processes which characterize the procedure for management of project maintenance.

2. Name the basic components and explain their essence in relation to the procedure of management of the project scope.

3. Explain the use of the methods and facilities during planning and determination of project maintenance.

4. Name the results of activities of the project maintenance management.

5. Give a description of the sequence of information decoupling on a project in relation to determination of its maintenance.

6. What are the signs forming the project WBS?

7. What are the packages of work? Give an example.

8. What is the foundation for forming a project WBS?

9. Give a definition of a project OBS and WBS. Give an example.

10. Point out the basic rules of forming project structures.

11. What is opening of packages of works?

12. Give a description of typical errors during the development of project structures.

13. What is the structure of charges on a project?

14. What is understood under the idea of a project? How is it defined?

15. What is a setting of landmarks in a project? Give an example.

16. What are the rules for forming packages of work?

17. What information is included in the bill of charges?

18. What information is included in the set of work packages?

19. What is a calculation diffused at times and the set of work packages?

Theme 4. Planning and implementation of the project time management

1. What basic processes belong to the group of planning processes?

2. What processes belong to the group of processes of planning of terms in a project?

3. Give a description of the evaluation of work duration.

4. Give a description of the calculation of the schedule.

5. What levels of calendar planning do you know?

6. What does the technology of team cooperation consist of while forming and coordinating the calendar plan of a project?

7. What specialists of the project team participate in the forming of a complex network chart of a project?

8. What are the basic stages of forming a list of project work activities?

9. What is a basis for forming a list of project work activities?

10. What is a package of work and what is it used for?

11. How is the level of detailed work of a project determined?

12. What is a network chart of a project?

13. What is work of a project?

14. What types of models of network charts are used in project management?

15. What is the essence of a "top-event" model?

16. What is the essence of a "top-work" model?

17. What types of work packages are used in network models with the predecessor of work?

18. What input should be used to form the sequence of work activities?

19. What are the rules of development of the network chart of the project work?

20. What is the step method of forming the network models?

21. What are outrunnings and delays and what are they used for?

22. Make a comparative analysis of the network models.

23. Give a description of the evaluation of work resources.

24. What documents are used for setting the resources to project work?

25. What time parameters of project work are used for the evaluation of the work duration?

26. How is the evaluation of work parameters conducted?

27. What formulae are used for the calculation of the appraised duration of work?

28. What do the methods of analogue evaluation and design of work duration consist in?

29. What is dispersion used for during the evaluation of work parameters?

30. What time parameters of work are used for the calculation of the work schedule?

31. What steps for calculation of the work schedule do you know?

32. Name the rules of the direct approach to the calculation of a timetable.

33. Name the rules of reverse approach to the calculation of a timetable.

34. What types of float time are there and how are they applied?
35. How do the parameters of connections influence the calculation of a time-table?
36. How do limits influence the calculation of a time-table?

Theme 5. Planning and implementation of the project cost management

1. What basic processes belong to the group of the project cost planning?
2. What organizational forms of project financing are there?
3. What do the processes of project cost evaluation consist of?
4. Give a description of the processes of formation of the project budget.
5. What is the primary purpose of evaluation of the project cost?
6. What types of project cost evaluation are there and how many types are there?
7. How does control evaluation differ from the tender one?
8. How exact is the budgetary evaluation of the project cost?
9. What elements belong to the structure of the types of cost charges in a project?
10. Give a description of the administrative and superimposed charges.
11. What does the control cube of cost mean?
12. What are the work costs?
13. What is meant by the calculation of material charges?
14. What is meant by charges on services of plants and equipment?
15. What are the charges on the subcontract?
16. What do charges on management consist of?
17. What charges can be attributed to the invoices and administrative charges?
18. What basic elements of project management costs do you know?
19. What stages do the processes of resource planning consist of?
20. What is a resource conflict?
21. What methods of resolution of resource conflicts are there? Describe them.
22. What methods of allocation of limited resources do you know? Give a description of them.
23. What is land? How is the base plan of project costs used?
24. Characterize the essence of the project costs.

25. What methods of calculation of building project costs exist?
26. What is the method of analogies and how does it operate?
27. How does the self-reactance method of cost evaluation function?
28. How does the "down-top" method function in relation to the evaluation of project costs?
29. What does the three-points method of cost calculation consist of?
30. What is the theorem of central limit?
31. What does the matrix of allocation of project resources mean and how is it built?
32. How is the S-curve of the project budgetary cost chart built?

Theme 6. Planning and implementation of the project personnel management

1. Describe the task of personnel management.
2. Name the basic constituents of resource planning.
3. What must be included in the management plan of providing personnel?
4. Describe the control system of human capital.
5. Describe the functional areas of HR management.
6. Describe the basic types of organizational staff strategies.
7. Give a definition of a project team.
8. Name the basic purposes of skilled staff reserve creation.
9. Name the basic documents which regulate the development of personnel.
10. Name the elements of the plan of training activities.

Theme 7. Planning and implementation of the project quality management

1. Name the basic processes of the project quality management.
2. What factors influence project quality?
3. Name the basic principles of TQM.
4. What is the quality control system?
5. Describe the cost of project quality.
6. Describe the interconnection of the product quality and the project.
7. What are the reasons for a decline in the project quality?
8. What approaches to quality planning do you know?
9. Explain the necessity of application of ISO 21500.
10. What groups of processes are there in the standard of ISO 21500?

Theme 8. Planning and implementation of project communications, purchases and supplies

1. Name the basic processes of management communications.
2. Give a definition of the terms "communication", "communication process", and "communication network".
3. Name the basic classifications of project communications.
4. What communication channels exist in a project?
5. What basic communication barriers are there?
6. What problems can arise in the remote-control project management?
7. Describe the basic roles in management communications.
8. What types of communication networks do you know?
9. What must the plan of management communications contain?
10. Name the basic principles of project modernization.
11. What basic groups of processes exist in the management of project purchases?
12. Give a description of the process approach to purchase planning.
13. What stages of purchase activity organization are there in projects?
14. Give a description of preparation for project purchases.
15. Name the constituents of the plan of project purchases.
16. What elements does the plan of purchases for the state sector of economy consist of?
17. On the basis of cooperation of project purchases with other components of project management, describe the essence of evaluation of work resources, evaluation of costs, development of the plan of purchases.
18. Name the principles of project purchases and give their description.
19. What requirements to the project purchases do you know?
20. What procedures of purchases are there in projects?
21. What are the characteristic features of public tenders?
22. Describe the stages of two-stage auctions.
23. What are the requests for price quotations characterized by?
24. What is the specific feature of purchases for one participant?

Theme 9. Planning and implementation of project activities under the conditions of uncertainty

1. What is a risk?
2. What is a project risk?

3. What is the index of risk importance?

4. What does the index of risk probability show?

5. What processes are contained in project risk management?

6. What is the matrix of risks?

7. What does uncertainty in a project consist of?

8. What are the basic attributes of risk?

9. What is a decision tree and what does it consist of?

10. What is outsourcing?

11. What are the types of IT outsourcing?

12. What is outsourcing of information technologies?

13. What is the essence of projects management outsourcing?

14. What is offshoring? What are the models of offshoring?

15. What projects are mostly used with offshoring models?

Theme 10. Management of monitoring, control of implementation and completion of the project processes

1. What does control consist of in the subject domain? How is control of changes carried out?

2. Describe the common informational models of confirmation of maintenance and management of maintenance.

3. What requirements are set to providing the cost/graphic integrated system?

4. Describe the indexes for evaluation of the course of project performance according to the method of the mastered volume (EVT/EVM).

5. Analyze the approaches to prediction (forecast) of the eventual budget of a project.

6. Outline the processes of time-table management and management of project costs.

7. Describe the administrative processes of purchases management, monitoring and risk management.

8. Describe the common information model of the process of preparation of reports on implementation.

9. Describe the role of Ishikawa tools in the quality control system.

10. What method of quality control provides the possibilities for finding defects in the range of ±3σ?

11. Explain the logic of calculation of the number of defects by the method DPMO.

8. Individual consultative work

Individual consultative work is carried out according to the schedule of individual consultative work in the form of individual classes, consultations, reviewing the implementation of individual tasks, assessment and presentation of current control tasks, etc.

The forms of organization of individual consultative work are:

a) on mastering the theoretical material: consultations: individual, group (consideration of typical examples/situations);

b) on mastering practical material: consultations: individual and group;

c) for the complex evaluation of mastering the syllabus material: performed individual tasks.

9. The teaching methods

In the process of teaching the academic discipline, students' educational and cognitive activity is enhanced by both active and interactive educational technologies including problem-based lectures, minilectures, work in small groups, seminar-discussions, brainstorming, case study, presentations, role plays, the method of project work, computer simulations, the Delphi method, the method of scenarios, banks of visual support (Tables 9.1 and 9.2).

Table 9.1

Distribution of forms and methods of intensification of studies according to the themes of the academic discipline

Theme	Practical application of educational technologies
1	2
Theme 1. A project as a management object. The project life cycle	A problem-based lecture on the topic "Project life cycle management", work in small groups, presentation of the results, banks of visual support
Theme 2. Project initiation activities	A minilecture on the topic "Rationale for project choice based on the use of different methods", banks of visual support

Table 9.1 (the end)

1	2
Theme 3. Integration management and maintenance of the project	A problem-based lecture on the topic "Project management", work in small groups, presentation of the results, banks of visual support
Theme 4. Planning and implementation of the project time management	A minilecture on the topic "Improvement of the calendar working hours", work in small groups, presentation of the results, banks of visual support
Theme 5. Planning and implementation of the project cost management	A problem-based lecture on the topic "The features of the project budget development", work in small groups, presentation of the results, banks of visual support
Theme 6. Planning and implementation of the project personnel management	A problem-based lecture on the topic "Attracting personnel to the project and formation of a skilled reserve"
Theme 7. Planning and implementation of the project quality management	A minilecture on the topic "Development of the Ishikawa diagram", banks of visual support
Theme 8. Planning and implementation of project communications, purchases and supplies	A minilecture on the topic "The choice the of means of communications and overcoming of barriers", banks of visual support
Theme 9. Planning and implementation of project activities under the conditions of uncertainty	A problem-based lecture on the topic "Methods of project risk management", work in small groups, presentation of the results, banks of visual support
Theme 10. Management of monitoring, control of implementation and completion of the project processes	A minilecture on the topic "Effective change management", banks of visual support

Table 9.2

The use of the methods for enhancement of the training process

Themes of the academic discipline	Practical application of the methods	Methods for enhancement of the training process
1	2	3
Theme 2. Project initiation activities	Laboratory session. Project development in the context of the process approach	Work in small groups, brainstormings, presentation

Table 9.2 (the end)

1	2	3
	Designing business processes based on the notation of IDEF0 in the environment of the AllFusion Process modeler. Laboratory session. Realization of the method of analysis of hierarchies in the Microsoft Excel environment	
Theme 4. Planning and implementation of the project time management	Practical study. Task 5. Defining the packages of work and formulating the list of the project work activities. Task 6. Development of a network model and a calendar plan of work. Construction of the Gantt chart	Work in small groups, presentation

The basic difference between the active and interactive methods of studies on the one hand and traditional ones on the other hand is not only determined by the methods and teaching techniques but also by high efficiency of the educational process which appears in: high motivation of students; application of theoretical knowledge to practice; increase of students' consciousness; forming the ability to make independent and collective decisions; forming the capacity for social integration; acquisition of skills in the resolution of conflicts; development of trading capacity.

A problem-based lecture is one of the major elements of students' studies. They include consideration of the basic lecture material and consideration of problem issues of debatable character which have not been developed enough in science and have actual value for both theory and practice. Problem-based lectures are characterized by solid argumentation of the delivered material. They promote students' independent creative thought, form their cognitive skills. Students become participants in scientific research and finding solutions to problem situations.

A minilecture is delivery of the educational material in a short interval of time which is characterized by considerable capacity, complication of logical constructions, characters, proofs and generalizations. As a rule, they are conducted as a part of research. A minilecture differs from ordinary lectures by considerably less duration. A minilecture usually lasts not more than 10 – 15 minutes and

is used in order to briefly get new information across to all the listeners. A minilecture is often used as part of an integral theme which is desirable to be delivered as an ordinary lecture, not to bore the audience. Then information is given in turn by a few separate segments between which other forms and methods of studies are used.

Work in small groups enables the lecturer to structure practical and seminar classes in the content, creates possibilities for participation of every student in the work on the theme, provides formation of individual traits and experience of social intercourse.

Brainstorming is the method of prompt performance of tasks, with a view to expressing as many ideas as possible to be discussed and selected in a very limited interval of time.

Presentation is appearance before an audience, which is used for the demonstration of certain achievements, group performance results, reports of individual task performance, projects. Presentations can be both individual, for example appearance of one speaker, and collective, i. e. appearance of two and more speakers.

Banks of visual support contribute to the stimulation of the process of studies on the themes of the academic discipline by means of using visual methods.

10. The methods of control

The system of evaluation of competences formed by students (Table 2.1) takes into account the types of classes which, according to the curriculum, include lectures, laboratory classes, practical classes, and presentations of independent work. The evaluation of the competences formed by students is carried out on a 100-point system. In accordance with the Temporary Provision "About the Order of Evaluation of Students' Academic Performance on the Point-Rating System" of S. Kuznets KhNUE, control includes:

current control which is carried out during a semester at lectures, practical classes, seminars and assessed by the sum of the points accumulated (the maximal sum of points is 60; the minimum sum that allows a student to take an exam is 35 points);

module control is conducted taking into account current control for the corresponding content module and implies computer-integrated assessment

of students' results achieved in the study of material of the logically completed part of the discipline – a content module;

final/semester control is conducted in the form of a semester examination in accordance with the schedule of the educational process.

Current control on this academic discipline is conducted in such forms:

active work at lectures;

active participation in the execution of practical tasks;

express questioning.

Module control on this academic discipline is conducted in the form of a colloquium. ***A colloquium*** is a form of reviewing and evaluation of students' knowledge in the system of education at higher educational establishments. It is conducted as an intermediate miniexam on the initiative of the lecturer.

Final/semester control is conducted in the form of a semester examination. ***Semester examinations*** are a form of evaluation of the students' final mastery of theoretical and practical material on a separate academic discipline which is conducted as a control measure.

The order of current evaluation of students' knowledge. The evaluation of students' knowledge during seminars and practical classes and individual tasks is conducted based on such criteria as:

understanding, the degree of mastery of theory and methodology of the problems which are examined;

the degree of the mastery of the actual material on the academic discipline;

acquaintance with the recommended bibliography, and modern publications on the questions which are examined;

the ability to combine theory with practice under time consideration of productive situations, performance of tasks, realization of calculations in the process of implementation of individual tasks and tasks offered for consideration in the classroom;

logics, structure, style of presentation of material in written papers and oral presentation in the classroom, the ability to ground the position, carry out generalization of information and draw conclusion;

arithmetic correctness of the performance of individual tasks and a complex of calculation tasks.

The maximum possible points for a concrete task are given on the condition of student's individual task or his verbal answer meeting all the

noted criteria. Absence of one or more constituents reduces the number of points. In the process of evaluation of individual tasks attention is also paid to the quality, independence and timeliness of handing over the executed tasks to the lecturer according to the curriculum. If some of the requirements are not met, the points are reduced.

A written test is conducted 2 times during the semester and contains practical tasks of different levels of complication in accordance with the themes of the content module.

The criteria for evaluation of students' independent work. The general criteria according to which the evaluation of independent work of students is carried out are: depth and durability of knowledge, level of thought, the ability to systematize knowledge of separate themes, the ability to draw reasonable conclusions, mastery of terms and skills, performance of practical tasks, the ability to find, systematize and process the necessary information, self-realization at practical and seminar classes.

A standard examination card

Simon Kuznets Kharkiv National University of Economics
The educational degree: Master's (second)
speciality 072 "Management"
Semester 1
The academic discipline "Planning and Implementation of Project Activities"

Examination card No. 1

Task 1 (tests).

1. Application of the project work breakdown structure (WBS):

a) provides determination of the project *work*;

b) divides the project into the guided parts;

c) gives to the sponsor of the project a generalized picture of tasks with pointing of the time and stages;

d) "a" or "b";

e) all mentioned.

2. Clear determination of customer needs is a direct ground for:

a) the structure of work distribution;

b) requirements of functionality;

c) evaluation of project charges;

d) selection of personnel;

e) decision about project completion.

3. On the basis of the given structure of project work packages:

1.0.0. to build a house;

1.1.0. to arrange a foundation ditch;

1.1.1. to conduct a survey;

1.1.2. to dig up an excavation;

1.2.0. to prepare house footing;

1.2.1. to set wall forms,

the example of the WBS will be:

a) to build a house;

b) to arrange a foundation ditch;

c) to prepare the house footing;

d) *b* or *c*;

e) none of the mentioned.

4. What is the model of the existing organization of a business process called?

a) AS-IS;

b) TO-BE;

c) To Should be?

5. What is the fragmentation of a difficult process into constituents called:

a) decomposition;

b) documenting;

c) prevailing;

d) tunneling?

6. A set of projects which will be realized by an organization under the conditions of limited resources and must provide the achievement of strategic goals is:

a) a portfolio;

b) a program;

c) a multiproject.

7. What concept is the basis of the organization development model, oriented to the production/updating of products or provision of services on the basis of addition to the project portfolio:

a) the concept of 5p;

b) the concept of 4p;

c) the concept of 3p?

8. Participation of a customer in the process of project planning:

a) is interference in the business and stopping the work;

b) is needed for the exact documenting of aims and tasks of the project;

c) is not important, as the customer can formulate his necessities;

d) is better provided by the group of project realization;

e) none of the mentioned.

9. The Gantt chart is useful to determine:

a) the volume of work during the task performance;

b) the moment of beginning of the task completion;

c) how the tasks are correlated with each other;

d) who must perform the task;

e) all mentioned.

10. A critical way in the network graph is a way which:

a) takes more;

b) must be executed before all other types of work;

c) foresees certain flexibility in the establishment of the starting date;

d) is not influenced by delays in graph realization;

e) all mentioned.

11. The value of fictitious activity of an indicator on the diagram is used:

a) to show the task which can be replaced by another one;

b) to take into account the time;

c) to show the task which cannot be performed;

d) to designate the milestone/reference point;

e) to show the relation of dependence.

12. As far as the implementation of a project and charges of time supplies on separate tasks, the supply of time which remains for the implementation of other tasks will be:

a) insignificant;

b) unchanging;

c) increased;

d) doubled.

13. Work "on a more compact program" means:

a) acceleration of project realization due to the concurrent execution of works;

b) substitution of one work for another;

c) reduction of the number of tasks if it is possible;

d) "a" and "b" together;

e) none of the mentioned.

14. What is joint-stock financing of a project?

a) It is the form of obtaining additional resources.

b) It is related to issuing securities.

c) It does not influence the project cost and is not used.

d) "a" and "b" together;

e) None of the mentioned.

15. What types of estimates are involved in projects?

a) construction;

b) local;

c) objective;

d) "b" and "c" together;

e) all mentioned.

16. For making a financial decision the values have to be presented as charges, excepting:

a) alternative costs;

b) direct charges;

c) charges of the past period;

d) inevitable charges;

e) none of the mentioned.

17. The methods which are used for evaluation of the total revenue of a project by comparison to the general sum of money spent in a concrete moment of time are called:

a) a return on investments;

b) a net settled value;

c) discounted cash flows;

d) "a" and "b" together;

e) all of the mentioned.

18. The index of the exceeding budget is counted as follows:

a) the estimate cost of the work performed is divided by the actual cost of the work performed;

b) the estimate cost of the work performed minus the actual cost of the work performed;

c) the estimate cost of the work performed minus the estimate cost of the planned work;

d) the estimate cost of the planned work is divided by the estimate cost of the work performed;

e) the actual cost of the planned work is divided by the estimate cost of the work performed.

19. The description of personnel strategy given as "Orientation to prevention (prophylaxis) of crisis situations and taking corrective measures which can be used for all projects, but are most expedient for "hopeless" projects" is:

a) the strategy of optimization of the skilled potential;

b) the strategy of development;

c) the crisis strategy of management;

d) the universal strategy.

Task 2 (stereotypical). Let the net discounted profit of project No. 1 be 1 000 UAH, of project No. 2 – 1 500 UAH, of project No. 3 – 2 500 UAH. Fill in the table of paired comparison of the projects based on the index of the net discounted profit by the method of hierarchy analysis (Table 10.1).

Table 10.1

The matrix of pair comparison of project based on the index of the net discounted profit

Net discounted profit	Project 1	Project 2	Project 3	Vector of priorities
Project 1	1			
Project 2		1		
Project 3			1	

Task 3 (diagnostic). You work in a team of project managers on the project of expansion of a motor-car plant in Zaporizhzhia. You have the task

to develop the project work breakdown structure (WBS). When forming the structure, use the advantage of the general description of the project which is given further.

At the meeting with the customer you came to know that the essence of the motor-car plant project modernization was the design of assembling, adjusting and starting of a new automated conveyer line for manufacturing new cars.

At the meeting of project managers it was set, as a result of analysis, that without regard to all complications, the project included three basic products, the completion of which would make it possible to perform the task put by the customer.

The first product is an annex to the workshop for assembling the conveyer line for the purpose of extension of the floor space. The complex of works on the annex, in turn, contains its planning, foundation and construction, from assembling the mechanical, electric and sanitary engineering equipment to realization of the exterior and interior finish of the building.

The second product is the pipeline system. It is, first of all, planning of the pipeline system, purchase, assembling and adjusting of the equipment for the conveyer line, equipment and setting of workplaces for implementation of current operations.

The third product is the automated system (AS) which, in turn, includes planning of the AS of the conveyor line management, assembling and adjusting of the facilities providing the CAS management, development and introduction of the conveyor line software, preparation of personnel for line maintenance.

According to the given description, formulate the name of the subprojects and components for each of them, the constituents of the project, and add these names to the blocks of the flow diagram.

Task 4 (heuristic). For this project, define the basic channels of communications and possible communication barriers.

The firm "Capital" is a research and development construction firm of a complete cycle. The company has been working on the building market of Ukraine for about 20 years and is one of the leading building companies in Ukraine. The basic type of the company activity is turnkey building of housing complexes as well as office, trade and industrial objects. The company covers the whole complex of building and finishing work as well as further maintenance of objects

after completion. The objects of the company are located in Kyiv and Kyiv region, Kharkiv, Zhytomyr and Kherson regions.

The offices of the company are located in different cities. There is no single system of document circulation. The company leaders decided to initiate a project of introduction of a unified document circulation system.

Analysis of the firm building activity shows that the basic features of building project management in communications are:

1. A large team of performers of the project works.
2. Delegation of authorities between coordinators or other responsible persons involved in the distribution of information between subdivisions.
3. The necessity of providing communications of territorially disconnected subdivisions.
4. The necessity of personal cooperation with every client.
5. A wide circle of parties which participate in the project and have influence on it.
6. Complex internal and external circulation of documents.

All technical requirements and technical decisions have their terms of validity. On average, the term of validity of technical requirements varies from one to three years. On the condition that a firm is now engaged in the realization of nine projects of different duration from two to six years, there is a necessity of permanent control over the term of validity of every document for each object. Together with technical requirements and different expert conclusions and permissions there are a number of other documents, where there is a need to follow the expiry of validity: commission, contracts with suppliers, tender documentation, etc.

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(signature) (signature)

The final mark for the examination consists of a sum of points for the performance of all the tasks which are rounded according to the rules of mathematics.

The algorithm of performance of each task includes separate stages that differ in complication, labour intensity and significance for the performance of the task. Therefore, separate tasks and stages of their performance are estimated separately:

Task 1 (10 points):

1 test – 0.5 points.

Task 2 (8 points):

2 points for the correct filling of the pair comparison matrix;

2 points for the arithmetic correctness of the conducted calculations;

0.5 points for the tidiness of presentation of the results;

3.5 points for availability and circumstantiality of conclusions.

Task 3 (10 points):

1 points for the correct formulation of the subprojects' names;

2 points for the correct selection of the subprojects' components;

3 points for development of a project flow diagram;

0.5 points for the tidiness of presentation of the results;

3.5 points for availability and circumstantiality of conclusions.

Task 4 (12 points):

2 points for the description of the existent channels of information and transfer of technologies;

3 points for the selection of barriers in the realization of communications in the firm's projects;

3 points for the choice of methods for overcoming the barriers in the realization of communications;

0.5 points for the tidiness of presentation of the results;

3.5 points for availability and circumstantiality of conclusions.

11. Distribution of points that students get

The system of evaluation of the level of full-time students' professional competences is given in Table 11.1.

Table 11.1

The system of evaluation of the level of professional competences formed

Professional competences		Educational week	Hours		Methods and forms of studies		Evaluation of the level of formed competences	
							Forms of control	Maximum points
1		2	3		4		5	6
	Content module 1. Project initiation management							**15**
PIPA 1	The ability to estimate the efficiency of project realization, develop a project model	1	Class	2	**Lecture**	**Theme 1. A project as a management object. The project life cycle**	Work at the lecture	0.5
				2	**Practical classes**	Carrying out the tasks on the expert evaluation of the realization of the project approach on the basis of processes of knowledge management based on PMBoK®. Construction of the matrix of process indexes. The rationale for the project choice based on the set of indexes with the use of the method of hierarchy analysis. Development of the organizational structure of a project	Active participation in doing the tasks	0.5
			SIW	9	**Preparation for classes**	Studying the lecture material, reviewing the theoretical material on the theme. Determining the processes necessary for the project result; classification of the processes; setting the priority of a process. Lineation of the processes and phases of the project life cycle	Presentation	3
	The ability to initiate a project, develop regulations, ground the choice of projects on the set of criteria	2	Class	2	**Lecture**	**Theme 2. Project initiation activities**	Work at the lecture	0.5
				2	**Laboratory classes**	Development of the project in the context of the process approach. Designing the business processes based on the notation of IDEF0 in the environment of the AllFusion Process modeler. Realization of the method of hierarchy analysis in the environment of Microsoft Excel	Active participation in the execution of laboratory tasks	0.5
			SIW	9	**Preparation for classes**	Studying the lecture material, preparation for practical classes. Defining the basic requirements to the project and basic limitations necessary for selecting the project	Presentation	3
	The ability to develop project documentation, form the matrix of distribution of tasks and responsibilities	3	Class	2	**Lecture**	**Theme 3. Integration management and maintenance of the project**	Work at the lecture	0.5
				2	**Practical classes**	A case study "Development of regulations for improvement of the system of project management" in the organization engaged in rendering educational services. Development of the work breakdown structure (WBS): formulation of the names of projects and components for each of them	Active participation in the execution of practical tasks	0.5
						Express questioning on the lecture material	**Dictation**	3

Table 11.1 (continuation)

1		2	3		4		5	6
PIPA 1	The ability to form an organizational structure, to develop a project description		SIW	10	**Preparation for classes**	Studying the lecture material, preparation, for practical classes. Development of project regulations; making a generalized plan of the project, defining the criteria of the process efficiency. Preparation for express questioning on the lecture material	Presentation	1.5
Content module 2. Planning process management and project implementation activities								45
PIPA 2	The ability to develop the project network and time schedule, to build the Gantt chart	4	Class	2	**Lecture**	**Theme 4. Planning and implementation of the project time management**	Work at the lecture	0.5
			Class	2	**Practical classes**	Defining the packages of work and formulating the list of the project work activities. Task 6. Development of a network model and a calendar plan of work. Construction of the Gantt chart	Active participation in the execution of practical tasks	0.5
			SIW	9	**Preparation for classes**	Search, selection and review of literary sources on the set themes. Solving problems during the realization of the set calendar plan: a) the complete float time considerably exceeds the duration of work; b) at critical moments of project work the float time appeared on the left instead of the right	Presentation	3
	The ability to estimate the project cost and build the base chart of costs, to develop the project budget	5	Class	2	**Lecture**	**Theme 5. Planning and implementation of the project cost management**	Work at the lecture	0.5
			Class	2	**Practical classes**	*A colloquium on themes 1 – 5*	**Colloquium**	9
			SIW	9	**Preparation for classes**	Preparation for the colloquium. Search, selection and review of literary sources on the set themes	Revision of the home task	3
	The ability to develop a strategy of the project personnel management, to plan human capital requirements, to develop a model of the project management competence. The ability to form an effective team	6	Class	2	**Lecture**	**Theme 6. Planning and implementation of the project personnel management**	Work at the lecture	0.5
			Class	2	**Practical classes**	Development of the basic plan and the baseline of the project cost. Identification and resolution of resource conflicts. Determining the factors of external environment which influence the formation of the project team. Determining the requirements to the project manager and his basic skills	Active participation in the execution of practical tasks	0.5
			SIW	10	**Preparation for classes**	Search, selection and review of literary sources on the set themes; preparation for practical classes. Making a list of specialists necessary for implementation of the project, the basic requirements in relation to their qualification. Ways of attracting personnel to the project. Development of the matrix of responsibilities for the project	Presentation	3

Table 11.1 (continuation)

1		2		3	4		5	6
PIPA 2	The ability to develop a plan of quality management, a control sheet, a histogram, a Pareto chart, a diagram of variation (dispersion), a diagram of Ishikawa	7	Class	2	**Lecture**	**Theme 7. Planning and implementation of the project quality management**	Work at the lecture	0.5
				2	**Practical classes**	Development of a plan of quality management. Determining the project standards and criteria of success. Evaluation of the quality cost	Active participation in the execution of practical tasks	0.5
			SIW	10	**Preparation for classes**	Studying the lecture material, preparation for practical classes. Determining the control events of the project. Making a plan of quality control. Development of the Ishikawa diagram	Presentation	3
	The ability to manage communications as a process of managing the expectations of the parties concerned, to manage conflicts, to plan the procedure of project purchases	8	Class	2	**Lecture**	**Theme 8. Planning and implementation of project communications, purchases and supplies**	Work at the lecture	0.5
				2	**Practical classes**	Determining the basic project parties concerned. Evaluation of the basic channels of communications and credible barriers. Determining the basic kinds and charts of communications	Active participation in the execution of practical tasks	0.5
						Express questioning on the lecture material	**Dictation**	3
			SIW	10	**Preparation for classes**	Search, selection and review of literary sources on the set themes. Determining the parties concerned. Determining the basic channels of communications for the selected project. Determining the basic types of communications. Determining the barriers of communications. Forming a plan of communications for the project. Determining the procedures of purchases and development of a calendar plan of the purchase of services. Preparation for express questioning on the lecture material	Presentation	1.5
	The ability to plan response to risks, the measures for the project risk prevention	9	Class	2	**Lecture**	**Theme 9. Planning and implementation of project activities under the conditions of uncertainty**	Work at the lecture	0.5
				2	**Practical classes**	Determining and choosing the methods for risk minimization. Evaluation of the efficiency of the methods for project risk prevention. Development of the process of risk management at the life cycle phases	Active participation in the execution of practical tasks	0.5
			SIW	10	**Preparation for classes**	Studying the lecture material, preparation for practical classes. Determining the risks of the project and development of the risk prevention methods	Presentation	3
	The ability to conduct monitoring of the project performance as to the terms and costs, to manage changes and configuration	10	Class	2	**Lecture**	**Theme 10. Management of monitoring, control of implementation and completion of the project processes**	Work at the lecture	0.5
				2	**Practical classes**	*A colloquium on themes 6 – 10*	**Colloquium**	9
			SIW	10	**Preparation for classes**	Search, selection and review of literary sources on the set themes. Development of the plan of monitoring and control of the project implementation	Home task control	3

Table 11.1 (the end)

1	2	3		4		5	6
Examination period	10	Class	2	**Preexam consultation**	Performance of practical tasks on different themes which are included in the final control	**Final control**	**40**
			2	**Examination**	Implementation of tasks in the examination card		
		SIW	10	**Preparation for the examination**	The bulk of the content module materials		
Total hours			**150**	**The maximal number of points on the discipline**			**100**
including							
class work			**40**	26.7 %	*current control*		**60**
independent work			**110**	73.3 %	*final control*		**40**

The distribution of points within the themes of the content modules is given in Table 11.2.

Table 11.2

The distribution of points within the themes

Current control and independent work										Final test (examination)	Total
Content module 1			Content module 2							40	100
T1	T2	T3	T4	T5	T6	T7	T8	T9	T10		
4	4	5.5	4	3.5	4	4	5.5	4	3.5		
Colloquium					Colloquium						
9					9						

Note. T1, T2 ... T12 are themes of the content modules.

The maximal number of points which a student can accumulate within a week through various forms and methods of studies is given in Table 11.3.

The final assessment on the academic discipline is effected in accordance with the Temporary Provision "About the Order of Evaluation of Students' Academic Performance on the Point-Rating System" of S. Kuznets KhNUE (Table 11.4).

Evaluation on this scale is entered into the Register of Academic Performance, the individual plan of a student and other academic documentation.

Table 11.3

The weekly distribution of points

Themes of content modules			Lectures	Practical classes	Laboratory classes	Presentation	Express questioning (dictation)	Revision of the home task	Colloquium	Total
Content module 1. Project initiation management	Theme 1	Week 1	0.5	0.5	–	3	–	–	–	4
	Theme 2	Week 2	0.5	–	0.5	3	–	–	–	4
	Theme 3	Week 3	0.5	0.5	–	1.5	3	–	–	5.5
Content module 2. Planning process management and project implementation activities	Theme 4	Week 4	0.5	0.5	–	3	–	–	–	4
	Theme 5	Week 5	0.5	–	–	–	–	3	9	12.5
	Theme 6	Week 6	0.5	0.5	–	3	–	–	–	4
	Theme 7	Week 7	0.5	0.5	–	3	–	–	–	4
	Theme 8	Week 8	0.5	0.5	–	1.5	3	–	–	5.5
	Theme 9	Week 9	0.5	0.5	–	3	–	–	–	4
	Theme 10	Week 10	0.5	–	–	–	–	3	9	12.5
Total			5	3.5	0.5	21	6	6	18	60

Table 11.4

The evaluation scale: national and ECTS

Total points for all types of educational activity	Evaluation on the ECTS scale	Evaluation on the national scale	
		for the examination, yearly/term project, practice	for a test
90 – 100	A	excellent	passed
82 – 89	B	good	
74 – 81	C		
64 – 73	D	satisfactory	
60 – 63	E		
35 – 59	FX	unsatisfactory	failed
1 – 34	F		

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Appendices

Appendix A
Table A.1

The structure of the components of professional competences on the academic discipline "Planning and Implementation of Project Activities" according to the National Qualifications Framework of Ukraine

Constituents of competences formed within the framework of the theme	Minimum experience	Knowledge	Ability	Communications	Noninteraction and responsibility
1	2	3	4	5	6
Theme 1. A project as a management object. The project life cycle					
The ability to develop a project model, to estimate the efficiency of project realization	The essence of the project concept and the project life cycle. The process approach to project management	Knowledge of the features of strategic and operative management and of project environment, projection of the areas of knowledge on the groups of processes based on PMBoK	To develop a model of the project planning and realization	To effectively determine the key features of a project	Responsibility for decoupling of processes into the phases of the project life cycle
Theme 2. Project initiation activities					
The ability to initiate a project, to develop project regulations, to ground the choice of the project based on a set of criteria (indexes)	Determining the stages of the project strategy realization. Setting goals and forecasting the project result	Knowledge of organization of the control system, methods of the project evaluation, feasibility study (TEO)	To determine the project investment efficiency, set priorities of project investment, development and creation of the organizational structure control system	To present the results of evaluation of the project investment efficiency	Responsibility for exactness and correctness of the project choice based on the set of criteria (indexes)

1	2	3	4	5	6
Theme 3. Integration management and maintenance of the project					
The ability to develop documentation of the project, to develop the description of maintenance, to form the matrix of distribution of tasks and responsibilities, to form an organizational structure of the project	The essence of the processes of planning of the project integration. Description of the project maintenance and the project implementation plan	Knowledge of the processes of planning the project maintenance, authentication of key events (control landmarks), the structure of the project	To carry out the structuring of the project, in particular: construction of the project structure on the basis of the life cycle, on the basis of the purposes and tasks	To present the results of the project structurization (the hierarchical structure of work (WBS))	Responsibility for making effective independent administrative decisions and correctness and adequacy of the worked out project structures
Theme 4. Planning and implementation of the project time management					
The ability to develop a network and a time schedule of the project, to build a Gantt chart	Description of the time planning processes. Sequencing the work (technological links between project activities)	Knowledge of the processes of making a list of activities and their parameters, evaluation of the project work duration, the basic methods of calculation of the net model parameters, in particular: tabular, matrix, sectoral, shot methods	To do critical analysis, to determine the project duration at an indefinite time of implementation of operations, to optimize the calendar plan, to build the Gannt chart	To effectively determine typical errors of planning and their results	Responsibility for making effective administrative decisions and reliability and exactness of the developed charts and models
Theme 5. Planning and implementation of the project cost management					
The ability to estimate the project cost and build a base chart of costs, to plan the project resources requirement, to develop the project budget	Description of the cost planning processes. Evaluation of the project costs and structure	Knowledge of the types of project charges, in particular: investment, operation, finances and profits from realization of the project products, and sourcings of the project	To plan the project resources requirements, to distribute resources, to estimate the resources of work, to build the resource histograms, to develop the project budget	To present the results of the resource histograms	Responsibility for correctness and adequacy of the developed plans of resources requirements and distribution

1	2	3	4	5	6
Theme 6. Planning and implementation of the project personnel management					
The ability to develop the project personnel management strategy, to plan human capital requirements, to develop a model of competence of project management, to form an effective team, to plan organization of the project team activity	A control system of personnel management of the enterprise and the project. Methods of hiring and selection of project personnel. Styles of employees' work	Knowledge of organization of workplaces in the project office of the enterprise. Basic principles and organizational aspects of forming effective teams. Basic approaches to forming an exemplary composition of the team	To build a model of competence of the project management team, to manage the phases of implementation of the project labour resources, to plan the human capital requirements, to plan the organization of the project team activity	To present the developed strategy of the project personnel management	Responsibility for the project team composition and resolution of conflicts
Theme 7. Planning and implementation of the project quality management					
The ability to develop a plan of quality management, to develop a control sheet, a histogram, a Pareto chart, a diagram of variation, a diagram of Ishikawa, a check card	Description of the processes of the project quality management. Standards of ISO of series 9000. The ISO 21500 standard	Knowledge of the normative acts of planning quality management processes, aspects of quality management in projects, conceptions of the general quality management and six sigma-methods	To develop the plan of quality management, to develop a control sheet, a histogram, a Pareto chart, a diagram of variation (dispersion), a diagram of Ishikawa, check cards	To present the results of construction of the Pareto diagram, of the variation (dispersion) chart, diagrams of Ishikawa, check cards	Responsibility for making effective administrative decisions on the basis of instruments of quality management
Theme 8. Planning and implementation of project communications, purchases and supplies					
The ability to manage communications as a process of management expectations of the parties concerned, to manage conflicts, to plan the procedure of project purchases	Making a list of the parties concerned in the project. Management as a process of management of expectations of the parties concerned	Knowledge of conflicts and conflict resolution, communication technologies, instruments and methods of distribution of information at the time of project implementation, technologies of group communication in the system of making decision, types of contracts in project activity	To manage expectations of project stakeholders, to plan the procedures of purchases for projects, to plan the request for proposals, to administer contracts	To present the results of realization of the plan of purchases and supplies	Responsibility for the results of the conducted purchases and the choice of suppliers

1	2	3	4	5	6
Theme 9. Planning and implementation of project activities under the conditions of uncertainty					
The ability to plan a response to risks, to plan the measures for the project risk prevention	Categories of risks, classification of risks. Identification of threats in relation to the project	The concept and types of outsourcing. Outsourcing of project management. Offshoring	To estimate portfolio risks, to plan preventive measures, to conduct high-quality analysis of risks, quantitative analysis of risks	To form an effective communication strategy for project management under the conditions of risk	Responsibility for exactness and correctness of decisions made
Theme 10. Management of monitoring, control of implementation and completion of the project processes					
The ability to manage changes and configuration, to carry out the project postaudit, monitoring of the project maintenance, to control the plan fulfilment and terms of financing, to measure the work implementation progress	The processes of monitoring and control. Project implementation management. The essence of project control	Knowledge of requirements to effective control, project monitoring, project integration, project maintenance. Control over the plan fulfilment and terms of financing	To measure the progress of the project work implementation, to manage changes and configuration, to break projects contracts, to conduct the project postaudit	To form an effective communication strategy of feedback with the project owners	Responsibility for timeliness and exactness of project implementation and all key criteria

Contents

НАВЧАЛЬНЕ ВИДАННЯ

ПЛАНУВАННЯ І ВИКОНАННЯ ПРОЕКТНИХ ДІЙ

Робоча програма
для студентів спеціальності 073 "Менеджмент" другого (магістерського) рівня

(англ. мовою)

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Подано тематичний план навчальної дисципліни та її зміст відповідно до модулів та тем. Подано плани лекцій, практичних та лабораторних занять, матеріали для закріплення знань (завдання для самостійної роботи, тестові запитання), методичні рекомендації для оцінювання знань студентів, професійні компетентності, якими має володіти студент після вивчення дисципліни.

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