



Innovative ICT Education for Social-Economic Development (IESED)
574283-EPP-1-2016-1-LT-EPPKA2-CBHE-JP

MANAGEMENT OF IT PROJECTS

Minsk 2017

1. EDUCATION DISCIPLINE PLAN

Course year	Study year	Semester	All	Classroom hours			Independent work	Course work hours*	Course volume	Count of hours
				Lectures	Lab	Pract/sem				
	4	7	82	22	28	-	32	40	3	F.T.
	4	7	82	8	12	-	62	40	3	C.E.

*On discipline can be carried out coursework (in addition and on the discretion of the University)

2. COMPETENCIES

3 Perform modeling, design of software tools and documentation to support activities in various subject areas

8 Generate new ideas focusing on creativity, critical thinking, communication and collaboration

3. COURSE GOALS

To get knowledge and skill in the design, development and management IT-projects.

4. COURSE OUTCOMES

After completing this course student will be able to:

- apply terminology used throughout the integrated development environments;
- use the principles of management of IT projects;
- create IT projects by implementing the various stages of the development process;
- manage IT projects: design, develop and test products

5. EDUCATIONAL-METHODICAL MAP (for full-time education)

Section number, topic, class	Section title, topic, class; Issues list to be studied	Classroom hours				Form control of knowledge
		Lectures	Practical (seminar) classes	Laboratory classes	Managed (supervised) independent work of the student	
1	2	3	4	5	6	7
1	Basics of IT-projects management	4	-	4	6	
1.1	Introduction	2			2	Oral survey
1.2	Software development methodology	2		4	4	Protection of laboratory work
2	Management processes of IT-projects	8	-	14	10	
2.1	Basics of organizing IT-projects management	2		4	2	Protection of laboratory work
2.2	Planning of IT-projects	2		10	2	Protection of laboratory work
2.3	Development of a business plan of the project	2			2	Oral survey
2.4	Risks	2			4	Oral survey
3	Work organization on the implementation of IT-projects	7	-	4	10	

3.1	Team	2		2	2	Protection of laboratory work
3.2	Communication IT-project	2		2	2	Protection of laboratory work
3.3	Monitoring and evaluation of the IT project	1			2	Oral survey
3.4	Quality of IT project	1			2	Oral survey
3.5	Completion of the IT project. Post-project support	1			2	Oral survey
4	Support for IT project management software	3	-	6	6	
4.1	Project Management Systems	2		6	2	Protection of laboratory work
4.2	Modern trends in IT project management	1			4	Oral survey
Result of the term		22	-	28	32	Exam
Coursework*					40	Coursework protection

7. EDUCATIONAL-METHODICAL MAP (for correspondence education)

Section number, topic, class	Section title, topic, class; Issues list to be studied	Classroom hours				Form control of knowledge
		Lectures	Practical (seminar) classes	Laboratory classes	Managed (supervised) independent work of the student	
1	2	3	4	5	6	7
1	Basics of IT-projects management	1	-	2	8	
1.1	Introduction	0,5			2	Oral survey
1.2	Software development methodology	0,5		2	6	Survey on practical work
2	Management processes of IT-projects	3	-	6	20	
2.1	Basics of organizing IT-projects management	0,5		2	2	Survey on practical work
2.2	Planning of IT-projects	1		4	4	Survey on practical work
2.3	Development of a business plan of the project	1			8	Oral survey
2.4	Risks	0,5			6	Oral survey
3	Work organization on the implementation of IT-projects	3	-	2	26	
3.1	Team	0,5		1	4	Survey on practical work
3.2	Communication IT-project	1		1	4	Survey on practical work
3.3	Monitoring and evaluation of the IT project	0,5			6	Oral survey
3.4	Quality of IT project	0,5			8	Oral survey
3.5	Completion of the IT project. Post-project support	0,5			4	Oral survey
4	Support for IT project management software	1	-	2	8	
4.1	Project Management Systems	0,5		2	2	Survey on practical work
4.2	Modern trends in IT project management	0,5			6	Survey on practical work
Result of the term		8	-	12	62	Exam

Coursework**				40	Coursework protection
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8. CONTENTS OF THE LECTURE TEMPLATES

№ o.p.	Topic title	Content
1.1	Introduction	Familiarity with the concepts of "project" and "project management". The life cycle of an IT project.
1.2	Software development methodology	Software systems development methodologies, standards, work flows, processes. Principles of combining methodologies. Requirements specification.
2.1	Management processes of IT-projects	The main (auxiliary) groups of IT project management processes: initialization, planning, design, implementation, completion, monitoring and control.
2.2	Basics of organizing IT-projects management	Project design. Assessment of the complexity and timing of software development. Resources and their distribution in the phases of the project.
2.3	Planning of IT-projects	The order of development, approval and approval of the feasibility study of the project. Business plan. Acceptance criteria. Marketing projects.
2.4	Development of a business plan of the project	Risk management of the IT project. Risk monitoring and control.
3.1	Risks	Organization of works and implementation of the project. Team building.
3.2	Work organization on the implementation of IT-projects	Distribution of roles in the team. Classification of groups of participants of the IT project by type of activity. Functions of the project manager. Motivation of staff.
3.3	Team	Principles of successful development of IT projects. Control and regulation of the progress of the project. Project evaluation and project cycle
3.4	Communication IT-project	Organization of quality management. Project quality assurance and control
3.5	Monitoring and evaluation of the IT project	Completion of the project. Grounds for graduation. Analysis of the effectiveness of the project. Post-project support
4.1	Quality of IT project	Software for project management. Computer Aided Design Systems (CAD).
4.2	Completion of the IT project. Post-project support	Requirements for the selection of project management systems. Categories of computer programs

9. THE CONTENT OF THE LABORATORY CLASSES

№ o.p.	Topic title	Content
1.2	IT-project	Trends. Project Triangle
2.1	Requirements development	Specification. Functional and non-functional requirements
2.2	Project Planning	SWOT-analysis. Hierarchical structure (WBS). Planning cost, resources, project time
3.1	Team	Matrix "Functional-employee"
3.2	Communication IT-project	Communication channels in the project
4.1	Project management systems	Work in MS Project 2013. The Gantt Chart

10. AN INDICATIVE LIST OF TASKS THE CONTROLLED INDEPENDENT WORK OF STUDENTS

№ Theme for p.4.	Name of individual practical work	Content	Provision (The list of programs, visual aids, met. instructions, Those. means for performance of works p.10)
2.4	Overview of typical risks associated with project development	Stages of risk identification. Risk analysis. Overview of typical risks	

3.4	Project quality management and development and implementation	Quality assurance and control. Project quality metrics. Implementation of quality management methods in the project development process	
3.2	Human resource management and project communications	The charter of the team. Development of the project team. Solving interaction problems	
4.2	Flexible methodologies for developing IT projects	Agile, Canban, Kanban, Extreme Programming	

11. AN INDICATIVE LIST OF THE COURSEWORK

№ o/p	Topic title
1	Automation of housing and communal services
2	Sales information system
3	Monitoring system for term projects
4	Automated selection of travel services
5	Automated online bus station system
6	Information-reference system for the personnel department of the enterprise
7	The system of search of new employees for the enterprise
8	Information management system: announcements
9	Information system of the motor show
10	Computer client game
11	Information and reference system for the distribution of students
12	Web application for educational courses
13	Automation of the account of vehicles of GAI
14	The automated workplace of the employee of department of assembly of radio engineering
15	Electronic journal of the University lecturer
16	Enterprise control and access control system
17	Automation of drug accounting for pharmacies network
18	Information and reference system of highways
19	Automation of individual confectioner orders
20	Photo Studio web application
21	Appendix "Training Schedule"
22	Web application for creating and filling out document forms
23	Inventory system of goods movement in the warehouse
24	Thematic Internet portal
25	Social Networking
26	Quest game
27	The system of testing the staff of the technical support department
28	Electronic payment system
29	Search music and information system
30	Taxi Aggregator: Website
31	Electronic patient card of a medical institution

12. CRITERIA FOR EVALUATION OF RESULTS BY THE TEN-SECOND SCALE

A ten-point scale, depending on the grade and the mark, includes the following criteria:

10 (ten) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline, as well as on major issues that go beyond its limits;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;
- perfect mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- the expressed ability independently and creatively to solve complex problems in non-standard situations;

- complete and profound studying of basic, additional literature on the subject of the discipline;
- the ability to freely navigate in theories, concepts and directions on the discipline and give them an analytical assessment, use the scientific achievements of other disciplines;
- creative independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

9 (nine) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- accurate use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently and creatively to solve complex problems in non-standard situations within the curriculum of the institution of higher education on the academic discipline;
- complete studying of basic, additional literature on the subject of the discipline, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- Systematic, active independent work on practical, laboratory classes, active creative participation in group discussions, high level of the culture of performance of tasks.

8 (eight) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education in the academic discipline in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline (methods of complex analysis, information technology), the ability to use it effectively in formulation and solution of scientific and professional problems;
- ability independently to solve complex problems within the curriculum of the institution of higher education on the academic discipline;
- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in theories, concepts and directions on the discipline and give them an analytical assessment;
- active independent work on practical, laboratory classes, systematic participation in group discussions, high level of the culture of performance of tasks.

7 (seven) points, passed:

- systematized, deep and full knowledge on all sections of the curriculum of the institution of higher education on the academic discipline;
- use of scientific terminology (including in a foreign language), competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in formulation and solution of scientific and professional problems;
- free possession of generic solutions within the curriculum of the institution of higher education on the academic discipline;

- studying of basic, additional literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them an analytical assessment;
- independent work on practical, laboratory classes, participation in group discussions, high level of the culture of performance of tasks.

6 (six) points, passed:

- sufficiently full and systematized knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of the necessary scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions and generalizations;
- mastering of the tools of the academic discipline, the ability to use it effectively in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;
- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks.

5 (five) points, passed:

- sufficient knowledge in the volume of the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, competent, logically correct statement of the answer to questions, the ability to make sound conclusions;
- mastering of the tools of the academic discipline, the ability to use it in solution of scientific and professional problems;
- ability independently to apply generic solutions within the curriculum of the institution of higher education on the academic discipline;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- the ability to navigate in basic theories, concepts and directions on the discipline and give them a comparative assessment;
- active independent work on practical, laboratory classes, periodic participation in group discussions, high level of the culture of performance of tasks;
- independent work on practical, laboratory classes, periodic participation in group discussions, sufficient level of the culture of performance of tasks.

4 (four) points, passed:

- sufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, logical statement of the answer to questions, the ability to make sound conclusions;
- ability to draw conclusions without essential errors;
- mastering of the tools of the academic discipline, the ability to use it in solution of standard (typical) tasks;
- ability to solve standard (typical) tasks under the guidance of a teacher;

- ability to navigate in basic theories, concepts and directions on the discipline and give them an assessment;
- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.

3 (three) points, failed:

- insufficient knowledge within the educational standard of higher education;
- studying of basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- knowledge of a part of the basic literature, recommended by the curriculum of the institution of higher education on the discipline;
- use of scientific terminology, presentation of answers to questions with significant, logical errors;
- weak possession of the tools of the academic discipline, incompetence in solving standard (typical) tasks;
- inability to navigate in basic theories, concepts and directions on the discipline;
- work under the guidance of a teacher on practical, laboratory classes, the permissible level of the culture of performance of tasks.
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

2 (two) points, failed:

- fragmented knowledge within the educational standard of higher education;
- knowledge of individual literary sources, recommended by the curriculum of the institution of higher education on the discipline;
- inability to use scientific terminology of the academic discipline, the presence in the answer rude, logical errors;
- passivity on practical, laboratory classes, low level of the culture of performance of tasks.

1 (one) point, failed:

- lack of knowledge and (competences) within the educational standard of higher education, failure to answer, failure to appear for attestation without good cause.

13. METHODS AND MEANS OF IMPLEMENTATION OF CURRICULUM CONTENT AND CURRICULUM, EDUCATIONAL MATERIALS

In the classroom, students will learn the discipline directly in the computer classroom. The following software will be used during the training:

No	Software name	System requirements for the specified software	No of the theme from the educational-methodical map, for the support of which the specified software will be used	For what purpose will the software be used
1.	MS Visual Studio 2012 (or similar)	Processor: Pentium® IV is minimal, Intel Centrino®, Intel Xeon®, Intel Core™ Duo (or compatible) processor RAM: 1 GB RAM, 1 GB or more recommended Video: DirectX 9 64MB of VRAM recommended Sound: not needed		To develop applications using .NET tools
2.	MS SQL Server 2012 (or similar)	Intel® Pentium® 4, AMD Athlon™ 64 or AMD Opteron™ RAM: 1 GB of RAM, 1.5 GB of free space on your		Development of database structure.

		hard drive Video: DirectX 9 64MB of VRAM recommended Sound: not needed		
3.	MS Project 2013	Intel® Pentium® 4, AMD Athlon™ 64 or AMD Opteron™ RAM: 2 GB of RAM, 1.5 GB of free space on your hard drive		Planning costs, resources, project time. Building a Gantt Chart
4.	MS Office 2008 (or similar)	Intel® Pentium® 4, AMD Athlon™ 64 or AMD Opteron™ RAM: 1 GB of RAM, 1.5 GB of free space on your hard drive Video: DirectX 9 64MB of VRAM recommended Sound: not needed		Development of requirements for the project. Preparation of reports on laboratory works.

13. RESOURCES

Main literature

- 1 Arhipenkov, S. Lektsii po upravleniyu programmnyimi proektami/ S. Arhipenkov. – M., 2012. – 127 s.
- 2 Polkovnikov, A.V. Upravlenie proektami. Polnyiy kurs MVA/ A.V. Polkovnikov, M.F. Dubovik-M.: ZAO «Olimp-Biznes», 2015-552s.
- 3 Kurbatskiy, V. N. Razrabotka i upravlenie proektami sredstvami Microsoft Project 2010 / V. N. Kurbatskiy, S. I. Maksimov. – Minsk : RIVSh, 2012. – 90 s.
- 4 Telyapkov, A.A. Proektirovanie informatsionnyih sistem: posobie/ A.A. Telyapkov. – Mn.: Akademiya upr. pri Prezidente Resp. Belarus, 2010. – 218s.
- 5 Berkun, S. Iskusstvo upravleniya IT-proektami / S. Berkun. – Piter, 2010 g. – 432 s.

Additional literature

- 1 Dithelm, G. Upravlenie proektami. V 2 t. T I: per. s nem. – SPb.: Izdatelskiy dom «Biznes-prensa», 2004. – 400 s.
- 2 Pink, D. Drayv: Chto na samom dele nas motiviruet / Deniel Pink; Per. s angl. M.: Alpina Pabliisher, 2013.