MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SUMY NATIONAL AGRARIAN UNIVERSITY

Department of Management

«CONFIRMED»

Acting Head of Management Department
_____(L.I. Mykhailova)
«___»_____2019

CURRICULUM

Project management

Postgraduate full-time specialty students:

073 – «Management»;

091 – «Biology»;

133 – «Industry engineering»;

181 – «Food technology»;

201 – «Agronomy»;

202 – «Protection and quarantine of plants»;

204 – «Technology of production and processing of livestock products»;

211 – «Veterinary medicine»

Faculty: department of postgraduate and doctoral studies

2019 – 2020 academic year

Curriculum of the discipline **«Project management»** for postgraduate students by specialty: 073 – management; 091 – biology; 133 – industry engineering; 181 – food technology; 201 – agronomy; 202 - plant protection and quarantine; 204 – technology of production and processing of livestock products; 211 – veterinary medicine

Elaborated by: Mykhailov A.M. _____, Assoc. Prof., Dr.S. (econ), Professor of department of Management.

Curriculum is reviewed during the meeting of the department of Management. Protocol № 1 dated from 27 August 2019.

Acting Head of Department of Management _____L.I. Mykhailova

Agreed:

Head of of the Department of Postgraduate and Doctoral Studies _____ I.V. Lozynska

Methodist of department _____ H.O. Baboshina

Registered in the electronic data base. Date: _____ 2019 year

1. Description of the Course

<table>
<tr><td rowspan="2">Indicators</td><td rowspan="2">Branch of knowledge, training direction,</td><td colspan="2">Characteristics of course</td></tr>
<tr><td>Full-time Studying</td><td>Part-time Studying</td></tr>
<tr><td>Number of credits - 3</td><td>Branch of knowledge:
Management and Administration, Biology, Mechanical Engineering, Manufacturing & Technology, Agrarian Sciences & Food, Veterinary Medicine

Postgraduate</td><td colspan="2">Selective</td></tr>
<tr><td>Number of modules: 1</td><td rowspan="4">Specialty:
073 - Management;
091 - Biology;
133 - Industry mechanical engineering;
181 - Food Technologies;
201 - Agronomy;
202 - Plant Protection and Quarantine;
204 - Technology of production and processing of livestock products;
211 - Veterinary Medicine;
212 - Veterinary Hygiene, Sanitation and Expertise.</td><td colspan="2">Academic year</td></tr>
<tr><td rowspan="2"></td><td>2019-2020</td><td></td></tr>
<tr><td colspan="2">Year of studying</td></tr>
<tr><td rowspan="2">Hours:
Total - 90</td><td>1</td><td></td></tr>
<tr><td colspan="2">Semester</td></tr>
<tr><td rowspan="6">Hours per week:
Classroom activities hours – 2
Individual work -4</td><td rowspan="6">Educational degree:
Doctor of Philosophy</td><td>1</td><td></td></tr>
<tr><td colspan="2">Lectures</td></tr>
<tr><td>12 hours</td><td></td></tr>
<tr><td colspan="2">Practical, seminar</td></tr>
<tr><td>12 hours</td><td></td></tr>
<tr><td colspan="2">Laboratory</td></tr>
<tr><td>-</td><td>-</td><td></td></tr>
<tr><td colspan="2">Individual work</td></tr>
<tr><td>66 hours</td><td>.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">Final control form: exam</td></tr>
</table>

Note:

Ratio of hours of classroom activities and individual work is:
for full-time studying 35/65.

2. Aim and Tasks

The purpose of studying the discipline of formation of postgraduate students of the necessary amount of knowledge on the development, evaluation and implementation of scientific projects of various sectoral directions, preparing them for independent project analysis in accordance with the methods and approaches used in international practice at different levels of management of scientific projects.

According to the purpose, the main task of the discipline is defined, which consists in teaching postgraduate students theoretical positions, acquaintance with the methodological support of organizational and economic mechanism of management of scientific projects of different sectoral orientation, formation of theoretical and practical basis for the evaluation of integrated scientific projects, and economic effects, determining the effectiveness of a scientific project in its various cycles.

During his / her studies, the graduate student should master the elements of research activities, deepen management skills and perform scientific projects, in particular:

- learn how to solve industrial, environmental and social problems when implementing a scientific project;
- be able to use international methodological tools to evaluate the effectiveness of a scientific project;
- check the feasibility of further implementation of the scientific project and its compliance with international standards at each stage of implementation;
- to predict the impact of the scientific project on the socio-economic processes of the region and the state;
- master the conceptual concepts, methods and approaches used in international practice in project analysis;
- summarize the results of the implementation of the scientific project and formulate conclusions;
- introduce modern information technologies into the decision-making process in the development and implementation of scientific projects.

As a result of studying the discipline, the graduate student should:

to know: theoretical and methodological provisions of complex analysis and examination of scientific projects in the main areas of project analysis; tools for assessing the effectiveness, risk and liquidity of research projects; modern organizational forms of financing of scientific projects, its main stages and principles of effective interaction of participants and proper legal formulation; strategies in research projects for funding and profit; tools for attracting investments, grants, etc. in the course of carrying out a scientific project; basic technologies for the protection of the rights and economy of intellectual property, including standards and objects of intellectual property rights in Ukraine and rules of the World Intellectual Property Organization.

be able to: possess the methodology of developing business plans and justify the feasibility of implementing a scientific project; be able to convince a potential investor, sponsor of the results of complex project analysis; collect and organize information to select target markets using marketing tools, measuring and forecasting demand; to evaluate the state, dynamics, effectiveness of use of potential effect from the implementation of the scientific project and carry out its correction; to develop and substantiate management decisions to ensure the effectiveness of the scientific project in different participants.

3. Program of Discipline
(is on testing)

Topic 1. General characteristics of project management. Project and specifics of project activity. Types of scientific projects. Management system of scientific projects. Goals and principles of scientific project management. Project management functions. Structure, environment and project participants. Project lifecycle based on international investor approaches. Stages of the project lifecycle according to the approaches of the World Bank, UNIDO, national scientists.

Topic 2. Justification of the feasibility of a scientific project. Ukraine's economic, technical and social development projects supported by international financial institutions. Formation of the investment plan of the project. Assessment of project viability. The essence of the feasibility study of the project. Project analysis based on comprehensive expertise. Basic concepts that determine the economic value of the project. Scientific aspects of project analysis in line with industry orientation. Criteria for evaluation of project effectiveness of scientific projects of different sectoral orientation. Prospects for international integration of projects in the areas of research.

Topic 3. The main forms of organization of the structure of the scientific project. The concept of the project organizational structure. Criteria for choosing the organizational structure of a scientific project. Types of organizational structure of the scientific project. Defining the functional responsibilities of the project participants according to their sectoral focus. Management of scientific projects using the external organizational structure of the project. Legal registration of scientific projects in the areas of activity. Allocation of responsibility in scientific projects.

Topic 4: General Approaches to the Planning and Control of Scientific Projects. Project implementation planning according to sectoral orientation. Goals, goals and types of plans. Financial planning for the project. The system of monitoring compliance with the project parameters in accordance with the industry orientation. Development of design estimates and control over them, taking into account the specifics of the production area. Selection and tasks of design firms. Funding strategies for a scientific project.

Topic 5: Structuring of the scientific project. Determining the project structure at the planning stage. Formation of components of structuring a scientific project in accordance with the sectoral orientation Managing individual project components. The task of structuring the project. The sequence of implementation of structuring. Determining the project structure at the planning stage. Network planning of a scientific project.

Topic 6: Planning Resources, Costs and Project Budget. Logistics preparation of the project. Project cost categories according to industry orientation. The order of planning of expenses for the project taking into account the production direction. Development of project budget. Formation of sources of financing for the project in the areas of research. The interconnection and interplay of components of the project implementation process. Possibilities of making changes to the project budget. Optimization of insufficient resources.

Topic 7: Monitoring the implementation of the scientific project. Control as a basis for project activity management. Types of control over project implementation. Technology of project activity evaluation. Reporting in the system of control according to industry orientation. Regulation of the project implementation process. Comparison of investor performance and intentions. Reasons for change and impact assessment.

Topic 8: Risk Management in Scientific Projects. Project risks and their classification. Principles of project risk management. Causes and factors influencing the dynamics of risks in different production areas. Methods of risk analysis of a scientific project according to sectoral orientation. Probability of risky event. Opportunities to reduce and counteract risks.

Topic 9: Quality Management in Scientific Projects. Project quality management concept. International quality standards. Project Quality Assurance Management. Costs for ensuring the quality of the scientific project in accordance with the industry orientation Quality assurance and quality control of the project. Project quality management plan.

Topic 10: International scientific and technical cooperation of the European Union and Ukraine in the context of projects and programs. Contemporary European Union policy on the development of scientific projects. International scientific and technical cooperation. Prospects for Venture Financing of Scientific Projects in Ukraine from International Investors. The EU's Horizon 2020 Framework Program. Ukraine's International Cooperation with the United States Civilian Research and Development Fund (CRDF).

Topic 11: Formation and development of the project team. The purpose of creating a project team and the task of the project manager in accordance with industry orientation. Stages of formation of the project team. Project Coordination Group. Project team staff management. Leadership and team motivation. Team development based on project specialization.

4. Structure of the Course

Name of content modules and topics	Number of hours											
	full-time education						part-time education					
	Total	including					Total	including				
		L	P	Lab	Ind	I. W.		L	P	Lab	Ind	I. W.
1	2	3	4	5	6	7	8	9	10	11	12	13
Topic 1. Theoretical basis of project management.	15	2	2			11						
Topic 2. Identify the problem. Stakeholder analysis.	15	2	2			11						
Topic 3 How to analyze a problem? How do you define goals?	15	2	2			11						
Topic 4. What do you need to achieve the project goals?	15	2	2			11						
Topic 5. An example of a grant application form for public participation.	15	2	2			11						
Topic 6. Formation and development of the project team.	15	2	2			11						
Total hours	90	12	12			66						

5. Topics and plans of lectures

#	Name of topics	Quantity of hours
1.	**Topic 1: Theoretical basis of project management.** Plan: 1. Project and specifics of project activity. 2. Types of scientific projects. 3. Management system of scientific projects.	**2**
2.	**Topic 2: Identify the problem. Stakeholder analysis.** Plan: 1. Projects of economic, technical and social development of Ukraine, supported by international financial organizations. 2. Formation of the investment plan of the project. 3. Assessment of project viability. 4. The essence of the feasibility study of the project.	**2**
3	**Topic 3: How to analyze a problem? How do you define goals?** Plan: 1. The concept of the project organizational structure. 2. Criteria for choosing the organizational structure of a scientific project. 3. Types of organizational structure of the scientific project.	**2**
4.	**Topic 4: What do you need to achieve the project goals?** Plan: 1. Planning of the project implementation according to sectoral orientation. 2. Purpose, purpose and types of plans. 3. Financial planning for the project.	**2**
5.	**Topic 5: An example of a grant application form for public participation.** Plan: 1. Defining the project structure at the planning stage. 2. Formation of components of the structuring of the scientific project in accordance with the sectoral orientation. 3. Managing individual project components.	**2**
6.	**Topic 6: Formation and development of the project team.** Plan: 1. Project team: definition and essence. 2. Basic principles and organizational aspects of forming an effective team. 3. The life stages of the project team.	**2**
	Total:	**12**

6. Topics of practical classes

#	*Name of topics*	*Quantity of hours*
1.	**Topic 1: General characteristics of project management.** Plan: 1. The goals and principles of scientific project management. 2. Project management functions. 3. Structure, environment and project participants.	**2**
2.	**Topic 2: Justification of the feasibility of a scientific project.** Plan:	**2**

	1. Project analysis based on comprehensive expertise. 2. Basic concepts that determine the economic value of the project. 3. Scientific aspects of project analysis in line with industry orientation.	
3	**Topic 3: Basic forms of organization of the structure of a scientific project.** Plan: 1. Defining the functional responsibilities of the project participants according to their sectoral orientation. 2. Management of scientific projects using the external organizational structure of the project.	**2**
4.	**Topic 4: General Approaches to the Planning and Control of Scientific Projects.** Plan: 1. System of control of observance of project parameters in accordance with the sectoral orientation. 2. Development of design estimates and control over them, taking into account the specifics of the production area.	**2**
5.	**Topic 5: Structuring of the scientific project.** Plan: 1. The task of structuring the project in different production areas. 2. The sequence of implementation of structuring.	**2**
6.	**Topic 6: Formation and development of the project team.** Plan: 1. Project Coordination Group. 2. Project team staff management.	**2**
Total:		**12**

7. Independent work

#	*Name of topics*	*Quantity of hours*
1.	**Theme 1: General characteristics of project management.** Plan: 1. The project lifecycle according to the approaches of international investors. 2. Project life cycle stages according to the approaches of the World Bank, UNIDO, national scientists.	11
2.	**Theme 2: Justification of the feasibility of a scientific project.** Plan: 1. Criteria for evaluation of project effectiveness of scientific projects of different sectoral orientation. 2. Prospects for international integration of projects in the areas of research.	11
3	**Theme 3: Basic forms of organization of the structure of a scientific project.** Plan: 1. Legal registration of scientific projects in the fields of activity. 2. Distribution of responsibilities in scientific projects.	11
4.	**Theme 4: General Approaches to the Planning and Control of Scientific Projects.** Plan: 1. Selection and tasks of design firms. 2. Funding strategies for the scientific project.	11
5.	**Theme 5: Structuring of the scientific project.**	11

	Plan: 1. Defining the project structure at the planning stage. 2. Network planning of the scientific project.	
6.	**Theme 6: Formation and development of the project team.** Plan: 1. Team leadership and motivation. 2. Team development based on project specialization.	11
Total:		**66**

8. Individual tasks

1. Develop the budget of the scientific project in accordance with the sectoral orientation.
2. Design a scientific project in accordance with the requirements of international standards.
3. Build a structural and logical scheme of team development taking into account the specialization of the project.

9. Methods of Training

1. Training Methods for Knowledge:
1.1. Verbal: narrative, explanation, discussion (heuristic and reproductive), lecture, instruct, work with the book (read, transfer, discharge, scheduling, reviewing, summarizing, making tables, charts, reference compendia etc.).
1.2. Visual: demonstration, illustration.
1.3. Practical: practical work, exercise, production practices.
2. Methods for studying the nature of the logic of knowledge.
2.1. Analytical
2.2. Synthesis
2.3. Inductive method
2.4. Deductive method
3. Methods for studying the nature and level of independent mental activity of students.
3.1. Problem (problem-information)
3.2. Partly-search (heuristic)
3.3. Exploratory
3.4. Reproductive
3.5. Explanatory demonstration
4. Active learning methods – use of technical training, brainstorming, debates, roundtables, business and role-playing games, training, use of problem situations, self-knowledge, the use of educational tests and controlling the use of basic lectures.
5. Interactive learning technology – the use of multimedia technology.

10. Methods of control

1. Rating control of a 100-point scale assessment ECTS.
2. An intermediate control during the semester (interim certification).
3. Criteria assess of the current work of students:
- the level of knowledge demonstrated in practical classes;
- active in the discussion of issues brought to the class;
- quick control during classes;
- self-study topics in general or specific issues;
- perform analytical calculation tasks;
- writing essays;

- test results;
- writing assignments during the tests;
- production situations, cases and more.

4. Direct consideration in the final assessment of student performance of certain individual tasks:

- educational and practical study of the presentation of results and more.

11. Points for the Total Score a Student Gets

<table>
<tr><td colspan="11">Ongoing testing and independent work</td><td>Together for the module</td><td>The final test is an exam</td><td>Total</td></tr>
<tr><td colspan="11">Module 1 – 70 points</td><td></td><td></td><td></td></tr>
<tr><td>T 1</td><td>T 2</td><td>T 3</td><td>T 4</td><td>T 5</td><td>T 6</td><td>T 7</td><td>T 8</td><td>T 9</td><td>T 10</td><td>T 11</td><td rowspan="2">70</td><td rowspan="2">30</td><td rowspan="2">100</td></tr>
<tr><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>6</td><td>7</td><td>7</td><td>7</td><td>7</td></tr>
</table>

Evaluation Criteria and ECTS

NATIONAL MARK	ECTS	DEFINITION OF ECTS	POINTS
excellent	A	90-100 points ("excellent") - (with ECTS - A - almost without errors - 95 - 100 points; allowed a small number of errors - 86 - 94 points): - Theoretical part - student systematically provides complete, specific, logical answers as oral and written. Uses more independently selected information on the topic is not limited to material or abstract teaching complex. - Practical part - 100-percent attendance at health facilities (except confirmed valid reasons) and total quality performance of all tasks in accordance with the guidelines. Entry and display of high skills in performing laboratory and practical problems. Independent of the preparatory phase to work on assignments, search for material to perform analytical and situational tasks, compiling individual algorithm decide tasks and situations. Protecting PSI required. - Individual work - timely, complete and efficient implementation of the objectives of training complexes (tests), using sources outside the NMC. Positive performance tests 86-100%. - Individual tasks - timely, complete and high-quality preparation and execution descriptive tasks (jobs), settlement and graphic papers, essays, visual aids, etc.. Manifestation own initiative in the preparation and execution of individual tasks. - Other criteria for evaluating knowledge - responsibility, intelligence, creative line of work, creative thinking, the	90 - 100

		ability to express their own opinions and knowledge, the ability to rethink amounts of information, the ability to optimal behaviour in different situations and so on.	
good	B	above average with a few errors: - Theoretical part - student gives full, concrete answers as oral and written. May use additional information on the topic, and not limited to material or abstract teaching complex. - Practical part - 80-100% presence and working of missed PSI. Complete quality performance of all tasks in accordance with the guidelines. Entry and display good skills in performing laboratory and practical problems. Possible independent of the preparatory phase to work on assignments, search for material to perform analytical and situational problems. Protecting PSI required. - Individual work - timely, complete and efficient implementation of the objectives of training complexes (tests), you can use additional sources of information. Positive performance tests for 71 - 85%. - Individual tasks - timely, complete and high-quality preparation and execution descriptive tasks (jobs), settlement and graphic papers, essays, visual aids, etc.. Possible manifestation of his own initiative in the preparation and execution of individual tasks. - Other criteria for evaluating knowledge - responsibility, intelligence, possible manifestation of the creative direction of work, the ability to express their own opinions and knowledge.	82 – 89
	C	generally work is not very good, with a number of errors	75 – 81
sufficient	D	not bad, but a lot of mistakes - Theoretical part - student gives sufficient answer both oral and written. Limited material outline or teaching complex. - Practical part - 80-100-percent testing missed PSI according to the guidelines. Acquiring and sufficient manifestation skills in performing laboratory practical tasks Protection PSI is not required. - Individual work - timely performance objectives of training complexes (tests). Positive performance tests for 60 - 70%. - Individual objectives - Timely preparation and implementation of descriptive tasks (jobs), settlement and graphic papers, essays, visual aids, etc.. - Other criteria for evaluating knowledge - a manifestation of the desire to gain knowledge on the subject.	69 – 74
	E	**Enough - performance meets the minimum criteria**	60 – 68
insufficient	FX	35 - 59 points ("poor") - (with ECTS-FX - need to work before you get a positive evaluation).	35 – 59
	F	1 - 34 points ("poor") - (with ECTS - F - thorough and elaborate).	1 - 34

12. Suggested Reading

Normative legal acts

1. Constitution of Ukraine, 28.06.1996, № 254к/96–ВР [Electronic resource]. (in Ukrainian) – Mode of access: http://zakon0.rada.gov.ua/laws/show/254%D0%BA/96-%D0%B2%D1%80.

2. On Copyright and Related Rights [Electronic resource]: Law of Ukraine "On Copyright and Related Rights" dated 23.12.1993, No. 3792-XII // Information from the Verkhovna Rada of Ukraine. - 1994. - No. 13. - P. 64 with amendments and additions. (in Ukrainian) - Mode of access: http://zakon4.rada.gov.ua/laws/show/3792-12.

3. About higher education [Electronic resource]: Law of Ukraine "On Higher Education" of 01.07.2014 № 1556-VII // Bulletin of the Verkhovna Rada of Ukraine. - 2014 - No. 37-38. - S. 2004 with changes and additions. (in Ukrainian) - Mode of access: http://zakon4.rada.gov.ua/laws/show/1556-18.

4. On Approval of the Regulations on the Training of Scientific-Pedagogical and Scientific Personnel [Electronic Resource]: Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Regulation on the Training of Scientific-Pedagogical and Scientific Personnel" dated 01.03.1999, No. 309. (in Ukrainian) - Mode of access: http://zakon4.rada.gov.ua/laws/show/309-99-%D0%BF.

5. On Approval of the Order of Awarding Degrees and Assigning a Scientific Title to a Senior Researcher [Electronic Resource]: Resolution of the Cabinet of Ministers of Ukraine "On Approval of the Order of Awarding Academic Degrees and Assigning the Academic Rank of a Senior Researcher" dated July 24, 2013, No. 567. (in Ukrainian) - Mode of access: http://zakon4.rada.gov.ua/laws/show/567-2013-%D0%BF.

Basic

1. Akkermans, J., Brenninkmeijer, V., Huibers, M., Blonk, R. W. B. (2013). Competencies for the contemporary career: Development and preliminary validation of the career competencies questionnaire. Journal of Career Development, 40(3), 245–267.
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3. Akkermans, J., Schaufeli, W. B., Brenninkmeijer, V., Blonk, R. W. B. (2013). The role of career competencies in the job demands — resources model. Journal of Vocational Behavior, 83(3), 356–366.doi:10.1016/j.jvb.2013.06.011
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6. Arthur, M. B., Khapova, S. N., Wilderom, C. P. M. (2005). Career success in a boundaryless career world. Journal of Organizational Behavior, 26(2), 177–202.doi:10.1002/job.290
7. Bakker, R. M . (2010). Taking stock of temporary organizational forms: A systematic review and research agenda. International Journal of Management Reviews, 12(4), 466–486.doi:10.1111/j.1468-2370.2010.00281.x
8. Bakker, R. M., DeFillippi, R. J., Schwab, A., Sydow, J. (2016). Temporary organizing: Promises, processes, problems. Organization Studies, 37(12), 1703–1719.doi:10.1177/0170840616655982
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14. Chen, T., Fu, M., Liu, R., Xu, X., Zhou, S., Liu, B. (2019). How do project management competencies change within the project management career model in large Chinese construction companies? International Journal of Project Management, 37(3), 485–500.doi:10.1016/j.ijproman.2018.12.002
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21. Forrier, A., De Cuyper, N., Akkermans, J. (2018). The winner takes it all, the loser has to fall: Provoking the agency perspective in employability research. Human Resource Management Journal, 28(4), 511–523.doi:10.1111/1748-8583.12206
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24. Hölzle, K . (2010). Designing and implementing a career path for project managers. International Journal of Project Management, 28(8), 779–786.doi:10.1016/j.ijproman.2010.05.004
25. Huemann, M., Ringhofer, C., Keegan, A. (2019). Who supports project careers? Leveraging the compensatory roles of line managers. Project Management Journal, 50(4), 476–486.doi:10.1177/8756972819857895

26. Jackson, D . (2013). Business graduate employability – where are we going wrong? Higher Education Research & Development, 32(5), 776–790.doi:10.1080/07294360.2012.709832
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29. Keegan, A., Ringhofer, C., Huemann, M. (2018). Human resource management and project based organizing: Fertile ground, missed opportunities and prospects for closer connections. International Journal of Project Management, 36(1), 121–133.doi:10.1016/j.ijproman.2017.06.003
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