



Syllabus Course Program



International cooperation and grant writing in environmental protection

Specialty

E2 – Ecology

Specialization

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Educational program

Engineering ecology

Level of education

Master's level

Semester

2

Institute

Institute of mechanical engineering and transport

Department

Chemical Engineering and Environment Protection
(154)

Course type

Special (professional) training

Form of study

Full-time, part-time, distance learning

Language of instruction

Ukrainian, English

Lecturers and course developers

**Tetiana Tykhomyrova**

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PhD, associated professor

Work experience - 16 years. Author and co-author of more than 50 scientific and educational works. English and Ukrainian free speaking and writing . Leading lecturer in the disciplines: "Sustainable development" and "Grant writing and international cooperation in ecology" (in English), "Hydrology", "Soil science"

[More about the lecturer on the department's website](#)

General information

Summary

The discipline is aimed at mastering the finding donors methodology and writing grant applications, project management, and grant reporting in the field of environmental protection

Course objectives and goals

Learn how to fill out grant applications in English, learn how to search for funds and donors to implement your own projects in the field of environmental protection, and learn the basic requirements for reporting on the use of grants.

Format of classes

Lectures, practical work, calculation tasks, and consultations. Final control - exam.

Competencies

GC-1. The ability to learn and master modern knowledge.

GC-5. Competence to communicate in a foreign language.

GC-6. Competence to search, process, and analyze information from various sources

SC-2. Ability to apply interdisciplinary approaches in critically analyzing ecological problems.

SC-5. Ability to present knowledge and personal conclusions to both experts and non-experts.

SC-7. Ability to organize work related to the assessment of the environmental status, protection of the environment, and optimization of nature management, in conditions of incomplete information and conflicting requirements.

SC-8. Ability for self-education and professional development based on innovative approaches in the field of ecology, environmental protection, and balanced nature management.

SC-9. Ability to independently develop ecological projects through the creative application of existing and generating new ideas.

Learning outcomes

RE-1. Know and understand the fundamental and applied aspects of environmental sciences.

RE-7. Be able to communicate in a foreign language in scientific, production, and socio-economic spheres of activity.

RE-11. Be able to use modern information resources on ecology, nature use, and environmental protection.

RE-14. Apply new approaches to develop decision-making strategies under complex unpredictable conditions.

Student workload

The total volume of the course is 90 hours (3 ECTS credits): lectures - 16 hours, practical work - 16 hours, self-study - 58 hours.

Course prerequisites

To successfully pass the course, you should have knowledge of the following disciplines: "Ecological principles of sustainable development of the country", "Innovative entrepreneurship and management of startup projects".

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

Lectures are conducted interactively using multimedia technologies. Practical classes use reproductive and problem-solving learning methods and focus on the technical features of filling out grant applications, as well as building teamwork.

Program of the course

Academic classes

Lectures

Topics of the lectures	Hours
Topic 1. International cooperation in the field of ecology and environmental protection	2
The main goals of international cooperation in the field of ecology and environmental protection. Global environmental problems are solved thanks to international cooperation. Local environmental problems that are solved thanks to international cooperation	
Topic 2. Basics of project management	4



What is a project? Types of projects. Project life cycle. Project success. Project integration. Project participants and environment. Principles of project team formation. Territorial cooperation. Components of a successful partnership

Topic 3. Work on the project	4
Stakeholder analysis. Analysis of problems. Formulation of goals. Project implementation plan. Planning of resources and expenses. Risk management. Project monitoring, evaluation, and audit. Logical and structural matrix of the project	
Topic 4. SWOT analysis and risk matrix of a grant project	3
SWOT analysis as a tool for internal and external assessment of a grant project. Risk matrix and working with it	
Topic 5. Methodology of writing a grant application.	3
Writing a project application. Signing grant agreements. Reporting on project implementation.	
Total hours	16

Workshops

Topics for workshops	Hours	Weighting coefficients a
Topic 1. Team training. Project team members	4	0,2
Features of environmental project teams at the local and regional levels. Concept of team training, types of team training.		
Topic 2. SWOT analysis in ecology	3	0,2
History, main stages, and methods of conducting SWOT analysis.		
Topic 3. Social capital and SWOT analysis of personality	3	0,2
Definition and essence of "social capital" concept. Approaches to the interpretation of social capital. Stages of SWOT analysis of personality		
Topic 4. Grant budget	6	0,4
Grant expense items. Own contribution. Prohibited expense Ttypes. Typical errors when preparing an budget.		
Total hours	16	$\sum_{i=1}^n a_i = 1$

Laboratory classes

Laboratory work within the discipline is not provided.

Control works

One final test covering theoretical and practical issues of the course. It is a test at the Forms resource on the Office 365 platform

Topics for control works	Weighting coefficients b
Control work	1
Total	$\sum_{i=1}^m b_i = 1$



Self-study

The course involves the implementation of an individual calculation task in the form of filling out a real grant application and evaluating the project using a SWOT analysis. To perform other types of independent work, additional information materials are offered.

Work on theoretical materials

Topics for self-study	Hours
Topic 1. Problem analysis methodology. Transforming problems into actions. Visualization – problem tree, fishbone, 5why	4
Topic 2. Conflicts and ways to overcome conflicts in the project team	4
Topic 3. The concept of the Gantt chart.	4
Topic 4. Typical errors when filling out grant and start-up applications	6
Topic 5. . Regulatory documents that help emphasize the relevance of an environmental project	6
Topic 6. The concept of a project road map	4
Topic 7. Successful environmental grant projects in Ukraine	2
Total hours	30

Topics for individual assignments

The requirements for completing the individual task and the deadlines for completion are detailed in the link in the methodological instructions <https://repository.kpi.kharkov.ua/handle/KhPI-Press/80477>.

Topics for individual assignments

Topic 1. Grant application preparation (by options) Description of the goal, objectives, and tasks. Formation of potential stakeholders, beneficiaries, and the target audience. Selection of compliance with sustainable development tasks. Project estimate. SWOT analysis of the project.	
Total hours	28

Non-formal education

The elements of non-formal education recommended in the syllabus can be credited according to a simplified procedure without additional validation of results (creation of a subject commission). In addition, a publication (e.g., conference abstract, article in a peer-reviewed journal, or monograph) directly related to the content of the practical assignment may be credited as completion of the corresponding academic assignment, also with the maximum grade. The applicant's personal or team participation in the grant project competition, with confirmation of such participation, may be credited instead of workshop No. 2, 3, 4. Successful completion of the online course "Volunteering during wartime" may be credited instead of workshop No. 1, with the maximum score

Recommended training courses, internships

1. Online course "Volunteering during wartime" <https://prometheus.org.ua/prometheus-free/war-time-volunteering/>



Literature, training materials, and information resources

Main literature

1. K. Mantic How to write a grant application start writing a grant proposal for education - электронный ресурс
<https://www.solidprofessor.com/blog/how-to-write-a-grant-application-start-writing-a-grant-proposal-for-education/>
2. Grant writing bases /электронный ресурс. – код доступа
<https://grantsgovprod.wordpress.com/category/learngrants/grant-writing-basics/>
3. How to write a grant proposal: a step-by-step guide /B.Fagan - электронный ресурс
<https://www.pandadoc.com/blog/grant-proposal/>

Additional materials

1. Methodological guidance for a practical classes from the course "International cooperation and grantwriting in ecology" [Electronic resource] : for students specialty 101 "Ecology", 183 "Environmental protection technologies" all forms of education, including foreign students / comp.: T. S. Tykhomyrova, O. V. Shestopalov, O. S. Makhonina ; National Technical University "Kharkiv Polytechnic Institute". – Electronic text data. – Kharkiv, 2023. – 63 p.
<https://repository.kpi.kharkov.ua/handle/KhPI-Press/72791>
2. Methodological guidance for a practical work "Grant and start-up applications correspondence to sustainable development goals" : on the courses "Ecology" for students of specialty 185 "Oil and gas engineering and technologies" of all educational forms / comp.: T. S. Tykhomyrova, O. V. Shestopalov, T. B. Novozhylova ; National Technical University "Kharkiv Polytechnic Institute". – Kharkiv : FOP Panov A. M., 2023. – 30 p.
<https://repository.kpi.kharkov.ua/handle/KhPI-Press/72794>
3. Methodical guidance self-studying and individual task performance from course "International Cooperation and Grant Writing in Environmental Protection" [Electronic resource] : for students of all forms of education, including foreign students of the specialty 101 "Ecology" / comp.: T. S. Tykhomyrova, V. M. Babenko, V. V. , Kriuchkova ; National Technical University "Kharkiv Polytechnic Institute". – Kharkiv : NTU "KhPI", 2024. – 35 p. <https://repository.kpi.kharkov.ua/handle/KhPI-Press/80477>

Information resources

1.
<https://impeer.org.ua/%D0%BF%D1%80%D0%BE%D1%94%D0%BA%D1%82%D0%B8-%D0%B3%D1%80%D0%B0%D0%BD%D1%82%D0%B8/>
2. <https://www.sgpinfo.org.ua/>
3. <https://ukraine-oss.com/pro-nas-2023-2/>

Grading system

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

Continuous assessment (during workshops, seminars, laboratory classes) k_1	Control works (if any), k_2	Individual assignment (if any), k_3	Final assessment (for courses with exams), k_4
0,2	0,2	0,5	0,1

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

The final grade is calculated using the following formula:

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



where: C – weighted average score for the continuous assessment
 I – individual assignment grade
 K – weighted average score for the continuous assessment
 E – final assessment (exam) grade

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

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

$$K = \frac{K_1 \cdot b_1 + K_2 \cdot b_2 + \dots + K_m \cdot b_m}{\sum_{i=1}^m b_i}$$

де: b_i - weighting coefficient for each control work.

The assessments for each component (C , K , I , etc.) are based on a 100-point scale in line with the provisions of the “Criteria and System for Assessing Knowledge and Skills, and Rating of Higher Education Students” of the National Technical University “Kharkiv Polytechnic Institute.”

The final grade is finalized as the calculated value of G , rounded up to the nearest integer.

Grading scale

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

Norms of academic integrity and course policy

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

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

Approval

Approved by

30.08.2025



Head of the department
 Oleksii SHESTOPALOV

30.08.2025



Guarantor of the educational program
 Eugenia MANOILO



National Technical University
 "Kharkiv Polytechnic Institute"