



Syllabus Course Program



Strategic Environmental Assessment

Specialty

101 – Ecology

Educational program

Engineering Ecology

Level of education

Master's level

Semester

1

Institute

Institute of Education and Science in Mechanical Engineering and Transport

Department

Department of Chemical Engineering and Environment Protection (154)

Course type

Optional

Language of instruction

English, Ukrainian

Lecturers and course developers

**Olesia Filenko**

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Candidate of Technical Sciences, Associated Professor

He has 20 years of experience. Author and co-author of more than 50 scientific and educational works.

Leading lecturer in the following disciplines: "Introduction to the specialty", "Environmental Impact Assessment and Strategic Environmental Assessment", "Environmental Control and Audit, Environmental Risk Management", "Environmental Management", "Eco-innovations in the Development of New Technologies".

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

General information

Summary

The discipline is aimed at developing knowledge about conducting a strategic environmental assessment of the activities of a planned or operating enterprise, during which environmental considerations should be fully integrated into the preparation of plans and programs before their final adoption.

Course objectives and goals

Mastering the activities of specially established state bodies, environmental expert groups, acquiring skills in conducting a scientifically based assessment of the objects of expertise with respect to the requirements of environmental legislation, sanitary requirements, building codes, etc. The objectives of the discipline are to consider the initial factors necessary to predict the impact of the object of environmental impact assessment or situation on the environment and human health, and to ensure a high level of environmental protection and promote sustainable development.

Format of classes

Lectures, practical work, consultations. Calculated task. Final control in the form of an tests.

Competencies

Ability to ensure the procedure for strategic environmental assessment of the environmental impact of the implementation of state planning documents, including on public health, as well as the ability to develop measures to prevent, reduce and mitigate possible negative effects of the planned activities.

Learning outcomes

To be able to use methodological, regulatory and methodological principles of strategic environmental assessment, peculiarities of its practical implementation in Ukraine and other countries, to apply environmental and legal norms in the SEA procedure, to be able to apply methods of organization, conducting SEA to improve the knowledge system in the context of preventive environmental protection measures.

Student workload

The total volume of the course is 150 hours (5ECTS credits): lectures - 32 hours, practical studies - 32 hours, self-study - 86 hours.

Course prerequisites

Possession of competencies and learning outcomes provided for by the standard of higher education in the specialty 101 "Ecology" of the first bachelor's level, as well as general knowledge of natural sciences.

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

Lectures are conducted interactively with the use of multimedia technologies.

Practical classes use reproductive and problem-solving teaching methods and focus on anticipating real environmental problems.

Program of the course

Topics of the lectures

Topic 1: Strategic environmental assessment

Basic concepts, purpose, principles, procedure and subjects of strategic environmental assessment (SEA) and their powers.

Topic 2. Regulatory and legal basis for strategic environmental assessment of strategies, plans, programs assessment of strategies, plans, programs (SPP).

Concept, goals and objectives of SEA. Key EU Directives and protocols on SEA. Stages of development Objects and subjects of SEA. Principles of SEA application.

Topic 3. The process of conducting a strategic environmental assessment.

Tasks of the SEA process. Stages of SEA. Relationship of SEA with the process of developing the PPS. Participants in the SEA process. Methods of conducting SEA.

Topic 4. The procedure for conducting a strategic environmental assessment.

Stages of strategic environmental assessment (SEA).

Topic 5. Methodology for conducting strategic environmental assessment.

Assessment of the need for SEA. Types of plans, programs. Conditions for determining the need for SEA for plans and programs. Determination of the scope of SEA. Assessment of the impact of plans, programs on the environment. Alternative scenarios of plans, programs.

Topic 6. Report on the SEA.

Consideration of SEA when making decisions on the program plan.

Topic 7. The role of the public in the development and adoption of decisions

The role of the public in the development and adoption of strategic decisions that have an impact on the environment.

Topic 8: Monitoring the actual environmental impact of the plan, program.

Topic 9: State environmental control and inspection bodies.

Topic 9: Exercising state control over the protection and rational use of water resources.

- Topic 10. Implementation of state control in the field of atmospheric air protection.
- Topic 11. Implementation of state control over land protection.
- Theme 12: Implementation of state control over the use of subsoil.
- Theme 13. Implementation of state control in the field of forest conservation.
- Theme 14. Exercise of state control in the field of protection, use and reproduction of flora and fauna.
- Theme 15. Implementation of state control in the field of waste management.
- Topic 16. Implementation of state control over the observance of the reserve regime.

Topics of the workshops

- Topic 1: Comparative analysis of EIA and SEA procedures.
- Topic 2. The procedure of Strategic Environmental Assessment in the EU and Ukraine.
- Topic 3. Quality criteria for the SEA report.
- Topic 4. Calculation of penalties for damages caused by violation of water legislation.
- Topic 5. Calculation of the amount of damage caused to the state as a result of air pollution.
- Topic 6: Calculation of the amount of damage caused to forestry.
- Topic 7. Determination of the amount of damage caused by pollution and contamination of land resources due to violation of environmental legislation.
- Topic 8: Calculation of the amount of damage caused to green spaces of settlements.
- Topic 9. Calculation of the amount of penalties for damages caused by illegal harvesting (destruction) of wild fauna (except for species listed in the Red Book of Ukraine).
- Topic 10. Calculation of the amount of compensation and payment of damages caused by pollution from ships, vessels and other floating craft in the territorial and inland sea waters of Ukraine.

Topics of the laboratory classes

Laboratory classes is not included in the course.

Self-study

The course involves completing an individual assignment in the form of a calculation task with a presentation. Students are also recommended additional materials (videos, articles) for independent study and analysis.

Course materials and recommended reading

1. Novel perspectives for multi-actor collaboration in strategic environmental assessment using ST4S Environmental Impact Assessment Review 23, Maria Partidário, Margarida B. Monteiro, Rute Martin, December 2022. 10 p. <https://www.sciencedirect.com/science/article/pii/S019592552200289X>
2. An overview of strategic environmental assessment for watershed development planning in China: Moving towards more effective involvement in green development. Rui Huang, Wei Li. Environmental Impact Assessment Review, Volume 100, May 2023, <https://www.sciencedirect.com/science/article/abs/pii/S0195925523000495>
3. Optimal Designing and Planning of Ethiopia's Biomass-to-Biofuel Supply Chain Considering Economic and Environmental Dimensions under Strategic and Tactical Levels Computer Aided Chemical Engineering, Brook Tesfamichael, Ludovic Montastruc, Abubeker Yimam 30 July 2022. <https://doi.org/10.1016/B978-0-323-85159-6.50093-2>
4. Climate Change and Land: an IPCC special report on climate change, desertification. Land degradation. Sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J.Skea, E. Calvo Buendia, V. Masson-Delmotte, H. -O. Portner, D.C. Roberts, P. Zhai, R. Slade, S. Connors, R.van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E.Huntley, K. Kissick, M. Belkacemi, J. Malley]. IPCC, 2019. 896 pages. <https://www.ipcc.ch/srccl/>
5. Sustainable development report 2022. From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond. Jeffrey Sachs, Guillaume Lafortune, Christian Kroll, Grayson Fuller and Finn Woelm 2022. Cambridge. 494 pages. <https://www.sustainabledevelopmentreport/reports/sustainable-development-report-2022/>
6. The UNECE Protocol on Strategic Environmental Assessment. Video from the Youtube channel https://www.youtube.com/watch?v=KTHKqx-C_C8

Assessment and grading

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

100% of the final grade is based on the results of the current assessment. Credit: practical work 20%, calculation task 20%, two tests 30% each.

Grading scale

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

Norms of academic integrity and course policy

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

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

Approval

Approved by

2023/08/31



Head of the department
Oleksii SHESTOPALOV

2023/08/31



Guarantor of the educational
program
Musii TSEITLIN