COURSE DESCRIPTION CARD - SYLLABUS

Course name
Social aspects of nuclear energy [S2EJ1>SAEJ]

Course

Field of study
Nuclear Power Engineering

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
second-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
15

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

1,00

Coordinators

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Lecturers

Prerequisites

Knowledge of the basics of nuclear energy. Ability to use information collected in conventional and electronic sources. Ability to critically analyze and evaluate literature data.

Course objective

Acquiring knowledge about the most socially important aspects of the development of nuclear energy.

Course-related learning outcomes

Knowledge:
1. The student knows the costs of generating electricity in a nuclear power plant
2. The student has knowledge about the impact of nuclear energy on the environment during normal operation
3. The student knows and understands the impact of nuclear energy on the economy and labor market
4. The student has information about the social perception of risk related to the operation of nuclear power plants
5. The student has knowledge about changes in social opinion towards nuclear energy and understands the reasons for these changes.

Skills:
1. The student is able to compare the costs of generating electricity in power plants of different types.
2. The student is able to assess the impact of various types of power plants on the environment.
3. The student is able to show the impact of the development of nuclear energy on the economy.
4. The student is able to indicate the main elements influencing society's opinion on nuclear energy.

Social competences:
1. The student understands the need to exchange views related to the social aspects of nuclear energy.
2. The student understands the need to systematically deepen and expand his knowledge and skills.
3. The student is aware of the need for social dialogue in matters related to the various aspects of nuclear energy.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures
40-minute written assessment during the last class of the semester. The assessment is intended to test the student's knowledge and involves answering 4 questions. The list of questions is made available to students at the beginning of the semester. In doubtful cases, the assessment is extended to include an oral part. Students' activity is assessed during each lecture.
The condition for obtaining credits from lectures is to obtain at least 50% of the maximum number of points of 20. Grading scale: 0-9 points = 2.0; 10-12 points = 3.0; 13-14 points = 3.5; 15-16 points = 4.0; 17-18 points = 4.5; 19-20 points = 5.0.

Programme content

The module program covers the following topics:
1. costs of nuclear energy (EJ),
2. the impact of the NPP on the economy and labor market,
3. impact of the NPP on the environment during normal operation,
4. the problem of radioactive waste deposal,
5. social perception of the NPP failure risk.

Course topics

The lecture program covers the following topics:
1. costs of generating electricity in a nuclear power plant (NPP) over the life cycle,
2. impact of the NPP on the environment during normal operation, doses of ionizing radiation,
3. emissions of pollutants into the atmosphere during NPP normal operation, carbon footprint of NPP,
4. radioactive waste from nuclear power plants, decay of waste radioactivity,
5. heat emission to surface waters, heat emission to the atmosphere, noise emission, area occupied by NPP, impact on the landscape,
6. the impact of the NPP on the economy and labor market,
7. failure risk, protection zones, risk perception by the society.

Teaching methods

Lecture delivered remotely using synchronous access methods.
Lectures: multimedia presentation (including drawings, photos, animations).

Bibliography

Basic:
1. Strupczewski A. Zaufajmy energetyce jądrowej. Wyd. 2. Uzupełnione, NCBJ W-wa 2016.
2. Celiński A. Energetyka jądrowa a społeczeństwo. WNT, W-wa 1992.
3. PPEJ. Uchwała nr 141 Rady Ministrów z dn. 2 października 2020 r. w sprawie aktualizacji programu wieloletniego pod nazwą „Program polskiej energetyki jądrowej”, Monitor Polski, Warszawa, dn. 16 października 2020 r., poz. 946. Załącznik: Rozdział 2.

Additional:

3. Murray R.L., Nuclear Energy (6th Ed.), Elsevier, Amsterdam 2009.

Breakdown of average student's workload

	Hours	ECTS
Total workload	30	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	15	0,50