



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Environmental protection

Course

Field of study

Year/Semester

Aviation

2/3

Area of study (specialization)

Profile of study

Flight Training For Civil Aviation

general academic

Level of study

Course offered in

First-cycle studies

polish

Form of study

Requirements

full-time

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

Tutorials

Projects/seminars

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

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Wydział Inżynierii Środowiska i Energetyki

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Prerequisites

A student starting this subject should have basic knowledge of chemistry, physics, mathematics, natural sciences and knowledge about transport impact on the surrounding environment. In addition student should be able to solve simple problems using publicly available databases such as scientific articles, legal acts or the Internet.

Course objective

To acquaint students with the knowledge about basics of environmental protection in aviation industry and related industries using fuel combustion processes.

Course-related learning outcomes

Knowledge



1. student ma wiedzę z zakresu bezpieczeństwa i zarządzania w lotnictwie. Student zna pojęcie czynnika ludzkiego oraz metody oceny niezawodności człowieka, ma szczegółową wiedzę związaną z wybranymi zagadnieniami z zakresu możliwości i ograniczeń człowieka podczas obsługi samolotu w locie, jego wpływu na zdrowie i zdolność do wykonywania operacji lotniczych, a także możliwości poprawy kondycji fizycznej
2. has the ability to self-study with the use of modern teaching tools, such as remote lectures, websites and databases, teaching programs, e-books

Skills

1. is able to obtain information from various sources, including literature and databases, both in Polish and in English, integrate them properly, interpret them and make a critical evaluation, draw conclusions and exhaustively justify the opinions they formulate
2. is able to properly use information and communication techniques, applicable at various stages of the implementation of aviation projects
3. can see legal aspects in the process of formulating and solving tasks in air transport, in particular, use the aspects of European and national aviation law regulations
4. can assess - at least in a basic scope - various aspects of the risk associated with a logistics undertaking in air transport
5. is able to organize, cooperate and work in a group, assuming various roles in it, and is able to properly define priorities for the implementation of a task set by himself or others
6. is able to plan and implement the process of own permanent learning and knows the possibilities of further education (2nd and 3rd degree studies, postgraduate studies, courses and exams conducted by universities, companies and professional organizations)

Social competences

1. is able to think and act in an entrepreneurial way, incl. finding commercial applications for the created system, bearing in mind not only the business benefits, but also the social benefits of the activity
2. is aware of the social role of a technical university graduate, in particular understands the need to formulate and provide the society, in an appropriate form, with information and opinions on engineering activities, technological achievements, as well as the achievements and traditions of the engineer profession
3. correctly identifies and resolves dilemmas related to the profession of an aerospace engineer

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: the written examination, test 5-10 questions, 90 min, minimum for positive mark is 50%

Laboratory - final test and rewarding knowledge necessary for the accomplishment of the problems in the area of the subject, evaluation of student report,



Programme content

Introduction to fuel combustion processes, methods of reducing fuel consumption in aviation, analysis of the formation of toxic compounds during the combustion of fossil fuels used in aviation, carbon dioxide balance in the atmosphere, photovoltaic smog, alternative fuels, noise and prevention methods, EU energy policy and environmental protection, international protocols related to environmental protection,

Teaching methods

Lecture: multimedia presentation, illustrated with examples on the board

Laboratory exercises: practical exercises carried out in research test rig

Bibliography

Basic

1. Józef Jarosiński: Techniki czystego spalania
2. Molenda J. Steczko K. Ochrona środowiska w gazownictwie i użytkowaniu gazu
3. Jerzy Merkisz, Ireneusz. Pielecha: Alternatywne paliwa i układy napędowe
4. Warych Jerzy: Oczyszczanie przemysłowych gazów odlotowych

Additional

1. John C. Mycock: Handbook of air pollution control engineering and technology
2. PEP2040 Energy Policy of Poland to 2040
3. EU and domestic acts and standards for environmental protection in transportation and energy

Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,0
Classes requiring direct contact with the teacher	15	0,5
Student's own work (literature studies, preparation for laboratory classes, consolidation of the content of classes, preparation for tests,) ¹	10	0,5

¹ delete or add other activities as appropriate