



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Transition thesis

Course

Field of study

Aviation

Area of study (specialization)

Aircraft engines and airframes

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

III/6

Profile of study

general academic

Course offered in

polish

Requirements

elective

Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

4

Number of credit points

5

Lecturers

Responsible for the course/lecturer:

PhD Łukasz Brodzik

Responsible for the course/lecturer:

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phone: 61 665 2213

Instytut Energetyki Ciepłej

Piotrowo 3, 60-965 Poznań

Prerequisites

Has basic knowledge of aircraft construction, flight mechanics and aerodynamics, as well as materials used. He can perform basic mathematical calculations in the field of algebra and calculus. Can independently search and integrate information found in the literature.

Course objective

The aim of the course is to analyze a subassembly or element of the airframe, including the determination of its essential parameters.

Course-related learning outcomes

Knowledge

1. has extended and in-depth knowledge of mathematics including algebra, analysis, theory of



differential equations, probability, analytical geometry as well as physics covering the basics of classical mechanics, optics, electricity and magnetism, solid state physics, thermodynamics, useful for formulating and solving complex technical tasks related to engineering aeronautical and modeling

2. has ordered and theoretically founded general knowledge in the field of key technical issues and detailed knowledge of selected issues related to air transport, knows the basic techniques, methods and tools used in the process of solving tasks related to air transport, mainly of an engineering nature

3. 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. is able to properly plan and perform experiments, including measurements and computer simulations, interpret the obtained results, and correctly draw conclusions from them

4. can, when formulating and solving tasks related to civil aviation, apply appropriately selected methods, including analytical, simulation or experimental methods

5. can solve tasks using the rules of air traffic and design a runway in accordance with the applicable ICAO requirements

6. student can use theoretical probability distributions. Student is able to analyze and interpret statistical data. Student is able to use the methods and tools of mathematical statistics in engineering practice

7. is able to prepare a short research paper while maintaining the basic editorial rules. He can choose appropriate methods for the conducted research and is able to carry out a basic analysis of the results.

8. 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

9. 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. understands that in technology, knowledge and skills very quickly become obsolete



2. is aware of the importance of knowledge in solving engineering problems and knows examples and understands the causes of faulty engineering projects that have led to serious financial and social losses, or to a serious loss of health and even life
3. 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
4. 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:

Pass based on the completed project.

Programme content

Descriptive or computational analysis of phenomena or technical issues related to aircraft. The calculations mainly concern the analysis of fluid and heat flow as well as the strength of materials of selected working areas during aircraft operations.

Teaching methods

consultations

Bibliography

Basic

Literature is selected depending on the selected topic of the work.

Additional

Any Polish- and English-language literature

Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,0
Classes requiring direct contact with the teacher	10	1,0
Student's own work (preparation for tutorials, practical exercises PART-66) ¹	115	4,0

¹ delete or add other activities as appropriate