



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Graduation seminar

### Course

Field of study

Aerospace Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

part-time

Year/Semester

4/7

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

### Number of hours

Lecture

0

Laboratory classes

0

Other (e.g. online)

0

Tutorials

0

Projects/seminars

9

### Number of credit points

15

### Lecturers

Responsible for the course/lecturer:

prof. dr hab. inż. Jerzy Merkisz

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Faculty of Civil and Transport Engineering

ul. Piotrowo 3, 60-965 Poznan

Responsible for the course/lecturer:

prof. dr hab. inż. Paweł Fuć

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### Prerequisites

Knowledge: Basic knowledge of physics, mathematics, economics and major subjects

Skills: Support for basic MS Office, CAD, and other computer programs depending on your interest and the problem

Social competences: the ability to precisely formulate questions; the ability to define priorities important in solving the tasks set for him; ability to formulate a research problem and search for its solution, independence in problem-solving, ability to cooperate in a group

### Course objective

Theoretical and practical preparation to write an engineering diploma thesis with each graduate student



### Course-related learning outcomes

#### Knowledge

1. Has extended knowledge necessary to understand the profiled subjects as well as specialist knowledge on construction, operation, air traffic management, safety systems, economic, social and environmental impact in the field of aviation and space - [K1A\_W01]
2. Has basic knowledge necessary to understand social, economic, legal and other non-technical determinants of engineering activity [K2A\_W24]
3. Knows the general principles of creating and developing forms of individual entrepreneurship, also taking into account time management, as well as the skills of proper self-presentation, using knowledge in the field of science and scientific disciplines relevant to aviation and astronautics [K2A\_W26]

#### Skills

1. Can communicate with the use of various techniques in the professional environment and other environments, using the formal notation of the structure, technical drawing, concepts and definitions of the scope of the studied field of study [K2A\_U02]
2. Has the ability to self-educate with the use of modern didactic tools, such as remote lectures, websites and databases, didactic programs, electronic books [K2A\_U03]
3. Can obtain information from literature, the Internet, databases and other sources. Is able to integrate the obtained information, interpret and draw conclusions from it, and create and justify opinions [K2A\_U04]
4. Can use formulas and tables, technical and economic calculations using a spreadsheet, specialized software [K2A\_U05]
5. Can prepare and present a short verbal and multimedia presentation devoted to the results of an engineering task [K2A\_U08]

#### Social competences

1. Understands the need for lifelong learning; can inspire and organize the learning process of other people [K1A\_K01]
2. Is ready to critically evaluate the knowledge and content received, recognize the importance of knowledge in solving cognitive and practical problems, and consult experts in the event of difficulties in solving the problem on its own [K1A\_K02]
3. Is able to interact and work in a group, assuming different roles in it [K1A\_K04]
4. Is able to properly define the priorities for the implementation of tasks defined by himself or others [K2A\_K05]
5. Correctly identifies and resolves dilemmas related to the profession [K2A\_K06]



6. Is aware of the social role of a technical university graduate, and especially understands the need to formulate and transmit to the society, in particular through the mass media, information and opinions on technological achievements and other aspects of engineering activities; makes efforts to provide such information and opinions in a generally comprehensible manner [K1A\_K08]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Discussion during the classes, with the use of individual analyzes and studies of the student on the issue raised in the field of air transport. Final work.

### Programme content

Structure of an engineering thesis: method of literature analysis to determine the state of knowledge in the issue covered by the topic of the thesis, formulation of the research problem (main theses), methodology of research (analytical, experimental) and their results, formulation of observations and conclusions.

Principles of quoting foreign studies.

Discussion of (consecutively) completed diploma theses: the speaker should demonstrate the knowledge of the latest achievements in a given field of science and technology (domestic and foreign publications).

General discussion on the subject of the presented work and the adopted method of its implementation.

General characteristics of the diploma thesis.

Formal and editorial requirements of the thesis.

The structure and types of theses.

Selection of literature.

Development of source materials and links.

Development of a work plan.

Subject, purpose, schedule of implementation.

Develop a research program.

Research model. Experimental research. Simulation research.

Optimization and verification of research results.

Initial reporting of the work.

Discussion of the results of work to date. Formulating conclusions.



Second reporting of work. Topic, final goal, scope of work. Student discussion. Editorial notes.

Final presentation of the work. Preparation and development of guidelines for the defense of the thesis.

Completion of the diploma seminar.

### Teaching methods

Discussion (or after the lecture in the form of a seminar) (a paper on the topic as a basis for discussion)

### Bibliography

Basic

1. Żylicz. M .Międzynarodowe prawo lotnicze , Lexis, Warszawa 2011
2. B. Branowski - Metody twórczego rozwiązywania problemów inżynierskich, Wielkopolska Korporacja Techniczna NOT, Poznań 1999
3. Lewitowicz J. (red) Problemy badań i eksploatacji techniki lotniczej. Wydawnictwo ITWL, Warszawa 2006.

Additional

1. Zb. Kłós (red.) Rozprawy naukowe. Wydawnictwo Politechniki Poznańskiej, Poznań 2011

### Breakdown of average student's workload

	Hours	ECTS
Total workload	375	15,0
Classes requiring direct contact with the teacher	25	1,0
Student's own work (literature studies, preparation for classes, preparation of an engineering thesis) <sup>1</sup>	350	14,0

<sup>1</sup> delete or add other activities as appropriate