COURSE DESCRIPTION CARD - SYLLABUS

Course name
Diploma seminar [S1Lot2-PSPL>SD]

Course

Field of study
Aviation

Year/Semester
4/7

Area of study (specialization)
Aircraft Piloting

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
15

Projects/seminars
0

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

The student has knowledge of issues related to the diploma topic being pursued, is able to apply the scientific method in solving problems, conducting experiments and drawing conclusions, knows the limitations of his/her own knowledge, skills and is able to formulate questions precisely, and also understands the need for further education.

Course objective

To familiarize the student with the stages of writing an engineering diploma thesis and its correct editorial preparation.

Course-related learning outcomes

Knowledge:
1. has extended and deepened knowledge of mathematics including algebra, analysis, theory of differential equations, probability, analytical geometry as well as physics including the basics of classical mechanics, optics, electricity and magnetism, solid state physics, thermodynamics, useful for formulating and solving complex technical tasks related to aeronautical engineering and modeling
2. has structured, theoretically based general knowledge in the field of technology and various

means of air transport, about the life cycle of means of transport, both hardware and software, and in particular about the key processes occurring in them
3. has structured and theoretically based general knowledge in the field of key issues of technology and detailed knowledge in the field 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
4. has structured, theoretically based general knowledge covering key issues in the field of technical thermodynamics, fluid mechanics, in particular aerodynamics
5. has structured, theoretically based knowledge in the field of engineering graphics and machine design: technical drawing, object projection, basic principles of engineering graphics, application of CAD (Computer Aided Design) computer graphic programs in machine design
6. has detailed knowledge related to selected issues in the field of construction of manned and unmanned aircraft, in the field of on-board equipment, control systems, communication and recording systems, automation individual systems, has basic knowledge of flight simulation training devices and simulation methods used to solve air transport issues
7. has extended knowledge of the strength of materials, including the theory of elasticity and plasticity, stress hypotheses, methods of calculating beams, membranes, shafts, connections and other structural elements, as well as methods of testing the strength of materials and the state of deformation and stress in structures and also has basic knowledge of the main branches of technical mechanics: statics, kinematics and dynamics of a material point and a rigid body
8. has basic knowledge of metallic, non-metallic and composite materials used in machine construction, and in particular of their structure, properties, methods of production, heat and thermochemical treatment and the effect of plastic processing on their strength as well as fuels, lubricants, technical gases, refrigerants, etc.
9. has the ability to self-educate using modern teaching tools, such as remote lectures, Internet sites and databases, teaching programs, e-books

Skills:
in Polish and English, integrate it properly, interpret and critically evaluate it, draw conclusions, and comprehensively justify the opinions he/she formulates
2. is able to appropriately use information and communication techniques that are used at various stages of implementing aviation projects
3. is able to appropriately select materials for simple aviation structures, indicate differences between fuels used in aviation
4. is able to communicate using various techniques in the professional environment and other environments using a formal record of the structure, technical drawing, concepts and definitions of the scope of the studied field of study
5. is able to solve tasks using basic knowledge of aerodynamics, flight mechanics and flow around bodies
6. is able to design means of transport with appropriate external requirements (e.g. regarding environmental protection)
7. is able to analyze technical objects and solutions, is able to search in catalogs and on manufacturers' websites for ready-made components of machines and devices, including means and devices, assess their suitability for use in their own technical and organizational projects
8. the student is able to use theoretical probability distributions. The student is able to analyze and interpret statistical data. The student is able to apply the methods and tools of mathematical statistics in engineering practice
9. is able to organize, cooperate and work in a group, assuming different roles in it and is able to appropriately determine priorities for the implementation of a task specified by himself or others
10. is able to plan and implement the process of his own permanent learning and knows the possibilities of further education (second and third cycle studies, postgraduate studies, courses and exams conducted by universities, companies and professional organizations)

Social competences:
1. understands that in technology, knowledge and skills become outdated very quickly
2. is aware of the importance of knowledge in solving engineering problems and knows examples and understands the causes of malfunctioning engineering projects that led to serious financial and social losses or to serious loss of health or even life 3. is aware of the social role of a technical university graduate, in particular understands the need to formulate and communicate to society, in an appropriate form, information and opinions on engineering activities, technical achievements, as well as the

achievements and traditions of the engineering profession
4. correctly identifies and resolves dilemmas related to the performance of the profession of an aviation and astronautics engineer

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Oral exam

Programme content

1. The process of writing a scientific paper (origin of the paper's topic, preparatory activities, source materials). Development of a diploma paper (general requirements, editorial work, ethical issues). The role of the supervisor in the process of creating the paper.

Course topics

The structure of an engineering thesis: the method of analyzing the literature to determine the state of knowledge in the issue covered by the thesis topic, formulation of the research problem (fundamental theses of the thesis), the method of presenting the research methodology (analytical, experimental) and its results, formulation of observations and conclusions.Principles of citing foreign studies. Discussion (in turn) of the completed diploma theses: the referrer should demonstrate knowledge of the latest achievements in a given field of science and technology (domestic and foreign publications). General discussion of 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 diploma thesis. Structure and types of diploma theses. Selection of literature. Development of source materials and references.Development of a work plan. Topic, goal, implementation schedule. Development of a research program. Research model. Experimental studies. Simulation studies. Optimization and verification of research results. Initial reporting of the thesis. Discussion of the results of the work so far. Formulation of conclusions. Second presentation of the work. Topic, final goal, scope of the work. Student discussion. Editorial comments.Final presentation of the work. Preparation and development of guidelines for the defense of the thesis. Passing the thesis seminar.

Teaching methods

Discussion, combined with an assessment of the progress of the diploma thesis based on the presentation

Bibliography

Basic:
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Additional:
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Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	15	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	35	1,00