STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Airframe design		**1010601161010637744**

Field of study	Profile of study (general academic, practical)	Year /Semester
Aerospace Engineering	**general academic**	**3 / 6**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Aircraft Engines and Airframes	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**full-time**

No. of hours				No. of credits
Lecture: **1**	Classes: **-**	Laboratory: **-**	Project/seminars: **2**	**3**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
other	**university-wide**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**3 100%**
Technical sciences	**3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge on aircraft desing
2	**Skills**	Being capable of performing basic engineering calculations
3	**Social competencies**	Is competent to ask proper questions, knows limitations of own knowledge and understands the necessity of continuous learning

Assumptions and objectives of the course:

Student gains knowledge on design and construction of airframes

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has detailed knowledge on manned and unmanned airframe desing, including instruments and main components of the airframe - [K1A_W13]
2. Has basic knowledge on basisc of machine design and theory of machines and mechanisms - [K1A_W05]
3. Has grounded knowledge on engineering graphics, use of Computer Aided Design in machine construction - [K1A_W07]

Skills:

1. Is capable of verbal communication in polish and foreing language in at least B2 level - [K1A_U07]
2. Is capable comunicating with use of different techniques in professional environments with use of formal construction definition methods, vocabulary and definitions consistent with studies. - [K1A_U02]
3. Is capable of gaining information from literature, internet, databses and other sources. Is capable of integrating gained knowledge, formulate and defend conclusions. - [K1A_U04]

Social competencies:

1. Is capable of creative and enterprise thining - [K1A_K06]
2. Is aware of importance and understands nontechnical aspects and effects of engineering work including environmental impact and related responsibility in decision making - [K1A_K02]
3. Is aware of responsibility of own work and readiness to submit to rules of cooperation in team and taking responsibility for cooperative projects - [K1A_K04]

Assessment methods of study outcomes

Written exam, project assignment

Course description

Trend and cost analysis, mission profile, initial weight assignment, airframe loads, engine loads, hull utility aspects, hull-wing configuration, landing gear reaquirements, systems and their usage, basic construction applications, engine types and their use, engine beds, inlets, engine cooling, propellers, empennage types,

chłodzenie, wloty i wyloty, rodzaje śmigieł, podstawowe rozwiązania konstrukcyjne. Wing design, steering, high lift devices, stability assesment, wing, hull, empennage, powerplant loads assesment.

Basic bibliography:

1. Raymer ?Aircraft Design, a Conceptual Approach?
2. S. Danilecki ?Projektowanie samolotów?
3. R. Cymerkiewicz ?Budowa samolotów?

Additional bibliography:

1. Anderson ?Aircraft Performance and Design?
2. R. Cymerkiewicz ?Budowa samolotów?

Result of average student's workload

Activity	Time (working hours)
1. Exam preparation	10
2. Exam	2
3. Lectures	15
4. Projects/Seminars	30
5. Project preparation	25

Student's workload

Source of workload	hours	ECTS
Total workload	82	3
Contact hours	47	1
Practical activities	55	2