

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Construction aircraft		Code 1010604141010633992
Field of study Aerospace Engineering	Profile of study (general academic, practical) general academic	Year /Semester 2 / 4
Elective path/specialty Aircraft Engines and Airframes	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 18 Classes: - Laboratory: - Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 2 100% 2 100%
Responsible for subject / lecturer: Dr eng. Wojciech Prokopowicz email: wojtek379@wp.pl tel. +48 606 638 410 Faculty of Transport Engineering ul. Piotrowo 3; 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge in the field of mechanics, airframe construction, metrology, strength of materials, non-destructive testing
2	Skills	He can apply the scientific method in solving problems, carrying out experiments and gain conclusions
3	Social competencies	He knows the limits of his knowledge and skills; can precisely formulate questions, understands the need for further education
Assumptions and objectives of the course: -Familiarize students with the problems of aircraft operation (elements of the airframe structure). Understanding the currently used operation and diagnosis systems increasing the safety of aircraft operation. Acquainting with basic aerial structures and methods of testing their strength. Familiarizing students with the principles of strength calculations for aircraft structures. To acquaint students with currently used systems supporting the design of aircraft structures.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has knowledge in the field of mathematics, including algebra, analysis, theory of differential equations, probability, analytical geometry - [[K1A_W01]]		
2. Has a structured basic knowledge in the main branches of technical mechanics: statics of kinematics and dynamics of the material point and rigid body - [[K1A_W04]]		
3. Has basic knowledge in the field of machine construction and theory of machines and mechanisms - [[K1A_W05]]		
4. Has basic knowledge of standardized principles of construction record and engineering graphics - [[K1A_W07]]		
Skills:		
1. Is able to use verbal communication in one additional foreign language at the level of everyday language - [[K1A_U07]]		
2. Is able to prepare technical documentation descriptively - drawing an engineering task - [[K1A_U06]]		
3. Can use the acquired mathematical theories to create and analyze simple mathematical models of machines and their components and simple technical systems. - [[K1A_U09]]		
4. Able to draw a diagram, a simple machine element and a component of the airframe according to the principles of technical drawing - [[K1A_U16]]		
Social competencies:		

1. Can think and act in a creative and enterprising way - [[K1A_K06]]
2. Is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment and the related responsibility for decisions - [[K1A_K02]]
3. Understands the need and knows the possibilities of continuous learning - [[K1A_K01]]

Assessment methods of study outcomes		
-Written test		
Course description		
<p>-General information on the types of aircraft structures. Materials used for the production of airframe components. Concepts related to the probability and reliability of aircraft structures. The probability of working in the state of fitness. Technical operation of aircraft. Aircraft maintenance in practice. The influence of various factors on aircraft airframe wear. Non-destructive testing of aircraft structures. Problems of assessing the technical condition of the aircraft's reliability and operational durability. Technical services for servicing and repairing airframe structures. Operational flight safety factors. Safety of aircraft against the background of aviation law and regulatory requirements.</p>		
Basic bibliography:		
<ol style="list-style-type: none"> 1. K. Kaw, Mechanics of Composite Materials, second edition, Taylor & Francis Group, LL, 2006; 2. M. Chun-Yung Niu, Airframe structural design. Practical Design Information and Data on Aircraft Structures, Conmilit Prcss Ltd., 1988 3. T. H. G. Megson, Aircraft Structures for engineering students (fourth edition), Elsevier Ltd., 2007; 4. E. ÜNAY, Load analysis of an aircraft using simplified aerodynamic and structural models, February 2015; 5. W. Błażewicz, Budowa samolotów ? obciążenia, Wydawnictwo Politechniki Warszawskiej, Warszawa 1979; 6. M. Skowron, Budowa samolotów ? obciążenia. Zbiór zadań, Wydawnictwo Politechniki Warszawskiej, Warszawa 1979 7. C. Galiński, Wybrane zagadnienia projektowania samolotów, Biblioteka Instytutu Lotnictwa, Warszawa 2016; 8. M. N. Szulżenko, A.S. Mostowoj, Konstrukcja samolotów, Wydawnictwa komunikacji i łączności, Warszawa 1980; 9. Danilecki S., Projektowanie samolotów, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2000 10. Błaszczyk J., Konstrukcja samolotów, cz.I., Obciążenia zewnętrzne, WAT, Warszawa 1984 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. A. Milikiewicz, Praktyczna aerodynamika i mechanika lotu samolotu odrzutowego w tym wysokomanewrowego, Wydawnictwo ITWL, Warszawa 2011; 2. M. Dębski, D. Dębski, Wybrane zagadnienia wytrzymałości zmęczeniowej konstrukcji lotniczych, Wydawnictwa Naukowe Instytutu Lotnictwa, Warszawa 2014 3. A. Ablamowicz, W. Nowakowski, Podstawy aerodynamiki i mechaniki lotu, Wydawnictwa komunikacji i łączności, Warszawa 1980 4. M. Bijak-Żochowski, Mechanika materiałów i konstrukcji, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006 5. R.P.L. Nijssen, Composite materials an introduction, Inholland University of Applied Sciences, 2015 		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation for the exam	5	
2. Participation in the exam	2	
3. Participation in lectures	30	
Student's workload		
Source of workload	hours	ECTS
Total workload	37	2
Contact hours	32	2
Practical activities	0	0