



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Human - performance and limitations

Course

Field of study

Aerospace Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

polish

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

Tutorials

Projects/seminars

Other (e.g. online)

Number of credit points

1

Lecturers

Responsible for the course/lecturer:

dr n. med. Karol Szymański

Wydział Inżynierii Środowiska i Energetyki

email: rofe@tlen.pl

+48 602 631 428

Responsible for the course/lecturer:

dr hab. inż. Agnieszka Wróblewska, prof.PP

Wydział Inżynierii Środowiska i Energetyki

email: agnieszka.wroblewska@put.poznan.pl

tel. 61 665 2201

Prerequisites

A student starting this subject should have a basic knowledge of general and aviation psychology, the nature and functioning of human cognitive, emotional and motivational processes. He should also have the ability to apply the scientific method in solving problems and be ready to cooperate within a team.

Course objective

To acquaint the student with the emotional and motivational processes of man functioning in normal, difficult and extreme situations. Basic human cognitive processes - perception and attention and their importance in the process of information management in the human - technical object system. The dynamics of small social groups and its application in the process of constructing effective task teams in aviation. Crew / team resource management (CRM).



Course-related learning outcomes

Knowledge

1. has detailed knowledge related to selected issues in the field of human capabilities and limitations when operating an aircraft in flight, its impact on health and the ability to perform air operations, as well as opportunities to improve physical condition.
2. has basic knowledge of technical vocabulary, in particular specialized terminology used in the fields of science and technology related to aviation engineering.
3. has basic knowledge necessary to understand profile subjects and knowledge in the field of society and the environment in the field of aviation engineering for selected specialties:

1. Piloting of aircraft
2. Aero engines and airframes.

Skills

1. knows how to use a language to a degree enabling understanding of technical texts in the field of aviation (knowledge of technical terminology).
2. is able to communicate using various techniques in a professional environment and other environments using the formal record of construction, technical drawing, concepts and definitions of the scope of the studied field of study.
3. can obtain information from literature, the Internet, databases and other sources. Is able to integrate obtained information, interpret and draw conclusions from them.

Social competences

1. is aware of the importance of maintaining the principles of professional ethics.
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 associated responsibility for the decisions taken.
3. Understands the need for critical assessment of knowledge and continuous learning.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture:

- assessment of knowledge and skills demonstrated on the written test - 1.5 hour

Programme content

Lecture:



Human factors in aviation. Becoming a competent pilot. Flight safety concepts. Threat and error management (TEM) model and SHELL model. Safety culture and safety management. Basics of flight physiology.

PART-66 (THEORY - 11.25 hours)

MODULE 9A. HUMAN FACTORS

9.1 General

The need to take into account the human factor; Events attributable to human factors / human error; Murphy's Laws. [2]

9.2 Human Performance and Limitations

Vision; Hearing; Processing information; Attention and perception; Memory; Claustrophobia and physical access. [2]

9.3 Social psychology

Individual and group responsibility; Motivation and Demotivation; Pressure from colleagues; "Cultural" issues; Teamwork; Management, supervision and leadership. [1]

9.4 Factors Affecting Performance

Health / fitness; Stress related to work and personal life; Time pressure and deadlines; Workload: excessive and insufficient; Sleep and fatigue, shift work; Alcohol, Medicines and Drug Abuse. [2]

9.5 Physical Environment

Noise and smoke; Lighting; Movement and vibration; [1]

9.6 Tasks

Physical work; Repetitive tasks; Examination by visual inspection; Complex systems. [1]

9.7 Communication

Within and between teams; Job registration; Updating, validity period; Dissemination of information. [2]

9.8 Human error

Models and theories of error; Types of errors in maintenance tasks; Effects of errors (e.g. accidents); Avoiding and managing mistakes. [2]

9.9 Workplace risks

Risk recognition and avoidance; Emergency procedures. [2]

Teaching methods



1. Lecture: multimedia presentation, illustrated with examples given on the board.

Bibliography

Basic

1. Szajnar S.: „Czynnik ludzki w obsłudze urządzeń technicznych”, Skrypt WAT, Warszawa 2010.
2. Janowska Z.: „Zarządzanie zasobami ludzkimi”, Polskie Wydawnictwo Ekonomiczne, 2010
3. Scott W. E., Cummings L. L.: “Zachowanie człowieka w organizacji”, Państwowe Wydawnictwo Naukowe, 1983
4. www.faa.gov
5. www.easa.europa.eu

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	37	1,0
Classes requiring direct contact with the teacher	16	0,4
Student's own work (literature studies, preparation for written tests) ¹	21	0,6

¹ delete or add other activities as appropriate