



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Management Systems

Course

Field of study

Aerospace Engineering

Area of study (specialization)

Safety and Management of Aviation

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

polish

Requirements

elective

Number of hours

Lecture

45

Laboratory classes

30

Other (e.g. online)

Tutorials

Projects/seminars

Number of credit points

6

Lecturers

Responsible for the course/lecturer:

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Prerequisites

Knowledge: The student has a basic knowledge of the design, production and operation of technical objects and their impact on humans and the environment. In addition, he has basic knowledge of mathematics (elementary functions and probability), physics in the field of acoustics and safety in transport.



Skills: The student is able to integrate the obtained information, interpret it, draw conclusions, formulate and justify opinions. In addition, he can apply the scientific method in solving research problems.

Social competences: The student is aware of the importance and understands the non-technical aspects and effects of technical activities and their impact on the environment. Is prepared for teamwork. The student shows independence in solving problems, acquiring and improving the acquired knowledge and skills. In addition, he can precisely formulate questions, he can define priorities important in solving the tasks set before him.

Course objective

Getting to know the basic concepts of quality management and engineering and the importance of this category for society. Understanding the methods of influencing the quality level of technical facilities and services. Understanding the basics of the main quality management systems.

The aim of the subject of Noise Management in Aviation is to familiarize students with the theoretical and practical issues related to the generation, propagation and impact on humans of noise and vibrations occurring in airplanes and related infrastructure. Students will gain practical knowledge in the use of specialized measuring equipment for recording vibroacoustic signals, methods of measuring and assessing noise in airplanes, in the environment and their impact on humans.

Learning methods and acquiring practical problem-solving skills in the field of analysis of the functioning of crisis management systems.

Course-related learning outcomes

Knowledge

1. Has a basic knowledge of the life cycle of technical devices, objects and systems, as well as the methods of their technical description - [K1_W22].
2. Has detailed knowledge related to selected issues in the field of the most important phenomena occurring in the Earth's atmosphere, the possibility of their prediction, recognition, research, as well as limiting the negative impact of human activity on the surrounding environment - [K1A_W14].
3. Has extended knowledge necessary to understand the profile subjects and specialist knowledge of the construction, construction methods, manufacturing, operation, air traffic management, safety systems, economic, social and environmental impact in the field of aviation and aerospace for the profile of aviation safety and management. - [K1A_W23].
4. Has basic knowledge necessary to understand social, economic, legal and other non-technical determinants of engineering activity K1A_W24.
5. Has ordered, theoretically founded general knowledge covering key issues in the field of flight safety and risk assessment of threats K1A_W12

Skills

1. Can obtain information from literature, the Internet, databases and other sources. Can integrate



obtained information, interpret and draw conclusions from it, and create and justify opinions - [K1A_U04].

2. Can prepare and present a short verbal and multimedia presentation on the results of an engineering task - [K1A_U08].

3. Can plan and carry out a research experiment using measuring apparatus - [K1A_U11].

4. Can use basic technical standards regarding unification and safety and recycling - [K1A_U13].

5. Can analyze objects and technical solutions, can search in catalogs and on manufacturers' websites ready components of machines and devices, including means and devices for transport and storage, assess their suitability for use in own technical and organizational projects K1A_U09.

Social competences

1. 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 - [K1_K02].

2. Can interact and work in a group, assuming different roles - [K1_K03].

3. understands the need for lifelong learning; can inspire and organize the learning process of other people - [K1_K01].

4. is able to properly define the priorities for the realization of tasks defined by himself or others - [K1_K04].

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

final test, current control of knowledge, reports from conducted laboratory classes, exam at the end of the course

Programme content

The terms "quality", "quality engineering" and "quality management systems" and their scope: quality - definitions, descriptive and comparative interpretation, quality attributes, quality engineering and quality management systems - subject and scope.

Quality development in the life cycle: determinants of quality development in design, quality determinants in production, quality manifestation in operation and decommissioning; basic quality control tools.

Quality management: assurance and quality management, quality management (TQM), Deming principles, Japanese approach (5S, kaizen), EFQM model, introduction to standard quality management.

Quality of services: the specificity of service quality, elements of the service quality system, structure; basic issues of the issue of quality costs.



Introduction to the issues of acoustics and the theory of mechanical vibrations, identification of the main sources of noise occurring in airplanes while stationary and in motion, the impact of noise and vibrations on the environment and human and criteria for their assessment, review of the applicable regulations on the impact of noise in airplanes and in the environment, methods of measurement, analysis vibroacoustic signals and the methods of inference relating to issues related to the occurrence of noise in airplanes and in the environment, methods of noise reduction in air transport. Ways of protecting people and the environment against noise and vibrations occurring in airplanes and their immediate surroundings.

Basics of crisis management. Categories of crisis situations. Characteristics of crisis situations based on selected examples. Civil-military cooperation and tasks of ministries in crisis situations. Management of mass accidents and disasters. Classification of crisis situations. Crisis management systems and their elements. Threat monitoring; State Environmental Monitoring (SEM); structures of SEM systems; national system of measurements of radioactive contamination, monitoring of transport of hazardous substances, chemical accident prevention systems (PACH), protection systems against natural disasters. Management and rescue in mass accidents and disasters. Crisis management systems in enterprises; critical infrastructure, monitoring subsystem, crisis response processes and procedures. Terrorism as a kind of crisis threat. Counteracting acts of unlawful interference in air transport. The use of aviation (manned and unmanned) in anti-crisis activities. Application of satellite techniques in anti-crisis activity.

Teaching methods

Informative (conventional) lecture (providing information in a structured way) - may be of a course (introductory) or monographic (specialist) character.

Project method (individual or team implementation of a large, multi-stage cognitive or practical task, the effect of which is the creation of a work).

Laboratory (experiment) method (independent conducting of experiments by students).

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15. Akty prawne: Ustawy i Rozporządzenia RP.



Breakdown of average student's workload

	Hours	ECTS
Total workload	150	6,0
Classes requiring direct contact with the teacher	100	4,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	50	2,0

¹ delete or add other activities as appropriate