SYLLABUS

Name: ***Exploitation of Technical Systems (ZIPAOZ>SI4EoTS19O)***
Name in Polish:
Name in English: ***Exploitation of Technical Systems***

Information on course:

Course offered by department: Faculty of Organization and Management
Course for department: Silesian University of Technology

Default type of course examination report:

EGZ

Language:

English

Short description:

The aim of the subject is transfer of structured knowledge and acquisition of skills and social competences related to the theoretical and practical aspects of the exploitation of technical objects and systems, both in terms of use and maintenance works.

Description:

Teaching modes and teaching hours:
- lectures: 30 hours,
- laboratories: 30 hours.

Number of ECTS credits: 5.

Number of hours allocated for the student's own work:
- preparation for exam: 30 hours,
- preparation reports: 30 hours.

Detailed description of teaching modes
lectures:
1. General exploitation issues.
2. Description of the exploited object.
3. Technical condition of the exploited object.
4. Diagnosing and monitoring the condition of the exploited object.
5. Exploitation events.
6. Exploitation processes.
7. Reliability and durability of the exploited object.
8. Safety of the exploited technical systems.
9. Maintenance management of the technical system.
10. Exploitation assessment of the technical systems.
11. Computerized maintenance management.

laboratories:
1. Overview of the capabilities of selected CMMs/EAM class tools.
2. Modeling of the structures of technical objects of the enterprise with the use of CMMs/EAM class systems.
3. Organization of emergency and corrective tasks within CMMs/EAM class systems.
4. Planning and implementation of maintenance and repair works using CMMs/EAM class systems.
5. Calculation of selected exploitation measures.

Bibliography:

1. Levitt J.: The Handbook of Maintenance Management. Industrial Press Inc., New York 1997.
2. Nakajima S.: Introduction to TPM. Total Productive Maintenance. Productivity Press, Portland, Oregon 1988.
3. Niebel W.B.: Engineering Maintenance Management. Second edition. Marcel Dekker Inc., New York 1994.

Learning outcomes:

Knowledge: a student knows and understands:
K1A_W10: selected issues in mechanics, strength of materials, construction record, as well as construction and exploitation of machines (wybrane zagadnienia z mechaniki, wytrzymałości materiałów, zapisu konstrukcji oraz budowy i eksploatacji maszyn).
K1A_W14: basic processes in the life cycle of devices, facilities and technical systems (podstawowe procesy zachodzące w cyklu życia urządzeń, obiektów i systemów technicznych).

Skills: a student can:
K1A_U08: perform a critical analysis of the functioning of existing technical solutions and evaluate these solutions (dokonywać krytycznej analizy sposobu funkcjonowania istniejących rozwiązań technicznych i oceniać te rozwiązania).
K1A_U09: analyze the facility's life cycle and use tools supporting the exploitation processes of machines and devices in the enterprise (dokonać analizy cyklu życia obiektu oraz wykorzystać narzędzia wspomagające procesy eksploatacyjne maszyn i urządzeń w przedsiębiorstwie).

Social competences: a student is prepared to:
K1A_K03: fulfilling social obligations, co-organizing activities for the social environment and initiating activities for the public interest (wypełniania zobowiązań społecznych, współorganizowania działalności na rzecz środowiska społecznego oraz inicjowania działań na rzecz interesu publicznego).

Assessment methods and assessment criteria:

Lecture
Oral transmission in the form of a lecture, assisted by audiovisual aids, zoom system and a remote education platform.
The basis for passing the lecture is a positive result of the exam.

Laboratory:

Implementation of tasks in the ZMT computer system, preparation of reports. Discussion with students about the content of the reports. The basis for passing the laboratory is to pass all assigned tasks, prepare appropriate reports along with demonstrating the knowledge and understanding of the issues constituting their content.

The final grade is a weighted average of the grades obtained from the exam and the laboratory (0.7 x lecture + 0.3 x laboratory).

Element of course groups in various terms:

Course group description	First term	Last term
missing group description in English (ZIPAOZ>SI-4-19-O)	2020/2021-L	

Course credits in various terms:

Management and Production Engineering, full-time first degree engineering studies 7 sem. (ZIPAOZ-SI7)			
Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	5	2020/2021-L	