SYLLABUS

Name: ***Diagnosis and Monitoring of Technical Systems (ZIPAOZ>SI7DaMTS19)***
Name in Polish:
Name in English: ***Diagnosis and Monitoring 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:

ZAL

Language:

English

Course homepage:

https://platforma.polsl.pl/

Short description:

Getting familiarized with the principles of operation of technical systems through diagnostics and monitoring of their technical condition. Mastering methods for assessing the operating conditions and technical condition of exemplary power generation facilities.

Description:

Lecture:

General issues of diagnostics and monitoring of technical systems. Process parameters subject to diagnosis and monitoring. Design of diagnostic and monitoring systems of technical systems on the example of power generation facilities. Examples of monitoring and diagnostics of selected elements and components of devices. Basics of device operation supervision and data archiving. The impact of diagnostics and monitoring on performance, reliability and efficiency of technical systems.

Laboratory:

• Diagnostics of thermal and flow parameters in energy generation installations. Methods of measuring temperature, pressure and flow in relation to rapidly changing heat and mass transfer processes
• Special, non-standard measurements in monitoring thermal and flow processes
• Monitoring and archiving of thermal and flow parameters in energy installations
• Basics of assessing the condition of technical systems by analyzing data obtained from diagnostic and monitoring systems

Bibliography:

• Horst Czichos (Editor): Handbook of Technical Diagnostics. Fundamentals and Application to Structures and Systems. Springer-Verlag Berlin Heidelberg 2013.
• Horst Czichos: Measurement, Testing and Sensor Technology. Fundamentals and Application to Materials and Technical Systems. Springer International Publishing AG, part of Springer Nature 2018.

Learning outcomes:

• K1A_W14: A student knows and understands the basic processes in the life cycle of technical devices, objects and systems
• K1A_U08: A student is able to make a critical analysis of how existing technical solutions work and evaluate the solutions
• K1A_U09: A student is able to analyze the life cycle of an object and use tools for supporting operational processes of machinery and equipment in enterprises
• K1A_U17: A student is able to communicate with the public using specialized terminology
• K1A_K01: A student is ready for critical evaluation of the acquired knowledge and received content

Assessment methods and assessment criteria:

Lecture: tests on the subjects taught during the lectures.
Laboratory: accepted reports from the laboratory tasks.
Criterion for passing: a positive grade from all the tests and the project tasks - at least satisfactory.

Percentage thresholds and corresponding grades:
- below 50% - fail (2.0)
- from 50% and below 60% - satisfactory (3.0),
- from 60% and below 70% - satisfactory plus (3.5),
- from 70% and below 80% - good (4.0),
- from 80% and below 90% - good plus (4.5),
- from 90% to 100% - very good (5.0).

Element of course groups in various terms:

Course group description	First term	Last term
missing group description in English (ZIPAOZ>SI7EZ)	2020/2021-Z	
missing group description in English (ZIPAOZ>SI-7-19-S)	2022/2023-Z	

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)	4	2020/2021-Z	