SYLLABUS

Name: ***Monographic course (ZIPOZ>SM1MC22O)***
Name in Polish:
Name in English: ***Monographic course***

Information on course:

Course offered by department: Faculty of Organization and Management
Course for department: Silesian University of Technology
Term: Summer semester 2022/2023
Cordinator of course edition: Dr inż. Andrzej Wieczorek

Default type of course examination report:
ZAL

Language:
English

Course homepage:
https://platforma2.polsl.pl/roz/course/view.php?id=769

Short description:
The aim of the course is to familiarise students with the latest information on the properties and applications of smart materials. Smart materials are defined as materials with controllable physical properties.

Description:
Lecture topics:
1. piezoelectric materials
2. shape-memory materials
3. electroactive polymers
4. magnetorheological fluids
5. intelligent polymers
6. photovoltaic materials
7. thermoelectric materials
8. magnetocaloric materials
9. photomechanical materials
10 student's presentations

Bibliography:
Encyclopedia of smart materials by Mel Schwartz
Polymer Science A Comprehensive Reference, 10 Volume Set by Martin Moeller (Editor), Krzysztof Matyjaszewski (Editor)
Smart materials for advanced environmental applications by Peng Wang, Peng Wang, Hans-Jorg Schneider, Mohsen Shahinpoor, Xianmao Lu, Jian Jin, To Ngai, Hongbo Zeng, Nicole Zacharia
Smart Structures Theory by Chopra I., Sirohi J.

Learning outcomes:
K2A_K01 readiness to critically evaluate the knowledge and content they have acquired
K2A_K02 readiness to recognise the importance of knowledge in solving both cognitive and practical problems and to consult experts when having difficulty solving problems independently.
K2A_U08 ability to integrate and apply advanced knowledge related to the field of study and production engineering in the formulation and implementation of solutions to engineering challenges.
K2A_W02 knowledge and understanding of main tendencies of the mechanical engineering discipline in relation to other disciplines.

Assessment methods and assessment criteria:
Students solve a test based on the materials available in the remote learning platform and prepare and present a presentation on the impact of the application of the selected smart material on the company's profits.

Practical placement:
not applicable

Information on course edition:

Default type of course examination report:
ZAL

Bibliography:
missing bibliography in English

Details of classes and study groups

lecture (15 hours)

Study groups details

Group number 1

Class instructors:
Dr inż. Andrzej Wieczorek

Course credits in various terms:

<without a specific program>

Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	2	2022/2023-L	