SYLLABUS

Name: *Software engineering (MakAu>SI7SE19)*
Name in Polish:
Name in English: *Software engineering*

Information on course:
Course offered by department: Faculty of Automatic Control, Electronics and Computer Science
Course for department: Silesian University of Technology

Default type of course examination report:

ZAL

Language:

English

Course homepage:

https://platforma2.polsl.pl/rau2/course/view.php?id=642

Short description:

The aim of the module is to present the most relevant aspects of software engineering with particular attention given to designing the information systems and running IT projects following commonly adopted methodologies and exploiting contemporary tools.

Description:

ECTS credits: 4
Total hours: 120h (contact hours: 60h / self-study: 60h)
Lecture: 30h
Laboratories: 30h
Student self-study: 60h (preparation for laboratory classes, including team work, preparation for the lecture test)

Lectures:
1. Introduction to software engineering.
2. Requirements engineering.
3. Quality management, software verification and validation.
4. Software development life cycles.
5. Methodologies in IT projects.
6. Risk analysis.
7. Research-and-development projects.
8. Object-oriented design.
9. Unified modeling language.

Topics covered during laboratory meetings:
1. Software optimization.
2. Software design.
3. Requirements engineering.
4. Team programming.
5. Software development methodologies.
6. Software testing.

Bibliography:

• I. Sommerville: "Inżynieria Oprogramowania", WNT 2003
• K. Sacha: "Inżynieria oprogramowania", Wydawnictwo Naukowe PWN, Warszawa, 2010
• S. Wrycza, B. Marcinkowski, K. Wyrzykowski: „Język UML 2.0 w modelowaniu systemów informatycznych", Helion, Gliwice, 2006.
• W. Dąbrowski, A. Stasiak, M. Wolski: „Modelowanie systemów informatycznych w języku UML 2.1", PWN , Warszawa 2009.
• G. Booch, J. Rumbaugh, I. Jacobson: "UML. Przewodnik użytkownika", WNT, Warszawa, 2001, 2002
• P. Szmal (red.): "Inżynieria programowania. Metody i ćwiczenia laboratoryjne", Wydawnictwo Politechniki Śląskiej, Gliwice, 2003
• R.S. Pressman, "Praktyczne podejście do inżynierii oprogramowania", WNT 2004
• A.Hunt, D.Thomas, „Pragmatyczny programista, od czeladnika do mistrza", WNT, 2002
• J. Górski (red.): „Inżynieria oprogramowania w projekcie informatycznym", wyd. II rozszerzone. Mikom, Warszawa 2000
• A. Jaszkiewicz: "Inżynieria oprogramowania", Helion, 1997
• G. Schneider, J. Winters, „Stosowanie przypadków użycia", WNT 2004

Learning outcomes:

1. The student has knowledge in the field of developing information systems, including requirements engineering and software design using UML notation - K1A_W10 (grade from the lecture test).
2. The student has knowledge of methodologies for managing IT projects, conducting risk analysis, and protecting intellectual property rights - K1A_W22 (grade from the lecture test).
3. The student can optimize the execution time of computer programs - K1A_U26 (grade from the laboratory exercise).
4. The student can use tools that support team programming – K1A_U25 (grade from the laboratory exercise).
5. The student can work in a team to gather requirements, as well as develop and test computer systems – K1A_U22 (grade from the laboratory exercise).

Assessment methods and assessment criteria:

Attendance at lectures is not mandatory, while attendance at laboratory exercises is compulsory.
The knowledge of the material presented during lectures is verified through a lecture test.
The laboratory consists of one practical exercise (software optimization) and a team project composed of several activities that include specifying the methodology, requirements engineering, risk analysis, software development and testing – the student must obtain a passing grade in the exercise and the aforementioned activities.
To pass the course, it is necessary to obtain a passing grade for the laboratory as well as a passing grade on the lecture test.

The syllabus is valid from academic year 2025/26 and its content cannot be changed during the semester.

Element of course groups in various terms:

Course group description	First term	Last term
Automation, electronics and informatics sem. 2 (AEIAu>SI_7)	2019/2020-Z	
missing group description in English (MakAu>SI7-I-19)	2022/2023-Z	
missing group description in English (MakAu>SI7-I-23)	2023/2024-Z	

Course credits in various terms:

<without a specific program>

Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	4	2022/2023-Z	