

SYLLABUS

Name: Software Engineering (InfAAu>SI4SE19)

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=942>

Short description:

The aim of the course is to present selected topics within the field of software engineering, with particular emphasis on issues related to the design of information systems and the management of IT projects using commonly applied methodologies and tools.

Description:

ECTS credits: 2

Total hours: 60h (contact hours: 45h / self-study: 15h)

Lecture: 30h

Laboratories: 15h

Student self-study: 15h (preparation for laboratory classes, 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-cycle.
5. Methodologies in IT projects.
6. Risk analysis.
7. Research-and-development projects.
8. Object-oriented design.
9. Unified modeling language.
10. Design patterns and antipatterns.
11. Good programming practices.

Laboratory exercises:

1. Code optimization.
2. Software testing and test-driven development.
3. Design patterns.

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. Jaskiewicz: "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_W11 (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_W21 (grade from the lecture test).
3. The student can optimize the execution time of computer programs - K1A_U19 (grade from the laboratory exercise no. 1).
4. The student can test software using unit tests – K1A_U15 (grade from the laboratory exercise no. 2).
5. The student can apply design patterns – K1A_U21 (grade from the laboratory exercise no. 3).

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 three practical exercises – the student must obtain a passing grade in each of them.

To pass the course, it is necessary to obtain passing grades for all laboratory exercises 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
Informatics S1 semester 4 common subjects (InfAAu>SI4-19-WSP)	2020/2021-L	
Informatics sem. 4 (InfAAu>SI_4)	2024/2025-Z	

Course credits in various terms:

<without a specific program>			
Type of credits	Number	First term	Last term
European Credit Transfer System (ECTS)	2	2020/2021-Z	