STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Software engineering**		Code **1010331561010330109**

Field of study **Information Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **3 / 6**

Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**

Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**

No. of hours Lecture: **30** Classes: **-** Laboratory: **-** Project/seminars: **15**	No. of credits **4**

Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**

Education areas and fields of science and art
 	
technical sciences
    Technical sciences
	ECTS distribution (number and %**)**
	
	4 100%
	        4 100%

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Knowledge of Visual Paradigm. computer science fundamentals with emphasize on OOP, fundamental algorithms (e.g. as given in AOCP vol.1) Model relacyjny.
2	**Skills**	Software engineering as covered in previous semester (class, use case and requirements diagrams) Proficiency in C,C++,C# or java. Podstawy baz danych. data base basics.
3	**Social competencies**	Ability to work in a team. Trustworthiness, loyalty and discretion.

Assumptions and objectives of the course:

Knowledge of OOP and advanced programming & modeling techniques.

The impact of modeling on software quality.

Proficiency in UML modeling.

The main objective is to provide necessary knowledge and to support student project and lab work.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Knowledge of Software Engineering and CASE tools (ie. Visual Paradigm) - [K_W12]

2. Konowledge of latest tools, technologies and trends within IT industry. - [K_W19]

Skills:

1. Knowledge aquisition from API, tools and software framework documentation. - [K_U16]

2. Ability to map the requirement to the functionality and strucutre offered by software tools. - [K_U03]

Social competencies:

1. Reliability and dependability. Understanding of the software modeling importance. - [K_K07]

2. Responsibility for the work results. - [K_K04]

Faculty of Electrical Engineering

Assessment methods of study outcomes
Examination. UML and coding assigments.
Seminary or mid-term exam.
Challenges offered by the lecturer.
Solution of technical problems presented within the lecture.
Course description
Dynamic UML diagrams: state, timing, interaction, sequence and activity.
Concurrent programming design paterns. UML specification of high level synchronization objects.
Real time system modeling. Relational design and modeling. Relational modeling. Relational division, semi anti-join, SQL query re-writing.

Basic bibliography:

1. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Addison-Wesley Professional; 2 edition (May 29, 2005) (dostępne też po polsku)

2. Erich Gamma et al. Design Patterns: Elements of Reusable Object-Oriented Software

3. Intel? Threading Building Blocks (Intel?TBB) User Guide (dostępne https://www.threadingbuildingblocks.org/)

Additional bibliography:

1. Bjarne Stroustrup: Język C++. Kompendium wiedzy, Helion

2. Chris Date: Wprowadzenie do systemów baz danych, Wydawnictwa Naukowo Techniczne , 2000

3. Stanisław Wrycza, Bartosz Marcinkowski, Jacek Maślankowski: UML 2.x. Ćwiczenia zaawansowane, Helion

Result of average student's workload	
Activity	**Time (working hours)**
1. Lecture	30
2. Individual activity	20
3. Project labs	15

Student's workload		
Source of workload	**hours**	**ECTS**
Total workload	65	4
Contact hours	45	3
Practical activities	15	1