STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Software engineering		**1010331551010330109**
Field of study: **Information Engineering**	Profile of study (general academic, practical): **(brak)**	Year /Semester: **3 / 5**
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: **15** Classes: **-** Laboratory: **15** Project/seminars: **-**		No. of credits: **3**
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 %): **3 100%**, **3 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge learnt at high school. Student has theoretical and partially practical knowledge concerning: programming constructions, implementation of algorithms, programming styles, verification of software correctness, formal languages, compilers, and platforms.
2	**Skills**	Student is able to find information from professional literature, databases and other sources; he/she can also integrate and correctly interpret the gained information and then to conclude and formulate his/her own opinions.
3	**Social competencies**	Student is aware of an importance of non-technical aspects and then consequences of software engineer's activities; he/she understands is/her responsibility for his/her decisions.

Assumptions and objectives of the course:

The aim of the two-semester course of software engineering is to present an engineering approach to software development. During the first semester students are taught to build a software object model using the UML standard. An overview of software life cycle models is presented.

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

Knowledge:

1. Student has basic knowledge concerning software enegineering: concept of MDA (Model Driven Architecture), object modeling using the UML standard, quality of a software process and product. - [K_W12]
2. Student is knowledgeable with the state of art and modern trends in software engineering and computing. - [K_W19]

Skills:

1. Student is able to formulate requirements, to build an object model, and assess a simple information system, its functions, and - [K_U16]
2. Student is able to prepare and present a short presentation about his/her own engineering solution. - [K_U04]

Social competencies:

1. Student has a broaded awareness of an importance of non-technical aspects and then consequences of software engineer - [K_K02]
2. Student is aware of his/her responsibility for the work done. He/she points out his/her readiness to work in team and to be responsible for results of tasks realized in team. - [K_K04]

Assessment methods of study outcomes

The content of lectures presented in the first semester of the software engineering course is a subject of an exam after the second semester of this course. After the first semester student's work is assessed on a base of his/her activity in classess and results of a test.

Student's work in laboratories is assessed on the base of partial marks given for each UML diagram and other artefact (requirements document).

Course description

Lectures. Field of software engineering. Concept of MDA (Model Driven Architecture). Assumptions and elements of the UML standard: modeling of use cases, classes, bjects, interfaces, stereotypes, derived elements, packages, components. Modeling an object behavior using: statechart, activity diagram, interaction diagrams. Primary and supporting processes, including documenting, in software development. Overview of software life cycle models: waterfall, RAD, pyramid, V, spiral, WinWin, incremental, and iterative-incremental model. Specification of requirements. Repository. Overviews and software inspections. Process-oriented approach recommended in ISO 9000. Capability Maturity Model for Software. Key areas assigned to maturity levels in the CMM model.

Laboratories. Specifying software requirements. Development of software object model (use cases, objects, and classes) using the UML 2.0 standard.

Basic bibliography:

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	15
2. Participation in labs	15
3. Constuction of an object model, preparation to pass a test after the first part of software engineering course	30
4. Consultation, test	10

Student's workload

Source of workload	hours	ECTS
Total workload	70	3
Contact hours	20	1
Practical activities	50	1