# STUDY MODULE DESCRIPTION FORM

| Name of the module/subject | | | Code |
|---|---|---|---|
| **IT Methods** | | | **1010512321010519264** |
| Field of study | Profile of study (general academic, practical) | | Year /Semester |
| **Computing** | **general academic** | | **1 / 2** |
| Elective path/specialty | Subject offered in: | | Course (compulsory, elective) |
| **Software Engineering** | **English** | | **elective** |
| Cycle of study: | Form of study (full-time,part-time) | | |
| **Second-cycle studies** | **full-time** | | |
| No. of hours | | | No. of credits |
| Lecture: **30** Classes: **-** Laboratory: **30** Project/seminars: **-** | | | **4** |
| Status of the course in the study program (Basic, major, other) | (university-wide, from another field) | | |
| **major** | **from field** | | |
| Education areas and fields of science and art | | | ECTS distribution (number and %) |
| **technical sciences** | | | **4 100%** |

## Responsible for subject / lecturer:

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## Prerequisites in terms of knowledge, skills and social competencies:

| | | |
|---|---|---|
| 1 | **Knowledge** | Learning objectives of the first cycle studies defined in the resolution of the PUT Academic Senate, especially K_W1-2, K_W4, K_W6-15 that are verified in the admission process to the second cycle studies ? the learning objectives are available at the website of the faculty www.fc.put.poznan.pl |
| 2 | **Skills** | Learning objectives of the first cycle studies defined in the resolution of the PUT Academic Senate, especially _U1-2, K_U4, K_U7-8, K_U14-20, K_U22-23, K_U26 that are verified in the admission process to the second cycle studies ? the learning objectives are available at the website of the faculty www.fc.put.poznan.pl |
| 3 | **Social competencies** | Learning objectives of the first cycle studies defined in the resolution of the PUT Academic Senate, especially K_K1-9 that are verified in the admission process to the second cycle studies ? the learning objectives are available at the website of the faculty www.fc.put.poznan.pl<br><br>In addition, in respect to the social skills the student should show attitudes as honesty, responsibility, perseverance, curiosity, creativity, manners, and respect for other people. |

## Assumptions and objectives of the course:

1. Provide knowledge regarding different methods and tools widely used for software development and software maintenance.
2. Develop students? skills in assessing usefulness of new developments and new IT products and methods used for software development and software maintenance.

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

### Knowledge:

1. has detailed theoretical knowledge related to the selected areas of computer science related to modern methods and tools used in IT sector - [K_W5]

### Skills:

1. is able to assess usefulness and possibility of employing new developments (methods and tools) and new IT products - [K_U13]

### Social competencies:

## Assessment methods of study outcomes

Formative assessment:

- based on the discussion and answers provided by students during the lectures and laboratory classes,

Summative assessment:

- knowledge regarding modern IT methods and tools and skills related to objective assessment of their usefulness is assessed based on the results of a test including multiple choice questions (with the possibility of more than one correct answer) and problem solving tasks. Each topic covered within the course is represented by a single question / task. Each task is worth two times more points than a multiple-choice question. Multiple choice questions are graded in the following way (max - maximum points for a question; T - the number of correct answers; F - the number of incorrect answers): for each correctly marked answer student receives max/T points; for each wrongly marked answer student looses 1.5*max/F points; the total number of points for a question cannot be lesser than zero. In order to pass, a student needs to obtain a minimum of 50% of points. (K_W5, K_U13)
- skills related to assessment of usefulness of an IT method or tool are verified based on the oral presentation prepared by students related to a particular IT method or tool (which should also cover the assessment of its usefulness). (K_U13)

## Course description

The lectures and laboratory classes regard IT methods and tools that are currently used by professional IT companies. The presentations of the methods and tools can have a form of lecture or tutorial conducted during laboratory classes.

In order to present the state of the practice methods and tools, some of the lectures and laboratory classes are conducted by invited professionals, who are asked to present the methods and tools that are used by their companies. In addition, students prepare short oral presentations and tutorials regarding chosen modern IT methods and tools.

The particular choice of methods and tools may vary depending on the competencies of invited professional speakers, however, each method or tool should belong to one of the following categories:

- methods and tools supporting Requirements Engineering,
- methods and tools supporting management of IT projects,
- methods and tools supporting modeling IT systems,
- methods and tools supporting development of IT systems (e.g., programming languages, IDEs, frameworks, etc.),
- methods and tools supporting verification and validation of IT systems,
- methods and tools supporting maintenance of IT systems,
- methods and tools supporting administration of IT systems.

Learning methods:

1. The lectures: multimedia presentation, discussion, task solving, and showcase.
2. The laboratory classes: tutorial, discussion, and teamwork.

## Basic bibliography:

1. Taylor, Mark J., et al., Methodologies and website development: a survey of practice, Information and Software Technology 44.6 (2002): 381-391.

2. Neill, Colin J., and Phillip A. Laplante, Requirements engineering: the state of the practice, Software, IEEE 20.6 (2003): 40-45.

3. Cao, Lan, and Balasubramaniam Ramesh, Agile requirements engineering practices: An empirical study, Software, IEEE 25.1 (2008): 60-67.

4. Ng, S. P., et al., A preliminary survey on software testing practices in Australia, Software Engineering Conference, 2004. Pro-ceedings. 2004 Australian. IEEE, 2004.

5. White, Diana, and Joyce Fortune, Current practice in project management-An empirical study, International journal of project management 20.1 (2002): 1-11.

6. Dobrica, Liliana, and Eila Niemela, A survey on software architecture analysis methods, Software Engineering, IEEE Transac-tions on 28.7 (2002): 638-653.

## Additional bibliography:

## Result of average student's workload

| Activity | Time (working hours) |
|---|---|
| 1. participating in lectures: 15 x 2 hours, | 30 |
| 2. participating in laboratory classes: 15 x 2 hours, | 30 |
| 3. preparing a presentation and tutorial: 10 x 1 hour, | 10 |
| 4. consulting issues related to the subject of the course | 10 |
| 5. preparing to the assessment test | 15 |
| 6. studying literature / learning aids (10 pages = 1 hour), 50 pages. | 5 |

| Student's workload | | |
|---|---|---|
| **Source of workload** | **hours** | **ECTS** |
| Total workload | 100 | 4 |
| Contact hours | 70 | 3 |
| Practical activities | 50 | 2 |