



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Modern Information Technologies in IT Applications

### Course

Field of study

Year/Semester

Computing

1/2

Area of study (specialization)

Profile of study

Data Processing Technologies

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

full-time

compulsory

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

15

Tutorials

Projects/seminars

### Number of credit points

1

### Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr hab. inż. Jędrzej Musiał, prof. PP

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faculty: Computing and Telecommunications

address: Piotrowo 2, 60-965 Poznań

### Prerequisites

A student beginning this course should have basic knowledge of Internet technologies, project management and computer system security.

He/she should have the ability to solve basic problems in information systems design and implementation and the ability to obtain information from indicated sources. The student should have the ability to use external programming APIs.

He or she should also understand the necessity of broadening their competences and be ready to cooperate within a team. Moreover, in terms of social competence, a student should demonstrate such



attitudes as honesty, responsibility, perseverance, cognitive curiosity, creativity, personal culture, respect for other people and teamwork.

### Course objective

1. to provide students with basic knowledge of modern technologies used in the broadly understood IT industry, with particular emphasis on applications and cloud computing, modern user interfaces, testing and security models.
2. to develop students' self-education skills and to integrate knowledge from different areas of IT.
3. to develop quality awareness necessary in IT projects - the student will be aware of the importance of quality management in IT.

### Course-related learning outcomes

#### Knowledge

has knowledge of development trends and technologies used in the IT industry

has knowledge about processes taking place in the life cycle of IT systems

has basic knowledge of running a business in the IT industry

#### Skills

is able to integrate knowledge from different fields of computer science when formulating and solving engineering tasks

is able to assess the usefulness and applicability of new developments (methods and tools) and new computer products

is able to assess the usefulness of methods and tools for solving an engineering task consisting in construction or assessment of an information system

is able to critically analyze existing technical solutions and suggest improvements

can determine directions for further learning and implement the process of self-education

#### Social competences

understands that in computer science, knowledge and skills become obsolete very quickly

understands the importance of using the latest computer science knowledge in solving research and practical problems

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

- on the basis of answers given during lectures;
- evaluation of knowledge and skills acquired during the lecture classes on the basis of knowledge tests conducted at the last lecture - a test consisting of a set of single-choice questions.



- the condition for obtaining a positive grade is to obtain min. 50% of the points.

### Programme content

In this series of lectures, representatives of companies that are members of the Employers' Council of the Faculty of Computing and Telecommunications at PUT present technologies, technical solutions, environments and programming tools used in the widely understood IT industry. Also presented are research problems undertaken in these companies.

Sample lecture topics are presented below - they change every academic year:

1. Architecture of high-throughput web systems using Wikia as an example.
  2. Use of tools for detecting threats and advanced network attacks.
  3. Outsourcing of services - value added or work complication?
  - 4 Performance of web applications.
  5. Standards of building a modern data center.
- Big Data, streaming data, and analysis and storage in the cloud.
7. Testing.
  8. Practical examples of using the IaaS platform (infrastructure as a service) to build business services on the example of Google Cloud Engine.

### Teaching methods

Lecture, multimedia presentation.

### Bibliography

Basic

1. <http://specificationbyexample.com>
2. <http://dannorth.net/whats-in-a-story/>
3. [http://www.sastqb.org.za/index.php?option=com\\_content&view=article&id=13&Itemid=18](http://www.sastqb.org.za/index.php?option=com_content&view=article&id=13&Itemid=18)
4. <https://www.cio.com/article/2439495/outsourcing-outsourcing-definition-and-solutions.html>
5. Microsoft Azure, <https://docs.microsoft.com/en-us/azure/>
6. Scrum, <https://www.scrum.org/>
7. Docker, <https://www.docker.com/>
8. Microservices, <https://martinfowler.com/articles/microservices.html>



9. Big Data - Definition, Importance, Examples & Tools, <https://www.rd-alliance.org/group/big-data-ig-data-development-ig/wiki/big-data-definition-importance-examples-tools>

10. Google Cloud, <https://cloud.google.com/docs>

Additional

### Breakdown of average student's workload

	Hours	ECTS
Total workload	25	1,0
Classes requiring direct contact with the teacher	15	0,5
Student's own work (literature studies, preparation for tutorials, project preparation <sup>1</sup> )	10	0,5

<sup>1</sup> delete or add other activities as appropriate