



## COURSE DESCRIPTION CARD- SYLLABUS

Course name

Information Technology

### Course

Field of study

Mathematics in Technology

Area of study (specialization)

—

Level of study

first-cycle studies

Form of study

full-time

Year/Semester

1/2

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

### Number of hours

Lectures

—

Tutorials

—

Laboratory classes

30

Projects/seminars

—

Other (e.g. online)

—

### Number of credit points

2

### Lecturers

Responsible for the course/lecturer::

dr inż. Karol Gajda

Responsible for the course/lecturer::

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### Prerequisites

Knowledge of the course of Information Technology from the first semester. Computer skills. The ability to effectively self-education in a field related to the chosen field of study. Knowledge of the limits of their knowledge and understanding of the need for further education.

### Course objective

Obtaining the knowledge, skills and competences in the field of information technologies with special emphasis on the requirements of the European Computer Driving Licence Advanced in the field of an advanced database use. Obtaining the knowledge, skills and competence in the Visual Basic for Applications (VBA) and the typesetting and presentations using  $\text{T}_{\text{E}}\text{X}/\text{L}_{\text{A}}\text{T}_{\text{E}}\text{X}$ .



## Course-related learning outcomes

### Knowledge

- has expanded and deep knowledge of mathematical modeling;
- has the ordered and theoretically founded knowledge of computer science, including numerical methods; knows at least one software package or programming language.

### Skills

- is able to use devices, tools, etc. in accordance with general requirements and technical documentation; knows how to apply the principles of health and safety at work;
- is able to use the knowledge and methods and tools to solve typical engineering tasks;
- is able to prepare documentation or to prepare a presentation with a multimedia presentation related to the implementation of an engineering task using specialized terminology;
- can work individually and in a team; knows how to estimate the time needed to complete the task ordered; is able to develop and implement a schedule of works to ensure that the deadline is met.

### Social competences

- is aware of the level of his knowledge in relation to the conducted research in exact and technical sciences;
- is aware of deepening and expanding knowledge to solve newly created technical problems;
- is able to think and act in a creative and entrepreneurial way, taking into account safety, ergonomics of work and its economic aspects, is aware of the need to initiate activities for the public interest and responsibility for the effects of the team and its participants.

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Checking the skills and competences in the form of tests. Continuous evaluation for each class (awarding bonuses to activity and quality perception). Get extra points for the activity in the classroom, and in particular for:

- propose to discuss additional aspects of the subject;
- effectiveness of the application of knowledge when solving a given problem;
- the ability to work within a team;
- comments relating to the improvement of teaching materials;
- aesthetic accuracy reports and tasks of the self-study.



## Programme content

Update: 31.01.2020r.

- Visual Basic for Applications (VBA):
  - knowledge of basic concepts related to VBA;
  - objects and collections, properties and methods, tables, loops, forms;
  - Database:
    - knowledge of basic concepts related to the design and use of databases;
    - creating a relational database using advanced functions for creating tables and complex relationships between tables;
    - designing and using queries to create tables, update tables, delete and append data using wild-cards, parameters and calculations;
    - use of controls and subforms to improve the functionality of forms;
    - use of controls in reports to perform calculations and create subreports to increase the transparency of the presented data;
    - improving productivity through the use of macros and import and data integration functions;
- T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X:
  - creating documents, including diploma theses, using T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X;
  - creating a presentation using T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X.

## Teaching methods

- laboratories supplemented with multimedia presentations (including: drawings, photos, animations, sound, films);
- detailed reviewing of reports by the laboratory chair and discussions on comments;
- using tools that enable students to perform tasks at home (eg open source software);
- demonstrations;
- work in teams;
- computational experiments.

## Bibliography

Basic

- Alicja Żarowska-Mazur, Waldemar Węglarz, ECDL Advanced na skróty, syllabus V. 2.0, edycja 2015, Wydawnictwo Naukowe PWN, 2015.



- John Walkenbach, Excel 2013 PL. Programowanie w VBA. Vademecum Walkenbacha, Helion, 2014.

Additional

- Marcin Borkowski, Bartłomiej Przybylski, LaTeX książka kucharska.

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	55	2,0
Classes requiring direct contact with the teacher	31	1,0
Student's own work (literature studies, preparation for laboratory, preparation for tests, project preparation)	24	1,0