

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Technologies of information (ECDL)		Code 1010341721010349394
Field of study Mathematics in Technology	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies (Polish Qualifications Framework level six)	Form of study (full-time, part-time) full-time	
No. of hours Lecture: - Classes: - Laboratory: 60 Project/seminars: -		No. of credits 3
Status of the course in the study program (Basic, major, other) basic		(university-wide, from another field) university-wide
Education areas and fields of science and art The science Mathematical science		ECTS distribution (number and %) 3 100% 3 100%
Responsible for subject / lecturer: dr inż. Karol Gajda email: karol.gajda@put.poznan.pl tel. 61 665 2805 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		Responsible for subject / lecturer: dr Leszek Wittenbeck email: leszek.wittenbeck@put.poznan.pl tel. 61 665 2816 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Knowledge of the course of Information Technology from the first semester. - [K_W02 (P6S_WG)], [K_W06 (P6S_WG)]
2	Skills	Computer skills. The ability to effectively self-education in a field related to the chosen field of study. - [K_U09 (P6S_UW)], [K_U10 (P6S_UW)], [K_U12 (P6S_UK)], [K_U14 (P6S_UO)].
3	Social competencies	Knowledge of the limits of their knowledge and understanding of the need for further education. - [K_K01 (P6S_KK)], [K_K02 (P6S_KK)], [K_K03 (P6S_KO)].
Assumptions and objectives of the course: 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 TeX / LaTeX.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. has expanded and deep knowledge of mathematical modeling - [K_W02 (P6S_WG)] 2. has the ordered and theoretically founded knowledge of computer science, including numerical methods; knows at least one software package or programming language - [K_W06 (P6S_WG)]		
Skills: 1. 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 - [K_U09 (P6S_UW)] 2. is able to use the knowledge and methods and tools to solve typical engineering tasks - [K_U10 (P6S_UW)] 3. 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 - [K_U12 (P6S_UK)] 4. 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 - [K_U14 (P6S_UO)]		
Social competencies:		

1. is aware of the level of his knowledge in relation to the conducted research in exact and technical sciences - [K_K01 (P6S_KK)]
2. is aware of deepening and expanding knowledge to solve newly created technical problems - [K_K02 (P6S_KK)]
3. 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 - [K_K03 (P6S_KO)]

Assessment methods of study outcomes

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.

Course description

Date of revision: 31/10/2018

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 wildcards, 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.

TeX / LaTeX

- Creating documents, including diploma theses, using TeX / LaTeX.
- Creating a presentation using TeX / LaTeX.

Education methods used - laboratory:

- 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.

Basic bibliography:

1. Alicja Żarowska-Mazur, Waldemar Węglarz, ECDL Advanced na skrót, PWN
2. John Walkenbach, Excel 2013 PL. Programowanie w VBA. Vademecum Walkenbacha, Helion
3. Marcin Borkowski, Bartłomiej Przybylski, LaTeX książka kucharska

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
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1. participation in laboratory classes (30x2 hrs)	60	
2. participation in the consultations related to the implementation of the education process, in particular laboratory / project	5	
3. completion (within own work) reports on laboratory exercises.	5	
4. familiarization with the indicated literature / teaching materials	10	
Student's workload		
Source of workload	hours	ECTS
Total workload	80	3
Contact hours	65	2
Practical activities	70	3