COURSE DESCRIPTION CARD - SYLLABUS

Course name
Information Technology I [S1MNT1>TI1]

Course

Field of study
Mathematics of Modern Technologies

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture	Laboratory classes	Other
0	60	0

Tutorials	Projects/seminars	
0	0	

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Basic knowledge from high school. Computer literacy. The ability to effectively self-educate in a field related to the chosen field of study. Knowing the limitations of your own knowledge and understanding the need for further education.

Course objective

Acquiring knowledge, skills and competences in the field of information technology, with particular emphasis on the requirements of the European Computer Driving License Advanced (ECDL Advanced) in the field of advanced text processing, spreadsheets. Acquiring knowledge, skills and competences from the LaTeX text editor.

Course-related learning outcomes

Knowledge:
• has knowledge of solving mathematical, IT, statistical and financial problems [K_W02(P6S_WG)];
• has ordered and theoretically founded knowledge of mathematics and is able to use it in computer science, computer programs, including advanced text documents and spreadsheets [K_W 05(P 6S_W G)];
• has extended knowledge of mathematical modeling and MS Office programs [K_W07(P6S_WG)].

Skills:
• is able to use a computer and peripheral devices while maintaining the general requirements in accordance with the technical documentation, knows and applies the rules of occupational health and safety [K_U11(P6S_UW)];
• uses text documents and spreadsheets to solve problems in various fields of science [K_U12(P6S_UW)];
• can use text documents and spreadsheets to prepare documentation and technical presentations [K_U14(P6S_UK)];
• is able to independently solve problems and issues using MS Office programs, as well as work in groups on the implementation of a given problem [K_U16(P6S_UO)].

Social competences:
• understands the need for personal development, and is aware of the level of knowledge and understands the need to further improve professional and personal competences in mathematics and technical sciences [K_K01(P6S_KK)];
• is aware of deepening and broadening knowledge to solve newly emerging technical problems [K_K02(P6S_KK)];
• is able to act in a creative and entrepreneurial way, taking into account the safety and ergonomics of work, is aware of the responsibility for the effects of the team's work and its individual participants [K_K03(P6S_KO)].

Methods for verifying learning outcomes and assessment criteria
Learning outcomes presented above are verified as follows:

Laboratory classes: Checking skills and competences in the form of tests. Continuous evaluation in every class (rewarding activity and quality of perception). Obtaining additional points for activity during classes, especially for:
• proposing to discuss additional aspects of the issue;
• the effectiveness of applying the acquired knowledge while solving a given problem;
• ability to cooperate within a team;
• remarks related to the improvement of teaching materials;
• aesthetic diligence in the prepared reports and tasks as part of self-study.

Programme content
Update: 01.06.2023r.
Laboratory classes: standards in IT. Hardware. Software. Digital representation of data. Services in computer networks
• text processing (ms word);
 - home: advanced text, paragraph formatting; text styles; numbered lists; Find and Replace; language norms;
 - inserting and editing objects: tables; pictures; shapes; SmartArt; text boxes; charts; hyperlinks; bookmarks; cross-references; comments; equations;
 - page Layout and References: watermarks; page borders; margins; page settings; footnotes and endnotes; table of contents; bibliography; list of illustrations;
 - mailings;
 - macros;
 - forms and controls;
• text processing (latex);
 - working with the source file structure, document classes, special characters;
 - the issue of titles, subheadings and points;
 - using mathematical expressions in the text;
 - creating tables and inserting and editing graphic objects;
• spreadsheets (ms excel);
 - formulas: implementation formulas; cell formatting; copying; preparation for printing; decimal separators;
 - sorting and conditional formatting;
 - creating and basic editing of charts;
 - basic functions: relative and absolute addresses; search functions;
 - document protection;
 - forms and controls;

- creating and advanced editing of charts and their types: waterfall chart; with a branch; multi-axis;
- advanced functions: text; conditional; financial; statistical;
- pivot tables and charts;
- expert functions: summing cells that satisfy the conditions; database; subtotals; array;
- optimization: Search the result; Solver;
- macros and document review: macros; the basics of creating macros in the VBA programming language; autocorrect; spell check; advanced filter.

Course topics

The laboratory program covers the following topics:
1. Text processing using MS Word. Creating and advanced editing of text and objects, including: tables, images, charts, text fields, equations. Document design, mail merge with advanced program options.
2. Text processing using latex software. Creating and editing a document using mathematical expressions.
3. Spreadsheets in MS Excel. Using advanced mathematical formulas, advanced formatting. Using optimization and statistical tools with pivot tables. Creating and advanced editing of charts.

Teaching methods

Laboratory classes: Program content explained in theoretical and practical way by the teacher using multimedia presentations, discussed programs and carrying out the tasks given by the teacher - practical exercises.

Bibliography

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

Additional:
• Mirosława Kopertowska, Witold Sikorski, Przetwarzanie tekstu. Poziom zaawansowany;
• Mirosława Kopertowska, Witold Sikorski, Arkusze kalkulacyjne. Poziom zaawansowany;
• Antoni Diller, LaTeX wiersz po wierszu, Wydawnictwo Helion, 2001.

Breakdown of average student's workload

	Hours	ECTS
Total workload	67	2,00
Classes requiring direct contact with the teacher	60	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	7	0,00