(*faculty stamp*)

Z1-PU7	WYDANIE N1	Strona 1 z 2

COURSE DESCRIPTION

1. Course title: INFORMATION TECHNOLOGIES	**2. Course code**
3. Validity of course description: 2012/2013	
4. Level of studies: BSc programme / MSc programme	
5. Mode of studies: intramural studies / extramural studies	
6. Field of study: **POWER ENGINEERING**	(RIE)
7. Profile of studies: general	
8. Programme: Sustainable energy engineering	
9. Semester: 1,2	
10. Faculty teaching the course: INSTITUTE OF POWER ENGINEERING AND TURBOMACHINERY	
11. Course instructor: Sebastian Rulik, PhD	
12. Course classification: general subjects	
13. Course status: compulsory /elective	
14. Language of instruction: English	
15. Pre-requisite qualifications: Basics of computer science and electronics, mathematics, physics	

16. Course objectives:

The purpose of this course is to prepare students for using selected computer software tools including working with operating system and computer networks, advanced creation of technical documents, the use of spreadsheets and databases, exchange of data and objects between programs of MS Office software, prepare a multimedia presentations.

17. Description of learning outcomes:

Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	Student knows the security policy in the operating system, efficiently uses the operating system tools, knows how to configure the user's environment in order to increase the efficiency	Test	Lecture	K_W04 K_U01 K_U10
2.	Student has general knowledge about MS Office (Word, Excel) or equivalent software and he is able to apply his knowledge in practice.	Test	Laboratory	K_W04 K_U01 K_U10
3.	Student knows numerical methods and procedures, basic aspects of programming and computer calculation capabilities.	Test	Laboratory	K_W04 K_U10
4.	Student is able to obtain information from literature, databases and other dedicated sources, integrating the information and performs their interpretation with conclusions and opinions.	Report	Laboratory	K_U01
5.	Student can communicate using a variety of techniques in the workplace and other environments.	Report	Laboratory	K_U02
6.	Student can use modern computer software to perform the tasks typical for engineering activities in the field of technical drawing and engineering graphics and numerical analysis.	Test	Laboratory	K_U10
7.				
8.				

18. Teaching modes and hours

Lecture 15 / BSc /MSc Seminar / Class / Project / Laboratory 15 Sem. 1

Lecture / BSc /MSc Seminar / Class / Project / Laboratory 15 Sem. 2

19. Syllabus description:

Lecture.

Computer history. Computer structure and principles of operation. Operating Systems. Architecture of computer systems, computer networks - classification, architecture and protocols. Network hardware and software. Managing networks. Basic rules of working in computer networks. Network versions of software. Internet. Hypertext. Resource protection in computer networks. Data encryption. Network Services. Databases and relational databases. Spreadsheet, structure and its design, user interface elements, cells addressing: relative and absolute, cell operations, standard and custom charts, an interactive spreadsheet, import of data and text, data format, built in formulas and functions, symbolic names, functions categories, linear regression, analysis of data, macros. Structure of a text editor, styles, and other tools, Word processor parameters, other text editors, serial correspondence. Vector graphics software, basic software structure, vector graphics specific elements. Raster graphics

(bitmap) software, raster graphics transformations, bitmap layers and palette. Multimedia applications of multimodal systems, sound, sound recording standards, sound cards, digital video, video editing software, streaming media on the Internet, cyberspace and virtual reality, multimedia trends.

Laboratory.
File formats, alphanumeric coding. Working in network, disk shearing, disk operations, keystrokes, file compression. Text Editor: parameters of the program, editing a document on a local disk, insert data from external files, network locations, files of other formats, insert figures and objects.
Text editor basic concepts: a paragraph, paragraph style, character code-formatting, links, indexes, tables, objects, fields, diagnostic mode, etc. Paragraph styles, modifying and creating a new style, updating styles. Text parameters: page layout, headers and footnote, sections of a document, fonts, list styles, hierarchical outlines, tables on content. Printing the document (printer, binary file, pdf). Mathematical equations and formulas. Table database, objects (equations, figures, files of other formats, equation and figures numbering etc.). Using tables for text and sheet formatting. Serial correspondence: database, data import.
Spreadsheet: workbook, sheet, cell address (absolute and relative), the edit box. Cell formatting, data format, import and export data, conditional formatting. Preparing document to print, print preview. Text and numeric data entry. Application of mathematical and logical functions. Spreadsheet as a database: sorting and filtering data, links to another worksheet, importing data from a text file. Integration of spreadsheet and text editor by a serial correspondence. Graphs: types and categories. Data series, labels, chart formatting, entering special characters. Trend line. Linear regression. Built-in array functions supporting determination of the regression equations (REGLINP, REGEXPP). Presentation of the measurement results. Program build-in function. Creation of logical rules using the "IF" and "AND" functions. Information functions: search, address, time and date (ROW, INDEX, TODAY). Search functions "MAX", "MIN". Additional tools: "SEARCH RESULTS" and "SOLVER". Create sheets in interactive mode. Create macros. Application of controls: scroll bar, the command button. Solving equations. Prepare a multimedia presentation.

20. Examination: no

21. Primary sources:

- Walkenbach J.: Excel 2010 Bible, John Wiley & Sons 2010
- Huddleston T, Miller M.: Using Micrsoft Word 2010, Pearson Education Inc. 2011
- Technical documentaion of MS Office 2010

22. Secondary sources:

- Żarowska, W. Węglarz: „ECDL na skróty". PWN, Warszawa, 2009.
- L. Litwin: „ECDL. Europejski Certyfikat Umiejętności Komputerowych. Przewodnik. Tom I i II". Helion, Gliwice, 2009.
- http://www.ecdl.com.pl - serwis poświęcony sprawom ECDL w Polsce

23. Total workload required to achieve learning outcomes

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	15/15
2	Classes	/
3	Laboratory	30/30
4	Project	/
5	BA/ MA Seminar	/
6	Other	/
	Total number of hours	45/45

24. Total hours: 90

25. Number of ECTS credits: 3

26. Number of ECTS credits allocated for contact hours: 2

27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 2

26. Comments:

Approved:

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(date, Instructor's signature)

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(*date , the Director of the Faculty Unit signature)*