FACULTY OF MECHANICAL AND POWER ENGINEERING

SUBJECT CARD

Name of subject in Polish: **Modelowanie biznesowe**
Name of subject in English: **Business Modeling**
Main field of study (if applicable):
Specialization (if applicable):
Profile: **academic**
Level and form of studies: **2nd level, full-time**
Kind of subject: **university-wide**
Subject code: **W08W09-SM0182W**
Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	30				
Number of hours of total student workload (CNPS)	75				
Form of crediting	Crediting with grade				
For group of courses mark final course with (X)					
Number of ECTS points	3				
including number of ECTS points for practical (P) classes					
including number of ECTS points for direct teacher-student contact (BK) classes	1.5				

*delete as applicable

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES
1. Basic knowledge of management concepts.
2. Basic knowledge of business, enterprise, and process structures.
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SUBJECT OBJECTIVES

C1. The main objective of the course is to familiarize the students with the basic terms and concepts of business modelling, experimenting on models, making analysis by models, and implementation of business models in power engineering practice.
C2. The course introduces also students with the concepts, architectures, methods, techniques, and tools for modelling and implementation of models in organisations.
C3. The students are expected to develop skills on simple business models' design.

SUBJECT LEARNING OUTCOMES

relating to knowledge:
PEU_W01 -   Student knows aims, notations, methods and tools for structuring, modelling and analysis of business systems and business processes. Student knows basic approaches for structure and object-oriented modelling in order to analyse organisations and information systems.
PEU_W02 -   Student knows fundamentals of management problems identification and analysis with business information systems and also is able to formulate requirements for such systems. Additionally student develops basic knowledge for systems' implementation projects, especially in BPM area.

relating to skills:

PEU_U01 -   Student is able to use structure and object-oriented methods and techniques for identification and analysis of business problems in order to specify and design structure and information systems for process-oriented management.

relating to social competences:

PEU_K01 -   Student is prepared to initiate changes in organisations and to participate in planning and implementation, particularly as regard process management approaches. Student is able to predict multi-aspect effects of changes being introduced in organisations and is able to think and act in an entrepreneur way.

PROGRAM CONTENT

	Lectures	Number of hours
Lec 1	Course requirements overview. Definition of business, business management, business process management (BPM), business modelling and business process modelling. Origins and evolution of the business modelling approaches. Aims and functions of business models.	2
Lec 2	Business model dimensions. Business model classifications. Business model vs. business strategy. Types, methods and tools of business modelling. Structure, object, function, role, behaviour, goal, communication, and process orientations in modelling.	2
Lec 3	The architectures, frameworks, reference models and standards in organisation modelling. Application of modelling in business, economics and management.	2
Lec 4	Models in business process management (BPM) and business process reengineering (BPR). Case studies. Examples of business modelling in power engineering sector.	2
Lec 5	Idea of process orientation in management. Reasons and aims of process management implementation on organizations. Introduction to BPM modelling. Review of BPM modelling methods, tools and trademarks.	2
Lec 6	The concept of ARIS approach (ARIS House, ARIS HOBE). The 5-element architecture, process life-cycle. ARIS Product family.	2
Lec 7	Structured approach to enterprise business process modelling and analysis. BPM modelling methods and notations and (UML, EPC, BPMN, IDEF). Software examples (ARIS Express, Edraw Max, iGrafx).	2
Lec 8	BPM models' quality assessment. BPM modelling recommendations, guidelines and best practices.	2
Lec 9	Fundamentals of quantitative modelling in business and management. Review of quantitative business modelling approaches. Simulation modelling and Operations Research (OR) methodology in business management. New concepts and approaches in business quantitative modelling.	2
Lec 10	Continuous simulation modelling approaches in business. Computer continuous simulation methods, languages and systems for business modelling. Examples of software and modelling projects (Vensim PLE).	2
Lec 11	Discrete simulation modelling in business. Computer discrete and hybrid simulation methods, languages and systems for business modelling. Examples of software and modelling projects (ARENA).	2

Lec 12	Simulation gaming in business. Computer management games for business education and research. Review of business management games.	2
Lec 13	Operations Research (OR) methodology applied to business decision making optimisation. Selected OR methods and algorithms (forecasting, linear programming, network modelling, inventory control).	2
Lec 14	Design, development and implementation of business models in practice. Implementation models. Business modelling project management.	2
Lec 15	Course summary - practical conclusions. Test.	2
	Total hours	30

TEACHING TOOLS USED

N1. Lecturing with multimedia - computer presentation.
N2. Case studies.
N3. Discussions and comparative study.

EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT

Evaluation (F – forming (during semester), P – concluding (at semester end)	Learning outcomes number	Way of evaluating learning outcomes achievement
P	PEU_W01, PEU_W02, PEU_U01	Final test
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PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Pietroń, R., *Business modelling*, e-material for ME students, PWr., Wrocław 2019.

[2] Pietroń, R., *Process management*, Wrocław Univ. of Technology, PRINTPAP Łódź 2011.

SECONDARY LITERATURE:

[1] Aquilar-Saven R.S.: Business process modelling: Review and framework, *Int. J. of Prod. Econ.*, 90/2004, p. 129-149.

[2] Bitkowska A., *Zarządzanie procesami biznesowymi w przedsiębiorstwie*, VIZJA PRESS & IT, Warszawa.2009 (*in Polish*).

[3] Gołębiowski T., Dudzik T.M., Lewandowska M., Witek-Hajduk M., *Modele biznesu polskich przedsiębiorstw*, Wyd. SGH, Warszawa 2008 (*in Polish*).

[4] Grajewski P., *Organizacja procesowa*, PWE, Warszawa 2007 (*in Polish*).

[5] Kasprzak T., (red.), *Modele referencyjne w zarządzaniu procesami biznesu*, Wyd. Difin, Warszawa 2005 (*in Polish*).

[6] Ko R.K.L., Lee S.S.G., Lee E.W.: Business process management (BPM) standards: a survey, *Business Process Management J.*, vol. 15, no. 5, 2009, pp. 744-791.

[7] Pacholski L., Cempel W., Pawlewski P., *Reengineering. Reformowanie procesów biznesowych i produkcyjnych w przedsiębiorstwie*, Wyd. Polit. Poznań 2009 (*in Polish*).

[8] Scheer A.-W., *ARIS - business process modeling*, Springer-Verlag, Berlin, 2000.

[9] Scheer A.-W., et al. (eds):, *Business process excellence: ARIS in practice*, Springer-Verlag, 2002.

[10] Van der Aalst W., et al. (eds), *Business process management: models, techniques, ...*, Springer, Berlin, 2002.

[11] Weske, M., *Business process management concepts, languages, architectures*. Springer, Berlin 2007.

[12] Selected papers from: professional journals: *Business Process Management Journal*, *Journal of Operations and Production Management*”, *Journal of Quality and Reliability Management*”, *The TQM Magazine*, *Quality Progress*. *Business Process Management Journal, International Journal of Production Economics, International Journal of Advanced Manufacturing Technology, International Journal of Information Systems, Simulation;*
Software tutorials: ARIS Express, iGrafx, Vensim PLE, Arena.

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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*delete if not necessary