SZKOŁA DOKTORSKA POLITECHNIKI WROCŁAWSKIEJ

SUPERVISOR DECLARING/CONDUCTING COURSE: Ada Kwiatkowska
DEPARTMENT: The Faculty of Architecture
SCIENTIFIC DISCIPLINE: Architect and Urban Planning

SUBJECT CARD

Course name in Polish: e-Architektura: Strategie gier w projektowaniu architektonicznym
Course name in English: e-Architecture: The Game Strategies in Architectural Design
Course language: Polish / English*
University-wide general course type*:
The course is intended for all PhD students: YES / NO
~~**1) BASIC COURSE**~~
2) SPECIALIST COURSE
~~**3) SEMINAR**~~
~~**4) HUMANISTIC COURSE**~~
~~**5) LANGUAGE**~~

Subject code: AUQ100089W

*delete as applicable

	Lecture		Seminar	
Number of hours of organized classes in University (ZZU)	30	-	-	-
Form of crediting	Exam	-	-	-
Number of ECTS points	0	-	-	-

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES
1. KNOWLEDGE:
The knowledge of the problems of theory of: architectural ideas, information, aesthetics of inter-media.
2. SKILLS:
The skills of the expression of architectural ideas by using of different graphic tools and digital technologies.
3. OTHER COMPETENCES:
The theoretical theses of doctoral dissertation should relate to the subject of the research project of e-ArchiLab. Candidate is capable to communicate in fluent English.
Candidate is open-minded and creative. Candidate is characterized by an active personal manner of actualizing and updating of the knowledge in fields of architecture, art and science.

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SUBJECT OBJECTIVES
C1 - Defining of the influence of new digital technologies on the future directions of development of the architectural ideas
C2 - Working out of the experimental research project, relating to the concept of architectural form in augmented reality (the electronic ecosystem)
C3- Study of the advanced game strategies and simulation techniques of transformations of architectural forms in the cyber-space
C4- Study of the criteria and procedures of the verification of research hypotheses
C5- Development of the creative, scientific and professional skills of candidate in the range of architectural research

PROGRAM CONTENTS

Form of classes – lecture		Number of hours
Lec 1	A man and architectural form in the information age	1
Lec 2	Digital architecture in the heuristic approach	1
Lec 3	Cyber-space: strategies and research methods in the architectural laboratory of e-ArchiLab	1
Lec 4	Simulation games as the research methods	1
Lec 5	Scenarios of the simulation games	1
Lec 6	Sensory representation of the architectural form in the digital space	1
Lec 7	Material simulations of the spatial structures (biomimetic, intelligent, nano-materials)	1
Lec 8	Spatial simulations of the architectural forms (permutations, combinations, variations, transformations)	1
Lec 9	Time-simulations of the spatial structures (animations, film narrations)	1
Lec10	Energy-simulations of the spatial structures (the optimization, effectiveness, minimization of energy-wastage)	1
Lec11	Info-simulations of the spatial structures (coding, interactive and adaptive procedures)	1
Lec12	Fabrication of the experimental architectural form	1
Lec13	Criteria of verification of the experimental research project in augmented reality	1
Lec14	Verification of the research theses: the optimization, rationalization, complexity, readability, interactivity	1
Lec15	Architectural form in the interactive space	1
	Total hours	**15**

Form of classes – seminar		number of hours
Sem 1	Hybrid: a man with electronic extensions	1
Sem 2	The architectural space and augmented reality	1
Sem 3	e-ArchiLab: Experimental research study in augmented reality	1
Sem 4	e-ArchiLab: Formation, in-formation, information	1
Sem 5	e-ArchiLab: Elements and principles of the simulation games (players, scenarios, play-areas, interactive space, controllers, mods)	1
Sem 6	e-ArchiLab: Strategies of the simulation games and architectural forms	1
Sem 7	e-ArchiLab: Representations of the architectural form in digital space	1
Sem 8	e-ArchiLab: Material simulations of the spatial structures	1
Sem 9	e-ArchiLab: Spatial simulations of the architectural forms	1
Sem10	e-ArchiLab: Time-simulations of the spatial structures	1
Sem11	e-ArchiLab: Energy-simulations of the spatial structures	1
Sem12	e-ArchiLab: Info-simulations of the spatial structures	1
Sem13	e-ArchiLab: Prototype of the experimental architectural form	1
Sem14	e-ArchiLab: Verification of the research thesis: the optimization of prototype of the experimental form	1
Sem15	e-ArchiLab: Test of prototype of the experimental form in augmented reality	1
	Total hours	**15**

TEACHING TOOLS USED
N1. lecture: information, problems, theories; multimedia, audio-visual presentations etc. N2. seminar: multimedia, audio-visual presentations, discussions, debates, case study etc.

EVALUATION OF ACHIEVED SUBJECT EDUCATIONAL EFFECTS		
Educational effects	Educational effects' code	Way of evaluating achievement of educational effects
Knowledge	P8U_W	Evaluation of the analytic approach to theoretical problems
Knowledge	P8S_WG	Evaluation of the critical-interpretative analysis of theoretical problems
Skills	P8U_U	Evaluation of the innovativeness of the experimental research project
Skills	P8S_UW	Evaluation of the structural-formal attractiveness of the experimental research project
Social competences	P8U_K	Evaluation of the independent way of thinking
Social competences	P8S_KK	Evaluation of the application of knowledge to the practice

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Alleva de, Anne, *Metody i teorie historii sztuki* (*Methods and Theories of Art History*), Kraków: Universitas, 2008.

[2] Brayer, Marie-Ange, Migayrou, Frédéric (ed.), *ArchiLab: Radical Experiments in Global Architecture*, Orléans: Thames & Hudson, 2001

[3] Burry, Jane, Burry, Mark, *The New Mathematics of Architecture*, New York: Thames & Hudson, 2010.

[4] Curran, Ste, *Game Plan: Great Designs that Changed the Face of Computer Gaming*, Mies: RotoVision SA, 2004.

[5] Dollens, Dennis, *Digital-Botanic Architecture: D-B-A*, Santa Fe, New York, Barcelona: Lumen Books, 2005

[6] Dunn, Nick, *Digital Fabrication in Architecture*, London: Laurence King Publishing Ltd., 2012.

[7] Ferré, Albert, Kubo, Michael, Prat, Ramon i in. (red.), *Verb Matters: A Survey of Current Formal and Material Possibilities in the Context of Information Age*, Architecture Boogazine, Barcelona: Actar, 2004.

[8] Gleick, James, *Informacja: bit, wszechświat, rewolucja* (*The Information: A History, A Theory, A Flood*), Kraków: Wyd. Znak, 2012.

[9] Kolarevic, Branko, Klinger, Kevin (eds.), *Manufacturing Material Effects: Rethinking Design and Making in Architecture*, New York, London: Routledge, 2008.

[10] Liu, Yu-Tung (ed.), *Distinguishing Digital Architecture: 6th Far Eastern International Digital Architectural Design Award*, Basel, Boston, Berlin: Birkhäuser, 2007.

[11] Sakamoto, Tomoko, Ferre, Albert, Kubo, Michael (eds.), *From Control to Design: Parametric/Algorithmic Architecture*, Barcelona: Actar, 2008.

[12] Spiller, Neil (ed.), *Cyber_Reader: Critical Writings for the Digital Era*. London: Phaidon, 2002.

[13] Spiller, Neil, *Digital Architecture Now: A Global Survey of Emerging Talent*, London: Thames & Hudson Ltd., 2008.

[14] Woodbury, Robert, *Elements of Parametric Design*, London, New York: Routledge, 2010.

[15] Woolman, Matt, *Motion Design: Graphics for Television, Music Video, Cinema and Digital*

Interfaces, Singapore: RotoVision SA, 2004.

SECONDARY LITERATURE:

[1] Alison, Jane, Brayer, Marie-Ange, Migayrou, Frédéric, Spiller, Neil, *Future City: Experiment and Utopia in Architecture*, London: Thames & Hudson, 2006.
[2] Brayer, Marie-Ange, Simonot, Béatrice (red.), *ArchiLab's Future House: Radical Experiments in Living Space*, Orléans: Thames & Hudson, 2002.
[3] Brayer, Marie-Ange, Simonot, Béatrice (ed.), *ArchiLab's Earth Buildings: Radical Experiments in Land Architecture*, Orléans: Thames & Hudson, 2003.
[4] Brockman John (ed.), *Nowy Renesans: Granice nauki* (*The New Humanists: Science at the Edge*), Warszawa: Wyd. CiS, 2005.
[5] Dollens, Dennis, *The Pangolin's Guide to Biomimetics & Digital Architecture,* Santa Fe, New York, Barcelona: SITES Books, 2006.
[6] Frazer John, 1995. *An Evolutionary Architecture*, London: Architectural Association.
[7] Lieser, Wolf, *The World of Digital Art*, Berlin: Tandem Verlag GmbH, 2010.
[8] Kwiatkowska, Ada, Simulation games with the architectural forms, [in:] *Architecture, engineering and construction of built environments*, Yew-Thong Leong, George E.Lasker (eds.) Tecumseh, Ont.: The International Institute for Advanced Studies in Systems Research and Cybernetics, 2007. pp. 4-9.
[9] Kwiatkowska, Ada, Architectural metamorphoses or how to order the information emptiness? [in:] *Theory for the sake of the theory 2 : ARCHTHEO '11*, Efe Duyan (ed.). Istambul: DAKAM Publishing, 2011. pp. 247-255.
[10] Novak, Marcos, Transmitting Architecture; *Architectural Design*; no. 118, pp. 43-47, 1995.
[11] Reiser + Umemoto, *Atlas of Novel Tectonics*, New York: Princeton Architectural Press, 2006.
[12] Spiller, Neil, *Visionary Architecture: Blueprints of the Modern Imagination*. London: Thames & Hudson, 2006.
[13] Terzidis, Kostas, *Algorithmic Architecture*, Boston, London, New York: Architectural Press/Elsevier, 2006.
[14] Teyssot, Georges, Hybrid Architecture: An Environment for the Prosthetic Body; *Convergence*, vol. 11, no. 4, pp.72-84, 2005.
[15] Zellner, Peter, *Hybrid Space: New Forms in Digital Architecture*; London, Thames and Hudson 1999.

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

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