FACULTY **W8** / DEPARTMENT………………

SUBJECT CARD

Name in Polish Systemy mobilne i multimedialne
Name in English Mobile and Multimedia Systems
Main field of study (if applicable): IT
Specialization (if applicable): Computer Engineering
Level and form of studies: ~~1st~~/ 2nd* level, full-time / part-time*
Kind of subject: obligatory / ~~optional~~ / ~~university-wide~~*
Subject code INZ000137Wl
Group of courses YES / ~~NO~~*

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	15		45		
Number of hours of total student workload (CNPS)	45		135		
Form of crediting	~~Examination~~ / crediting with grade*	Examination / crediting with grade*	~~Examination~~ / crediting with grade*	Examination / crediting with grade*	Examination / crediting with grade*
For group of courses mark (X) final course					
Number of ECTS points	2		4		
including number of ECTS points for practical (P) classes			4		
including number of ECTS points for direct teacher-student contact (BK) classes	1,2		2,4		

*delete as applicable

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES
1. Knowledge of object-oriented programming.
2. Basic knowledge of computer application interface design.
3. Elementary knowledge of graphics programs.
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SUBJECT OBJECTIVES
C1 Presentation of the basic knowledge of the design of mobile multimedia applications.
C2 Teaching mobile application development in Android and Adobe Flash.
C3 Learning how to analyze user requirements of mobile applications.

SUBJECT EDUCATIONAL EFFECTS	

SUBJECT EDUCATIONAL EFFECTS

relating to knowledge:

PEK_W01 Know and understand the specifics of mobile multimedia applications.

PEK_W02 Has knowledge in an area of the design and development of mobile multimedia applications.

relating to skills:

PEK_U01 Able to define a set of potential functional requirements of mobile multimedia applications and, based on this set, can design a mobile multimedia application.

PEK_U02 He can program the mobile multimedia application.

relating to social competences:

PEK_K01 Able to work with a potential user of a mobile multimedia application in order to define a set of functional requirements.

PEK_K02 He can take into account in the design of mobile interface mobile application specific requirements of the intended user.

PROGRAMME CONTENT

Form of classes - lecture	Number of hours
Lec 1 Presentation and discussion of the lecture plan. Discussion of recommended literature. Discussion of laboratory tasks. Discussion of the Android SDK. Presentation of Adobe Flash programming environment.	1
Lec 2 Overview multimedia mobile applications available on the Android platform. Presentation Android. Discussion of the principles of the preparation of the development environment and applications running under the emulator and on your mobile device. Discussion of the Android application structure and the rules defining an application using the manifest file. Discussion of the application resources, and rules for working with resources.	2
Lec 3 Presentation of the basic principles of user interface design application for Android. Discussion of the visual elements of the user interface. Discussion of the principles of designing a user interface layouts - characteristics of embedded layouts.	2
Lec 4 Discussion of the rules on the use of location-based services available on Android. Presentation and discussion of the application code implements a location service.	2
Lec 5 Presentation of the principles of design and multimedia applications run in Adobe Flash. Programming mechanisms of interaction. Grammar describes the basics of ActionScript 3.0. Presentation and discussion of selected examples of programs in ActionScript 3.0.	2
Lec6 Presentation and discussion of program code in AS 3.0, dedicated mobile platforms. Discussion of the principles of designing mechanisms for navigation of mobile multimedia content applications.	2
Lec7 Describes the basics of computer animation. Discussion of the animation in the timeline and animation implemented in AS 3.0. Presentation of the arrangements for using the motion editor panel (Motion Editor). Explanation idea of inverse kinematics and transformations. Discussion of methods of drawing and animation available on Android. Discussion of the principles of media on Android. Presentation of the principles of 3D graphics using OpenGL ES.	2

Lec8	Review and comparative analysis of possibilities to create new multimedia mobile applications in the Android SDK and the environment in Adobe Flash. Development prospects of mobile technology. Summary of the lecture.	2
	Total hours	15

Form of classes - class		Number of hours
Cl 1		
Cl 2		
Cl 3		
Cl 4		
..		
	Total hours	

Form of classes - laboratory		Number of hours
Lab 1	Presentation of the principles of operation of the laboratory and the principles of assessment. Basic configuration of the environment in the Android SDK Eclipse. Running the test application in emulation mode. Launching test application on a mobile device.	3
Lab 2	Implementation of standard models of user interfaces on Android - design and construction of the user interface with layouts.	3
Lab 3	The implementation of complex mechanisms of interaction in the Android environment.	3
Lab 4	Design and programming a mobile application that uses location-based services available on Android.	3
Lab 5 Lab 6	Practical introduction to Adobe Flash. Principles of creating applications on the timeline and ActionScript 3.0. Practical basics of AS 3.0. Running and editing programs implemented in AS 3.0 in Adobe Flash. Launching a mobile application constructed in Adobe Flash in emulation mode. Launching a mobile application constructed in Adobe Flash on a mobile device.	6
Lab7	Implementation of standard models of user interfaces in Adobe Flash ActionScript 3.0.	3
Lab8	The implementation of complex mechanisms navigation mobile application in Adobe Flash ActionScript 3.0.	3
Lab9	The design of multimedia applications using video files and audio files in Adobe Flash ActionScript 3.0. Testing applications on a mobile device.	3
Lab10	Media Management. MediaStore class. Construction applications managing video files, image files, audio files, and well ordered. The implementation of multimedia applications using video files and audio files in an Android environment. Testing applications on a mobile device.	3
Lab11	Multimedia support - registration of images, video and sound. Design programs that use the resources generated by the multimedia device operating on Android. Testing applications on a mobile device.	3
Lab12	Fundamentals of computer animation in Adobe Flash. Animation on the timeline and animation done in AS 3.0. How to use the motion editor panel (Motion Editor). Design programs using interactive animation. Testing applications on a mobile device.	3
Lab13	Methods for drawing and animation available on Android. Using Android 3d Graphics with OpenGL ES. Design programs that use animation on Android. Testing applications on a mobile device.	3

Lab14 Lab15	Design, implementation, running and testing of mobile multimedia applications on Android or in the Adobe Flash. Summary laboratory. Credit lab.	
	Total hours	45

Form of classes - project		Number of hours
Proj 1		
Proj 2		
Proj 3		
Proj 4		
…		
	Total hours	

Form of classes - seminar		Number of hours
Sem 1		
Sem 2		
Sem 3		
…		
	Total hours	

TEACHING TOOLS USED

N1. Lectures in the form of multimedia presentations.

N2. Introduction to laboratory prepared in the form of a multimedia presentation that contains the specification of the tasks and detailed, documented and contain comments sections of code, useful for the task. Materials sent by e-mail.

N3. Collections of web addresses and articles in electronic form, which are an additional source of teaching material, contextually related laboratory tasks. Materials sent by e-mail.

N4. Individual consultations.

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation (F – forming (during semester), P – concluding (at semester end)	Educational effect number	Way of evaluating educational effect achievement
F1	PEK_W01 PEK_W02 PEK_U01 PEK_U02	During the laboratory classes, students solve 9 laboratory tasks in accordance with the specification. For each correctly solved problem is worth 0, 1 or 2 points.
F2	PEK_W01 PEK_W02 PEK_U01	The summary of the laboratory is to design, programming and running on a mobile device multimedia application in accordance with the specification 10 laboratory task. The task 10 may be obtained 0, 1, 2, 3 or 4 points.

	PEK_U02 PEK_K01 PEK_K02	

C The final evaluation of the laboratory is determined by the points P obtained during the laboratory according to the table. Assessment 5.0 and 5.5 can be obtained only under the condition that solves the task 10:

P	10-11	12-13	14-15	16-17	18-20	21-22
Grade	3,0	3,5	4,0	4,5	5,0	5,5

The final evaluation of the lecture is determined based on a paper written about the programming of mobile multimedia systems.

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Charlie Collins, Michael Galpin, Matthias Kaeppler, Android in Practice, Manning Publications Co, 2012.
[2] Ian F. Darwin, Android. Android Cookbook, O'Reilly, 2012.
[3] Frank Ableson, Robi Sen, Android in Action. Second edition, Manning Publications Co, 2011.
[4] Shane Condor, Lauren Darcey, Android Wireless Application Development(2nd Edition), Addison-Wesley, 2011.
[5] Jeff Friesen, Learn Java for Android Development, Appres, 2010.
[6] Derrick Ypenburg, ActionScript 3.0: Visual QuickStart Guide, Peachpit Press, 2009.
[7] Adobe Creative Team, Adobe Flash Professional CS6 Classroom in a Book, Adobe System Incorporeted, 2012.
[8] Stephen Chin, Dean Iverson, Oswald Campesato, Paul Trani, Pro Android Flash, Appres, 2011.

SECONDARY LITERATURE:

[1] Lyza Danger Gardner, Jason Grisby, Head First Mobile,O'Reilly, 2012.
[2] Jeremy Kerfs, Beginning Android Tablet Games Programming, Appres, 2011.
[3] Julian Dolce, Android Development with Flash, Wiley Publishing Inc, 2010.
[4] Juhani Lehtimaki, Smashing Android UI, John Wiley & Sons, 2013.
[5] Jason Ostrander, Android UI Fundamentals. Develop and Design, Peachpit Press, 2012.

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

Doc. dr inż. Krzysztof Waśko, krzysztof.wasko@pwr.wroc.pl

MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT
Mobile and Multimedia Systems
AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY
…………………………..
AND SPECIALIZATION …………………………..

Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)**	Subject objectives***	Programme content***	Teaching tool number***
PEK_W01 (knowledge)	K2INF_W06_S2ITM_W03 K2INF_W06_S2ITM_W04	C1, C2, C3	Lec1-Lec8	N1, N2, N3, N4
PEK_W02	K2INF_W06_S2ITM_W03 K2INF_W06_S2ITM_W04	C1, C2, C3	Lec1-Lec8	N1, N2, N3, N4
PEK_U01 (skills)	K2INF_U08_S2ITM_U09 K2INF_U08_S2ITM_U10	C1, C2, C3	Lab1-Lab15	N1, N2, N3, N4
PEK_U02	K2INF_U08_S2ITM_U09 K2INF_U08_S2ITM_U10	C1, C2, C3	Lab1-Lab15	N1, N2, N3, N4
PEK_K01 (competences)		C1, C2, C3	Lec1-Lec8 Lab1-Lab15	N1, N2, N3, N4
PEK_K02		C1, C2, C3	Lec1-Lec8 Lab1-Lab15	N1, N2, N3, N4

** - enter symbols for main-field-of-study/specialization educational effects

*** - from table above