

S3	Students is able to use numerical methods and simulation for the formulation and solving simple problems of engineering and research.	CAE_U13	T2A_U09
SOCIAL COMPETENCES			
SC1	Student understands the need for learning throughout life.	CAE_K01	T2A_K01

2. TEACHING METHODS

multimedia lecture, laboratory classes

2. METHODS OF EXAMINATION

written exam on content of lectures, laboratory reports

3. COURSE CONTENT

Specify the content separately for each type of classes in accordance with point I.B.	Lectures: learning basic terminology and definitions, learning about colour spaces, 2D and 3D basics and differences, basics of image processing, basic graphical file types, graphical editing programs. Laboratory: introduction to Scilab and Matlab, image processing using Scilab.
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4. VALIDATION OF LEARNING OUTCOMES

(Each learning outcome from the list requires validation methods to ensure that it was achieved by a student.)

Learning outcome	Form of assessment (for example:)					
	Oral examination	Written examination	Colloquium	Project	Report	Test
K1		X				
K2		X				
S1					X	
S2		X			X	
S3					X	
SC1					X	

5. LITERATURE

Basic literature	Shirley, P., Ashikhmin, M. & Marschner, S., 2009, Fundamentals of Computer Graphics, 3rd Revised edition, A K Peters Gomez, C., 1999, Engineering and Scientific Computing with Scilab, Birkhäuser
Supplementary literature	Lengyel, E., 2011, Mathematics for 3D Game Programming and Computer Graphics, Third Edition, Course Technology PTR

6. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity	Student workload– number of hours
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Załącznik nr 3 do wytycznych dla rad podstawowych jednostek organizacyjnych do tworzenia nowych i weryfikacji istniejących programów studiów I i II stopnia w UTP w Bydgoszczy

Participation in classes indicated in point 2.2	30
Preparation for classes	20
Reading assignments	15
Other (preparation for exams, tests, carrying out a project etc)	20
Total student workload	85
Number of ECTS credits allocated by the lecturer	3
Final number of ECTS credits (determined by the Programme Council for the Field of Study)	3