Program	Level		Second cycle		
	Name of the program		Theoretical Computer Science		

COURSE

Course title	**Interactive Computer Graphics**				
Course code	Semester	Course status		ECTS	Contact hours (L+AE+LE)
CS 547	III	Elective course		7	3+0+2
Lecturer					

Course Goals	The course aims to familiarise students with the tools used to develop interactive 3D computer graphics applications. Students will be presented with the limitations imposed by interactivity and various solutions that overcome such limits. Upon completion of the course, students will be able to use the graphics library to implement interactive 3D applications such as video games, simulations or visualisations.
Learning Outcomes	After completing the module, students will be able to: • understand shading, colour interpolation, and edge reduction • implement the calculation of scene lighting and shading • set up a virtual camera and animate it • apply textures • implement shadows • create and render an animated scene • control the animation with curves • perform simulations

COURSE CONTENT

- Rasterisation
- Lighting
- Shading
- Texture mapping
- Graphics hardware
- Plot optimisation
- Animation using keyframes and interpolations
- Simulations
- Character animation

LITERATURE

1. E. Angel, D. Shreiner: *"Interactive Computer Graphics: A Top-Down Approach with WebGL"*, 7th Edition, 2014.
2. T. Akenine-Moller, E. Haines, N. Hoffman: *"Real-Time Rendering"*, 3rd Edition, 2008.
3. K. Matsuda, R. Lea: *"WebGL Programming Guide"*, 1st Edition, 2013.
4. S. Guha: *"Computer Graphics Through OpenGL"*, 2nd Edition, 2015.
5. J. Hughes, A. van Dan, M. McGuire, D. F. Sklar.: *"Computer Graphics: Principles and Practice"*, 3rd Edition, 2013.

STUDENT WORKLOAD (hours in a semester)

Lectures	45	Tutorial	30	Individual work	100	T o t a l	175

GRADING			REMARKS	
Criterion	Maximum points	Minimum points		
Midterm exams	30			
Laboratory assignments	30			
Final exam	40			
T o t a l	100	55		