



COURSE SPECIFICATION			
<b>NAME OF COURSE:</b> Modeling and animation 2		<b>COURSE CODE:</b>	
<b>STATUS:</b> (main,optional, Free Choice) main	<b>LEVEL:</b> (F,A,P,1,2,3,M) M	<b>UNIT VALUE:</b> 7 ECTS	<b>TERMS TAUGHT:</b> 1 <sup>st</sup> term
<b>Department offering course:</b> Computer Science	<b>Course Co-ordinator:</b> Selma Rizvic Aida Sadzak	<b>Date of course commencement:</b> September 2008.	
<b>Degree Programmes in which to be offered:</b> Computer Graphics for the Media Industry			
<b>Pre-requisites:</b> Entry requirement	<b>Indicate whether a new course or name of course being replaced:</b> new	<b>Total Contact Hours:</b> 40 Lectures: 10 Tutorials: 10 Lab Sessions: 20	
<b>AIMS OF THE COURSE:</b> This course aims to develop skills in animating 3D models through basic animation, character animation, facial and cloth animation, dynamic simulation and liquid animation. Students will learn advanced animating skills using the Maya software system, Maya Cloth and Real Flow.			

INTENDED LEARNING OUTCOMES
1. Fundamental understanding of basic animation principles
2. Design and creation of character animation
3. Design and create facial and cloth animation
4. Design and create dynamic simulation
5. Design and create liquid animation



LEARNING AND TEACHING STRATEGIES TO BE USED:
1. lectures + tutorial on making a solar system
2. lectures + tutorial on character animation
3. lectures + tutorial on facial animation and cloth simulation
4. lectures + tutorial on rigid body simulation
5. lectures + tutorial on fluid dynamics in Realflo



ASSESSMENT CRITERIA (SHOULD LINK EXPLICITLY TO INTENDED LEARNING OUTCOMES):	
1. lab. project	20%
2. lab. project	20%
3. lab. project	20%
4. lab. project	20%
5. lab. project	20%

TRANSFERABLE SKILLS AND OTHER ATTRIBUTES
1. Basic and advanced animation skills in Maya software
2. Character animation in the high level tool (Poser)



LEARNING AND TEACHING STRATEGIES USED:
1. Lectures and supervised lab sessions
2. Self-learning with assisted lab sessions



ASSESSMENT CRITERIA (SHOULD LINK EXPLICITLY TO INTENDED LEARNING OUTCOMES):	
1. lab. projects	
2. lab. projects	

**COURSE OUTLINE/SYLLABUS:**

- Basic concepts of animation – types of animation, principles of animation, storytelling, storyboarding, character development, animation file formats
- Basic computer animation techniques – principles of keyframe interpolation, model animation, camera animation, light animation, hierarchical animation, two and three-dimensional integration
- Advanced computer animation techniques – inverse kinematix, performance animation and motion capture, motion dynamics, procedural animation, facial animation, crowd animation, location based and interactive environment
- Cloth animation - Maya Cloth
- Dynamic simulation – rigid body simulation: bodies in free fall, bodies in contact; enforcing soft and hard constraints: flexible objects, virtual springs, energy minimization, space-time constraints
- Animating liquids – water: still waters and small-amplitude waves, the anatomy of waves, modeling ocean waves, finding its way downhill; Gaseus phenomena: general approach to modeling gas, computational fluid dynamics, clouds, fire

**KEY TEXTS AND/OR OTHER LEARNING MATERIALS:**

Isaac Victor Kerlow “The Art of 3-D Computer Animation and Effects”, Third Edition, John Wiley and Sons, 2004.

Rick Parent “Computer Animation, Second Edition: Algorithms and Techniques”, Morgan Kaufmann Publishers, 2001.