

Module MA-INF 2310	Advanced Topics in Computer Graphics II				
Workload 270 h	Credit points 9 CP	Duration 1 semester	Frequency every year		
Module coordinator	Prof. Dr. Reinhard Klein				
Lecturer(s)					
Classification	Programme M. Sc. Computer Science	Mode Optional	Semester 3.		
Technical skills	<p>On completion students should be able to</p> <ul style="list-style-type: none"><li>• apply methods of geometry and digital appearance processing to real world problems and design and implement novel application software in these areas</li><li>• apply methods of shape segmentation and shape similarity to novel problems</li><li>• design novel shape retrieval applications</li><li>• apply basic concepts of statistical shape analysis and shape spaces to real world applications</li><li>• apply geometric and radiometric calibration algorithms to camera based acquisition systems</li><li>• select and apply light source and optical material models for computer graphics applications</li></ul> <p>incorporate basic image based algorithms into rendering applications</p> <ul style="list-style-type: none"><li>• and should have acquired soft skills like analytical problem description, creativity, self-dependent solution of practical problems, presentation of solution strategies and implementations, self-dependent literature research, collaboration abilities, self-management.</li></ul>				
Soft skills					
Contents	<p>Topics among others will be:</p> <p>This class is focussed on advanced topics in the field of geometry and digital appearance processing. Students will get familiar with recent developments in the area of shape analysis, shape retrieval, material acquisition and modeling techniques. Topics among others will be</p> <ul style="list-style-type: none"><li>• Parameterization of surfaces</li><li>• Shape segmentation and shape similarity</li><li>• Shape classification and content based retrieval</li><li>• Shape spaces and statistical shape analysis</li><li>• Optical material acquisition and modelling techniques</li><li>• Algorithms and techniques of image based rendering</li><li>• Digital photography for image based scene modelling and rendering</li><li>• Basic computational photography</li></ul>				
Prerequisites	none				
Format	Teaching format	Group size	h/week	Workload[h]	CP
	Lecture	60	4	60 T / 105 S	5.5
	Exercises	30	2	30 T / 75 S	3.5
	T = face-to-face teaching; S = independent study				
Exam achievements	Oral exam (graded)				
Study achievements	Successful exercise participation (not graded)				
Forms of media					
Literature					