


Course Outline	
DSGN6151 Modelling & Shading Lighting Rendering II (4)	
Effective Date 01 September 2016	Study Program Visual Communication Design Revision 1

1. Course Description

Modeling & Shading Lighting Rendering (SLR) I course includes topology knowledge of 3D modeling, material shading, lighting techniques, and rendering. Modeling SLR I is important for creating shapes in 3D workspace, and presenting them for production purposes.

2. Graduate Competency

Each course in the study program contributes to the graduate competencies that are divided into employability and entrepreneurial skills and study program specific outcomes, in which students need to have demonstrated by the time they complete their course.

BINUS University employability and entrepreneurial skills consist of planning and organizing, problem solving and decision making, self management, team work, communication, and initiative and enterprise.

2.1. Employability and Entrepreneurial Skills

Aspect	Key Behaviour

2.2. Study Program Specific Outcomes

Study Program Specific Outcomes
(SO-1 AN) - Able to conduct research and explore ideas based on goals and objectives in animation creation to define concept of animation work by considering visual aspects, aesthetics, communication, ethics, and intercultural (cross-culture).
(SO-3 AN) - Able to analyze the efficiency level of resource utilization, engineering, technology, and time in the process of creation without changing the essence and aesthetic design.
(SO-4 AN) - Able to criticize and appreciate animation with ethical aspects, historical, cultural, personal, critical, aesthetic, and value added.
(SO-7 AN) - Able to design business models based copyright (intellectual property) in applied design and animation production.

3. Topics

- Hard Surface Modeling
- Hard Surface Topology
- Pipeline Integration
- Approaching Hard surface using Digital Sculpting
- Approaching Hard surface using Digital Sculpting Practice - 3D Illustration (Character & Environment)
- Gesture, form and proportion
- Approaching Hard surface in character, Environment & Props design
- Approaching shader material, creating texture with polypaint
- Advance Material & Shader
- Lighting application
- Advance lighting
- Advanced Rendering
- Presenting 3D Character

4. Learning Outcomes

On successful completion of this course, student will be able to:

- LO 1: Create a replica of a real hard-surface object in 3D computer generated imagery.
- LO 2: Utilize material editor to produce a realistic shader
- LO 3: Apply lighting theory to create a realistic lighting setup
- LO 4: Create a realistic rendering based on combination of shape, material, and lighting setup

5. Teaching And Learning Strategies

In this course, the lecturers might deploy several teaching learning strategies, including and Demonstrate application of rules/laws/theories thr.

6. Textbooks and Other Resources**6.1 Textbooks**

1. Kelly L. Murdock. (2010). *3ds max 2011 bible*. 01. Wiley. Indianapolis. ISBN: 9780470617779.

The book in the first list is a must to have for each student.

6.2 Other Resources

1. [http://lmscontent.binus.ac.id/digitalcontent/Animasi menggunakan parameter modifier.rar](http://lmscontent.binus.ac.id/digitalcontent/Animasi%20menggunakan%20parameter%20modifier.rar)
2. <https://www.youtube.com/watch?v=E98OEK3QBgU>

7. Schedule

Theory			
Session/ Mode	Related LO	Topics	References
1 F2F	LO 1	Hard Surface Modeling - Preparing the workspace - Image references	- hard surface modelling - 3ds max 2011 bible, bab ? page ? - Digital Content - Animasi menggunakan parameter modifier, http://lmscontent.binus.ac.id/digitalcontent/Animasi menggunakan parameter modifier.rar - Base mesh untuk basic 3D modelling, https://www.youtube.com/watch?v=E98OEK3QBgU
2 F2F	LO 1	Hard Surface Modeling - Preparing the workspace - Image references	- hard surface modelling - 3ds max 2011 bible, bab ? page ? - Digital Content - Animasi menggunakan parameter modifier, http://lmscontent.binus.ac.id/digitalcontent/Animasi menggunakan parameter modifier.rar - Base mesh untuk basic 3D modelling, https://www.youtube.com/watch?v=E98OEK3QBgU
3 F2F	LO 1	Hard Surface Topology - Ideal topology for hard surface - Topology Examples	- Hard Surface Topology - Hard Surface Topology

4 F2F	LO 1	Hard Surface Topology - Ideal topology for hard surface - Topology Examples	- Hard Surface Topology - Hard Surface Topology
5 F2F	LO 4	Pipeline Integration - GoZ - Using external rendering for previewing end result - Using Goz for detailing 3D charactersculpting	- Pipeline Integration - Chapter 10
6 F2F	LO 4	Pipeline Integration - GoZ - Using external rendering for previewing end result - Using Goz for detailing 3D charactersculpting	- Pipeline Integration - Chapter 10
7 F2F	LO 1	Approaching Hard surface using Digital Sculpting - Polygonal Modeling Methods & 3d digital sculpting - Polymesh introduction	- Approaching Hard surface using Digital Sculpting - 3ds max 2011 bible,
8 F2F	LO 1	Approaching Hard surface using Digital Sculpting - Polygonal Modeling Methods & 3d digital sculpting - Polymesh introduction	- Approaching Hard surface using Digital Sculpting - 3ds max 2011 bible,
9 F2F	LO 1	Approaching Hard surface using Digital Sculpting Practice - 3D Illustration (Character & Environment) - Creating character head with dynamesh - Creating character figure using Zsphere	- Approaching Hard surface using Digital Sculpting Practice - 3D Illustration (Character & Environment) - 3ds max 2011 bible,
10 F2F	LO 1	Approaching Hard surface using Digital Sculpting Practice - 3D Illustration (Character & Environment) - Creating character head with dynamesh - Creating character figure using Zsphere	- Approaching Hard surface using Digital Sculpting Practice - 3D Illustration (Character & Environment) - 3ds max 2011 bible,
11 F2F	LO 1	Gesture, form and proportion - Learning gesture to represent dynamic curve of figure. - Learning basic form to refers characteristic of object. - Practicing the right proportion of a figure.	- Gesture, form and proportion - Gesture, form and proportion
12 F2F	LO 1	Gesture, form and proportion - Learning gesture to represent dynamic curve of figure. - Learning basic form to refers characteristic of object. - Practicing the right proportion of a figure.	- Gesture, form and proportion - Gesture, form and proportion
13 F2F	LO 1	Approaching Hard surface in character, Environment & Props design - Character, environment & props practice - Hard Surface topology	- Approaching Hard surface in character, Environment & Props design - PPT
14 F2F	LO 1	Approaching Hard surface in character, Environment & Props design - Character, environment & props practice - Hard Surface topology	- Approaching Hard surface in character, Environment & Props design - PPT
15 GSLC	LO 2	Approaching shader material, creating texture with polypaint - Shaders material - Use polypaint to create painting model	- Approaching shader material, creating texture with polypaint - Approaching shader material, creating texture with polypaint
16 GSLC	LO 2	Approaching shader material, creating texture with polypaint - Shaders material	- Approaching shader material, creating texture with polypaint

		- Use polypaint to create painting model	- Approaching shader material, creating texture with polypaint
17 F2F	LO 2	Advance Material & Shader - Vray Materials - Organic shaders material approach - Subsurface Scattering - VraySkinMtl	- Advance Material & Shader - PPT
18 F2F	LO 2	Advance Material & Shader - Vray Materials - Organic shaders material approach - Subsurface Scattering - VraySkinMtl	- Advance Material & Shader - PPT
19 F2F	LO 3	Lighting application - Global illumination, local illumination, image base lighting. - Shadow	- Lighting application - Lighting application
20 F2F	LO 3	Lighting application - Global illumination, local illumination, image base lighting. - Shadow	- Lighting application - Lighting application
21 GSLC	LO 3	Advance lighting - HDRI	- Advance lighting - Advance lighting
22 GSLC	LO 3	Advance lighting - HDRI	- Advance lighting - Advance lighting
23 F2F	LO 4	Advanced Rendering - Rendering 3D character - Using Vray DR & active shade Vray RT	- Advanced Rendering - Advanced Rendering
24 F2F	LO 4	Advanced Rendering - Rendering 3D character - Using Vray DR & active shade Vray RT	- Advanced Rendering - Advanced Rendering
25 F2F	LO 4	Presenting 3D Character - 3D Character Action pose - Media presentation - 3D printing	- Presenting 3D Character - Presenting 3D Character
26 F2F	LO 4	Presenting 3D Character - 3D Character Action pose - Media presentation - 3D printing	- Presenting 3D Character - Presenting 3D Character

8. Evaluation

Theory

Assessment Activity	Weight	Learning Outcomes			
		1	2	3	4
Assignment	50%	√	√	√	√
Mid Exam	20%	√	√		√
Final Exam	30%	√	√	√	√

Practicum

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Final Evaluation Score

Aspects	Weight
Theory	100%
Practicum	0%

9. A. Assessment Rubric (Study Program Specific Outcomes)

LO	Indicators	Proficiency Level			
		Excellent (85 – 100)	Good (75 – 84)	Average (65 – 74)	Poor (≤ 64)
LO 1	1.1. Ability to apply usable topology to the 3D model.	Topology in 3D object that graduated applied shows the proper topology with proper structures, perfectly as sketches or model sheet	Topology in 3D object that graduated applied shows the proper topology that applied with some flaws structures as sketches or model sheet	Topology in 3D object that graduated applied shows the flaws topology that applied with flaws structures as sketches or model sheet	Topology in 3D object that graduated applied are inappropriate topology or the student didn't submit the works
	1.2. Ability to create usable and workable topology to the 3D model	3D object that graduate created shows the proper topology that applied with proper structures, perfectly as sketches or model sheet	3D object that graduated created shows the proper topology that applied with some flaws structures as sketches or model sheet	3D object model that graduated created shows the flaws topology that applied with flaws structures as sketches or model sheet	3D object are inappropriate topology or the student didn't submit the works
LO 2	2.1. Ability to use a material shared using texture maps and settings.	The materials that used are set exactly or at least 75% similar to the real life materials.	The materials are set decently, within 50 to 74% range similar to the real life materials.	The materials is below 50% accuracy to the real life materials.	The materials are not set, not used, or just randomly applied without proper placement.
	2.2. Ability to create materials into computer generated 3D object	The texture maps that the student created has proper placement, and the texture coordinates are placed perfectly. No texture distortion is visible.	The texture maps that the student created has proper placement in most areas, about 1-3 texture coordinates are not placed perfectly. There are up to 3 texture distortion.	The texture maps that the student created has improper placement, more than 3 textures has wrong texture coordinates, more than 3 texture distortions.	The texture maps has improper placement is not complete and not clear
LO 3	3.1. Ability to apply relate between lighting setup and the lighted object	The lighting is setup based on	The lighting is setup based on	The lighting is setup based on	The lighting is setup randomly

LO 4		logic, and photographic lighting and color theory.	logic, and either one of photographic lighting or color theory	logic only and not related to either photographic lighting or color theory.	without using logic or any theories, or not using lighting at all.
	3.2. Ability to set the CG lighting based on real life lighting theory	The light intensity is above 95% correct. The contrast between white point and black point is 100% covered.	The light intensity is between 90-95% correct. The contrast between white and black point is between 95-99% covered.	The light intensity is between 85-89% correct. The contrast between white and black point is between 90-95% covered.	The light intensity is below 85%, The contrast between white and black point is under 90% or not using lighting at all.
	4.1. Ability to identify method of 3D computer generated renders	In Rendering process the differences based on shape, shared, lighting, and texture maps, are appropriate and completely explanation	In Rendering process the differences based on shape, shared, lighting, and texture maps, are almost appropriate and completely explanation	In Rendering process the differences based on shape, shared, lighting, and texture maps, are almost appropriate and incomplete explanation	In Rendering process the differences based on shape, shared, lighting, and texture maps, are inappropriate and incomplete explanation
	4.2. Ability to create CG render using shape, material, and lighting setup combination.	3D render that created in CGI process are used in 100% accuracy in rendering result that seen in shape, material and lighting setup combination.	3D render that created is slightly different. Material only have small difference (within 90-99%) to the counterparts, and lighting setup is still acceptable in rendering result that seen in shape, material and lighting setup combination.	3D render that created is noticeable amount of inappropriate combination between Materials and the other element are not placed properly (more than 25% misplacement) and the lighting is flat	3D render gave too much error noticeable, materials are not placed properly or not used. No lighting or flat lighting, or the work isn't finished.

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