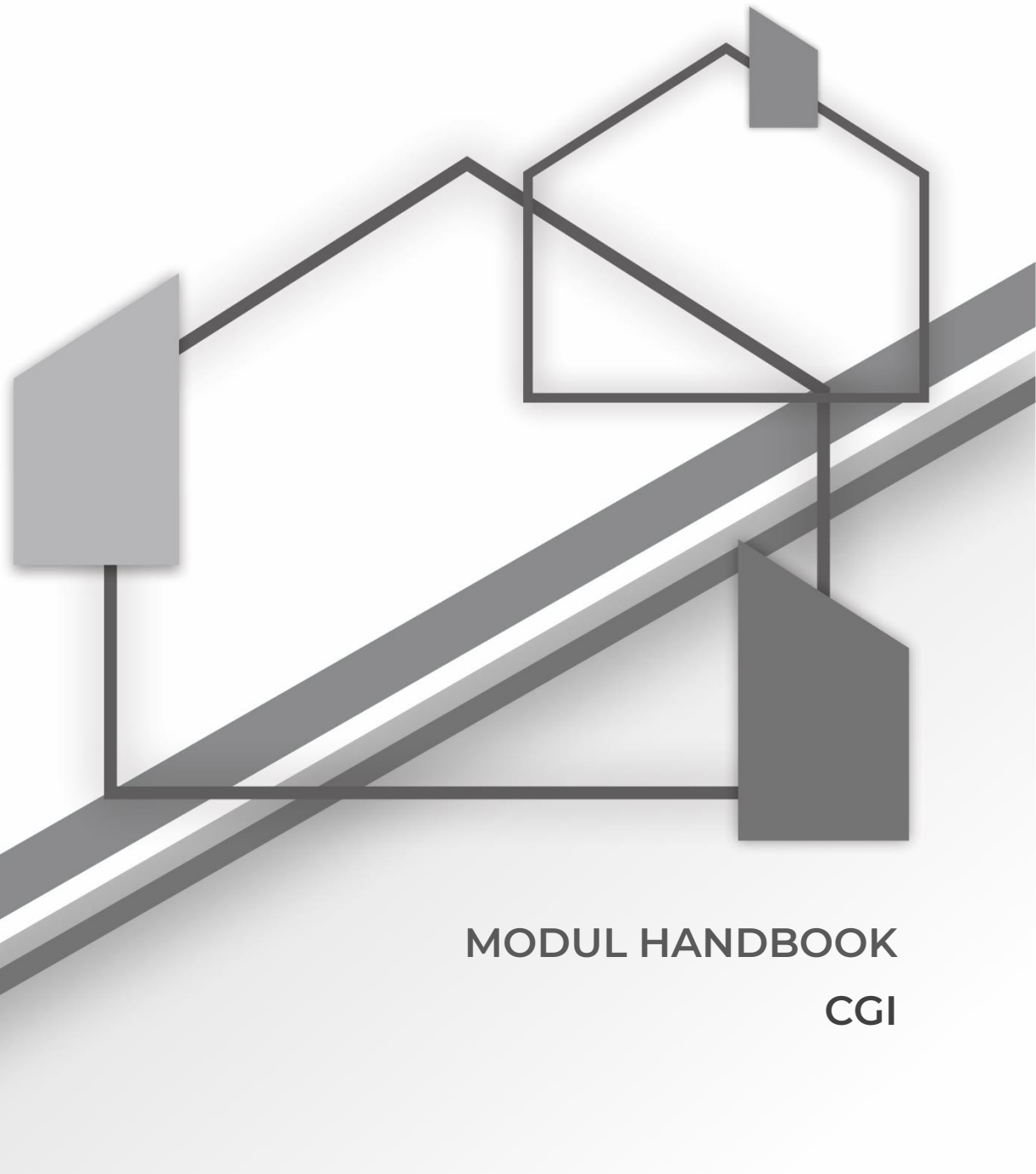




# MODUL HANDBOOK CGI

Bachelor Degree Program  
Department of Interior Design  
Faculty of Creative Design and Digital Business

**Institut Teknologi Sepuluh Nopember**



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## Description of Course Unit

|  |   |
|--|---|
| Course unit title  | Computer-Generated Image  |
| Course unit code   | DI184414  |
| Type of course unit (compulsory, optional)   | Compulsory  |
| Level of course unit (according to EQF: first cycle Bachelor, second cycle Master) | First Cycle Bachelor  |
| Year of study when the course unit is delivered (if applicable)                    | 2 <sup>nd</sup> year  |
| Semester/trimester when the course unit is delivered                               | 4 <sup>th</sup>   |
| Number of ECTS credits allocated   | 4.8 ECTS  |
| Name of lecturer(s)  | 1. Caesario Ari Budianto, ST., MT.<br>2. Okta Putra Setio Ardianto, S.T., M.T.  |
| Learning outcomes of the course unit   | <p>Students are able to:</p> <ol style="list-style-type: none"> <li>1. Able to analyze function, aesthetics, semiotics, structure and construction, materials, ergonomics, security, cost in interior design project until it can be formulated design problem.</li> <li>2. Able to arrange the concept of interior design as an idea that will answer the design problem.</li> <li>3. Able to create alternative and variant of interior design as implementation of design concept.</li> <li>4. Able to communicate designs by making visualization of design in the form of 2-dimensional and 3-dimensional images by manual and computer assisted (AutoCAD, InteriCAD, 3D Max, Sketch Up), as well as in the form of animation and maket.</li> <li>5. Able to prepare budget plan cost and schedule of interior project implementation</li> <li>6. Able to apply and develop the concept of Eco Interior</li> <li>7. Mastering theoretical concepts of aesthetic and semiotics fields in design, as well as socio-cultural fields in design (design sociology, design psychology, design philosophy).</li> <li>8. Able to create and choose a variety of alternative solutions that are creative and innovative, especially related to the field of interior design armed with a good leadership attitude.</li> <li>9. Able to create and choose a variety of alternative solutions that are creative and innovative, especially related to the field of interior design armed with high creativity.</li> </ol> |
| Mode of delivery (face-to-face, distance learning)                                 | Face-to-face  |
| Prerequisites and co-requisites (if applicable)                                    | Successfully finished the CAD Subject with a minimum grade of C   |
| Course content   | <ol style="list-style-type: none"> <li>1. <b>EDITING &amp; MAPPING MATERIAL:</b> Learn how to create objects and spaces, Polygon Extrusion along splines &amp; Hinge, edit the object using the polygonal editing, surface &amp; patch modeling. MAPPING, defines a material based on color, diffuse, specular and glossiness.</li> </ol>   |

|  |   |
|--|---|
|  | <ol style="list-style-type: none"> <li>2. <b>LIGHTING ON OBJECTS AND SPACES</b> : Learn the types of lights, placing property.</li> <li>3. <b>RENDERING</b> : Rendering with Scanline, Mentalray, Vray and Global illumination.</li> <li>4. <b>ANIMATION</b> : Create animated spaces in simple terms.</li> </ol>   |
| Recommended or required reading and other learning resources/tools | <ol style="list-style-type: none"> <li>1. Teaching Module CAD 2.</li> <li>2. Mitton, M. (2011). <i>Interior design Visual presentation: A Guide to Graphics, Models and Presentation Techniques</i>. John Wiley &amp; Sons.</li> <li>3. Rodolfi, L. (2023). <i>Photorealism with Twinmotion</i>. Luca Rodolfi.</li> <li>4. Maestri, G. (2021). <i>3DS Max and TwinMotion: architectural visualization</i>.</li> <li>5. Bass, L., Clements, P., &amp; Kazman, R. (2003b). <i>Software Architecture in practice</i>. Addison-Wesley Professional.</li> <li>6. Ching, F. D. K., &amp; Binggeli, C. (2004b). <i>Interior design illustrated</i>. Wiley.</li> <li>7. Racek, J. (2021). <i>Rhino: TwinMotion Workflow</i>.</li> <li>8. Hugill, A., &amp; Flanagan, R. (2020). <i>Dreamscapes &amp; Artificial architecture: Imagined Interior Design in Digital Art</i>. Die Gestalten Verlag-DGV.</li> <li>9. Coleman, C., &amp; Magazine, I. D. (2001). <i>Interior Design Handbook of Professional Practice</i>. McGraw Hill Professional.</li> <li>10. Cline, L. S. (2012). <i>Drafting and visual presentation for interior designers</i>. Prentice Hall.</li> </ol> |
| Planned learning activities and teaching methods                   | Problem-Based Learning, Project-Based Learning and Blended Learning   |
| Language of instruction  | Bahasa and English  |
| Assessment methods and criteria                                    | Assignment, Project, Midterm Exam and Final Exam  |

### Learning Outcome (LO)

| LO  | Description  |
|-----|--|
| LO4 | Able to present design outputs (process and design results) manually and/ or computer-assisted in 2D and 3D  |
| LO5 | Able to utilize environmental and maritime technology in the field of interior design  |
| LO6 | Able to utilize technology based on social and local culture in the field of interior design   |
| LO8 | Mastering practical design knowledge about Geometry, building, communication (drawing), methodologies and consequences in the field of interior design |

### Course Learning Outcome (CLO)

| CLO  | Description   | Mapping of CLO to LO |      |     |     | Weight of CLO (%) |
|------|---|----------------------|------|-----|-----|-------------------|
|      |   | LO 4                 | LO 5 | LO6 | LO8 |                   |
| CLO1 | Students are able to choose and determine the work order in making 3D drawings (technical drawings) effectively |                      | x    | x   |     | 15                |
| CLO2 | Students are able to choose and determine the work order in making 3D drawings (technical drawings) efficiently |                      | x    | x   |     | 15                |
| CLO3 | Students are able to understand and practice basic and advanced 3D modeling techniques                          |                      |      |     | x   | 15                |
| CLO4 | Students are able to visualize 2D technical drawing into 3D models  | x                    |      |     | x   | 25                |
| CLO5 | Students are able to synchronize 2D and 3D workflows  | x                    |      |     | x   | 30                |

## Assessment Plan

| No.                     | Course Learning Outcomes*  | Assessment Technique                            | Assessment Weight (%) |
|-------------------------|--|---|-----------------------|
| 1.                      | <b>CLO1</b><br>Students are able to choose and determine the work order in making 3D drawings (technical drawings) effectively | 3D Basic Modeling and Modify (Case Method)      | 15                    |
| 2.                      | <b>CLO2</b><br>Students are able to choose and determine the work order in making 3D drawings (technical drawings) efficiently | Interior 3D Modeling With Texture (Case Method) | 15                    |
| 3.                      | <b>CLO3</b><br>Students are able to understand and practice basic and advanced 3D modeling techniques                          | 3D Modeling Object Management (Case Method)     | 15                    |
| 4.                      | <b>CLO4</b><br>Students are able to visualize 2D technical drawing into 3D models  | Rapid 3D Modeling (Cognitive - Midterm Exam)    | 25                    |
| 5.                      | <b>CLO5</b><br>Students are able to synchronize 2D and 3D workflows  | Final Exam: 3D Modeling Rendering (Case Method) | 30                    |
| Total Assessment Weight |  |   | 100                   |

## Learning Outcome Plan

| Week | Sub Achievement-Subject Final Ability  | Breadth (Learning Material)  | Learning Method  | Estimated Time  | Students Learning Experience   | Assessment Criteria and Indicator  |
|------|--|--|--|---|--|--|
| 1, 2 | Cognitive, Applications: Students are able to use and master 3D Max software in creating working drawings to solve design problems, able to take advantage of basic commands 3DMax: make lighting. | BRIEF (examples of 3D images and their usefulness). Exercise opens files, saves and basic menus in 3Dmax. Introduction: 1) how to create objects, modify objects and give lighting | Introductory lectures, hands-on practice.  | 2 L/M @ 150' Theory and Practice.   | Ability to set unit, object creation, Able to create simple objects, modify and give lighting in various positions and directions. | Students recognize the interface on 3Dmax and know how to set up object creation units, know how to create simple free objects and modify objects and provide simple lighting. |
| 3, 4 | Cognitive, Applications: Students know the basic 3DMax menu functions to create simple object compositions.  | Introduction: 1) scene composition; 2) editing materials, 3) digital lighting; 4) simple rendering.  | Introductory lectures, hands-on practice. Students learn how to compose objects, give lighting and rendering and do material editing.    | 1 L/M : 50' theory and practice + 100 'practice Task 1 - Create simple object composition with 3Dmax basic menus. | Students are able to: 1) Compose objects; 2) provide lighting and rendering; 3) material editing.                                  | Knowing how to compose objects, giving lighting, rendering and material editing.   |
| 5    | Cognitive, Applications: Students know how to model by using the 'lathe' command, 'hair' and 'fur' menus. Students know how to model by using the commands 'loft', 'spline', 'path' and 'shape'    | Introduction: 1) review of previous commands; 2) lathe; 3) hair and fur.<br><br>Introduction: 1) review of previous commands; 2) loft; 3) spline; 4) path; 5) shape                | Introductory lectures, hands-on practice. Students learn to apply the command: lathe, hair and fur 'loft', 'spline', 'path' and 'shape'. | 1 L/M: 50 'theory and practice + 100' practice Exercise 1 - Make flower lights and sofas.                         | Able to create objects with lathe menu, able to distinguish the function of hair and fur loft, spline, path and shape.             | Knowing how to use lathe menu, hair and fur menu loft, spline, path and shape.   |

|        |   |   |  |  |  |  |
|--------|---|---|--|--|--|--|
| 6, 7   | Cognitive, Applications:<br>Students know how to model by using the cross section command in the sanitary making application.   | Introduction: 1) review of previous commands; 2) cross section.   | Introductory lectures, hands-on practice. Students learn to apply the command: cross section.  | 1 L/M : 50' theory and practice + 100 'practice<br>Exercise 3 - Create a sink, learn to create glass and mirror effects and 3D Bathroom. | Able to create objects with cross section menu. Able to make sink and bathroom with detail and supporting equipment. | Knowing how to use cross section menu. Know how to create glass and mirror effects and rendering with mentalray.   |
| 8      |   |   |  |  |  |  |
| 9 - 11 | Cognitive, Applications:<br>1) Students are able to define advanced material, virtual lighting and create the point of view in the model of interior design (loft & Box model) and perform advance rendering in order to bring up the design character.<br>2) Students are able to create simple animation (keyframing object and path animation), and able to implement in interior design presentation. | Pengantar :<br>1) advance material editing;<br>2) advance render editing.<br>3) keyframing & editing;<br>4) Motion;<br>5) Path Constraint;<br>6) Hierarchy;<br>7) Dummy object. | Kuliah pengantar dan praktek langsung.<br>Mahasiswa belajar mengenai :<br>1) Ambient occlusion;<br>2) Translucent;<br>3) Caustik System<br>4) standar SMPTE;<br>5) Keyframing;<br>6) edit key & value;<br>7) Path constraith;<br>8) Look at target;<br>9) Hierarchy - parrent & child;<br>10) Rendering animation & video editing. | 1 L/M : 50' theory and practice + 100 'practice  | Able to create 3D interior with material characters and simple animation.  | Knowing how to: 1) Ambient occlusion; 2) Translucent; 3) Caustic System; 4) SMPTE standards; 5) Keyframing; 6) edit key & value; 7) Path constraith; 8) Look at the target; 9) Hierarchy - parrent & child; 10) Rendering animation & video editing. |
| 12, 13 | Cognitive, Applications:<br>Students are able to implement their knowledge in the form of design work in accordance with the theme of interior design studio that is being referenced.  | Pengantar :<br>diskusi dan tanya jawab  | Diskusi dan tanya jawab.   | Practice = 150'.   | Able to create 3D interior in accordance with the interior design studio theme that is being referenced.             | Know how to make 3D interior and simple animation.   |
| 14, 15 | Cognitive, Applications:<br>Students are able to  | Pengantar :<br>diskusi dan  | Diskusi dan tanya jawab.   | Practice = 150'.   | Able to create 3D interior in  | Know how to make 3D interior and simple animation.   |



|  |   |             |  |  |  |  |
|--|---|-------------|--|--|--|--|
|  | implement their knowledge in the form of design work in accordance with the theme of interior design studio that is being referenced. | tanya jawab |  |  | accordance with the interior design studio theme that is being referenced. |  |
|--|---|-------------|--|--|--|--|

REFERENCES (max 5):

1. Modul ajar CAD 2.
2. 3DsMax 2010, copyright 2010 tutorial.

Note:

1 credit = (50' L/M + 60' SL + 60' IL)/Week

IL = Independent Learning

T = Theory (knowledge)

L/M = Meeting (Lecture)

PS = Practical Simulation (3 hours/week)

P = Practice (Skillfulness aspect)

SL = Structured Learning

LP = Laboratory Practice (3 hours/week)