



UNIVERSITI TEKNOLOGI MARA

IDT112: 3D MODELING AND TECHNIQUES I

Course Name (English)	3D MODELING AND TECHNIQUES I APPROVED
Course Code	IDT112
MQF Credit	2
Course Description	This course aims to introduce students to the basis activity for model making process. It focuses on developing forms and shapes using a variety of basic model-making materials and hand fabrication techniques, with an emphasis on wood, plastic and metal processes. In addition to modeling with basic materials, students begin to develop skills using quick, visual model development materials, including foam core, cardboard, wood and epoxy/clay. This course also includes analysis of advance physical properties of different technique that use and apply different materials, machines and tools operation.
Teaching Methodologies	Lectures, Demonstrations
CLO	<p>CLO1 Demonstrate basic skills of models making from a range of different techniques and materials</p> <p>CLO2 Identify a series of model making and construction models and learn to build a sketch/massing model to express design intention</p> <p>CLO3 Identify and produce a working presentation scale model and consider issues such as assembly, abstraction, representation and appropriate scale.</p>
Pre-Requisite Courses	No course recommendations
Topics	
<p>1. Introduction to the syllabus</p> <p>1.1) Briefing on project title/ theme, basic hand tools, schedule of work, project guideline, project objective/aims, attendance, project final assessment & requirement.</p> <p>1.2) Show the example of model making books & references</p>	
<p>2. Lecture on Types of Paper Board & Jointing Techniques</p> <p>2.1) Introduce & explain the jointing techniques by using paper board</p> <p>2.2) Model Making Process (Project Development I)</p> <p>2.3) a) Give to students the sample of technical drawing scale.</p> <p>2.4) b) Demonstrate the cutting, folding, curving and jointing techniques using board follow to the technical aspect.</p>	
<p>3. Consultations and Demonstration</p> <p>3.1) Model making Process (Project Development II)</p> <p>3.2) a) Continue process jointing and finishing surfaces</p> <p>3.3) b) Demonstrate in final smoothing uses progressively finer grades of sandpaper.</p>	
<p>4. Lecture on Types of Wood & Wood Working Process</p> <p>4.1) 1 Lecture</p> <p>4.2) a) Introduction to use materials, types of pattern cutting and jointing techniques</p> <p>4.3) b) Briefing on types of woods</p> <p>4.4) • Model Making Process (Project Development I)</p> <p>4.5) a) Preparation & Demonstrate</p>	
<p>5. Construction and Finishing Techniques Development</p> <p>5.1) Model Making Process (Project Development II)</p> <p>5.2) a) Final smoothing uses progressively finer grades of sandpaper.</p> <p>5.3) b) Finishing-demonstrate on filing, sealing and painting</p>	

<p>6. Lecture on Type of Plastic & Plastic Working Process</p> <p>6.1) Lecture</p> <p>6.2) a) Introduction to use materials, types of pattern cutting and jointing techniques for plastic working process using traditional</p> <p>6.3) hand tools.</p> <p>6.4) • Model Making Process (Project Development I)</p> <p>6.5) a) Students will give the sample of technical drawing on product design.</p> <p>6.6) b) Demonstrate the cutting and shaping using traditional hand- tools methods such as acrylic cutter, and etc.</p>
<p>7. Construction and Finishing Techniques</p> <p>7.1) Model Making Process (Project Development II)</p> <p>7.2) a) Final smoothing uses progressively finer grades of sandpaper.</p> <p>7.3) b) Finishing-demonstrate on joined plastic using a proper adhesive/glue</p> <p>7.4) c) Painting in order to attain a high-level finish</p>
<p>8. Lecture on Clay/Epoxy Process</p> <p>8.1) Lecture</p> <p>8.2) a) Introduction to use materials, types of clay, tools, painting and finishing.</p> <p>8.3) b) Distribute the technical drawing to students (design and form is related to materials)</p> <p>8.4) •Model Making Process (Project Development I)</p> <p>8.5) a) Demonstrate step by step to use green foam</p> <p>8.6) b) Preparation-using a technical drawing template as a cutting guide.</p>
<p>9. Construction of 3D Objects</p> <p>9.1) Model Making Techniques (Project development II)</p> <p>9.2) a) Demonstrate on how to apply clay/epoxy to the model and continue the step by step applications</p> <p>9.3) b) Final finishing - Painting in order to attain a high-level finish.</p>
<p>10. Lecture on Model Making Product Design Process</p> <p>10.1) Final Project Object Construction (Solid Form)</p> <p>10.2) Lecture,</p> <p>10.3) a) Explain the process making of model with the</p> <p>10.4) usage of materials, workmanship and techniques in producing 3D artworks</p> <p>10.5) b) Studio Exercise : Ideation and Design Development</p> <p>10.6) Student are required to create and develop a basic form and final design</p>
<p>11. Consultations and Demonstration Project Development I</p> <p>11.1) Model Making Process (Project Development I)</p> <p>11.2) a) Demonstrate step by step to use green foam</p> <p>11.3) b) Preparation-using a technical drawing template as a cutting guide.</p> <p>11.4) c) Demonstrate the cutting and shaping follow to the design uses progressively finer grades of sandpaper.</p> <p>11.5) d) Apply a white paint (emulsion) through the surface of the model</p>
<p>12. Consultations and Demonstration Project Development II</p> <p>12.1) Model Making Process (Project Development II)</p>
<p>13. Consultations and Demonstration Project Development III</p> <p>13.1) Model Making Process (Project Development III)</p> <p>13.2) a) Finishing objects</p> <p>13.3) b) Undercoat paint / spray color to make a realistic effects</p>
<p>14. Submission Final Model</p> <p>14.1) Final touch up on model making – color scheme, interface, graphic symbol & material properties</p>

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Individual Project	Object Construction - Board	15%	CLO1 , CLO2 , CLO3
	Individual Project	Object Construction - Wood	15%	CLO2 , CLO3
	Individual Project	Object Construction - Plastic	15%	CLO2 , CLO3
	Individual Project	Object Construction - Clay/Epoxy	15%	CLO1 , CLO2 , CLO3

Reading List	Reference Book Resources
	<ul style="list-style-type: none"> • Bjarki Hallgrímsson 2012, <i>Prototyping And Model Making For Product Design</i>, Laurence King Publishing Limited [ISBN: 13:978 1 8566] • Michael F.Ashby, Kara Johnson, <i>Materials and Design, 2 Ed.</i>, The Art and Science of Material Selection in Product Design [ISBN: 10:1856174972] • Paul Jackson 2011, <i>Folding Techniques for Designers:From Sheet to Form</i> [ISBN: 10 : 18566972]

Article/Paper List	This Course does not have any article/paper resources
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Other References	This Course does not have any other resources
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