

MODULE DES3060: 3-D DESIGN STUDIO 3

Level: Advanced

Theme: Design Skills, Processes and Applications

Prerequisite: None

Module Description: Students expand their knowledge of materials, technologies and production/processes employed to shape and join materials and assemble products. Students will become familiar with principles of manufacturing, and materials, technologies and processes appropriate to manufacturing a product in various production quantities.

Module Parameters: Sketching, drawing and modelling tools and equipment and access to a computer. Specialized facilities or equipment depend on the approach taken to 3-D model development and mass production.

Note: It is recommended that students have access to instruction from an individual with formal, specialized training in product or industrial design and production.

Supporting Module: DES3040 3-D Design Studio 1

Curriculum and Assessment Standards

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> use materials, technologies and production processes relevant to a particular area of three-dimensional design to produce a product 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> resolution of a teacher-approved, student-specified advanced level three-dimensional design brief. <p><i>Assessment Tool</i> <i>Project Assessment: Materials and Production Processes (DESPRJ-3C)</i></p> <p><i>Standard</i> <i>Performance rating of 2 for each criteria</i></p>	40
<ul style="list-style-type: none"> apply appropriate materials and processes to form, shape, join, fasten, assemble and/or construct with various materials based on their properties on advanced level three-dimensional project 	<ul style="list-style-type: none"> selection and effective use of materials and associated processes in project work. <p><i>Assessment Tool</i> <i>Authorized resources for examples of materials, and processes used to shape and join them</i> <i>Project Assessment: Materials and Production Processes (DESPRJ-3C)</i></p> <p><i>Standard</i> <i>Performance rating of 2 for each criteria</i></p>	20

MODULE DES3060: 3-D DESIGN STUDIO 3 (continued)

Module Learner Expectations	Assessment Criteria and Conditions	Suggested Emphasis
<p><i>The student will:</i></p> <ul style="list-style-type: none"> • describe the relationship among materials, production processes and intended production quantities, and the manner in which a product is designed • select, organize and present design projects • demonstrate basic competencies. 	<p><i>Assessment of student achievement should be based on:</i></p> <ul style="list-style-type: none"> • justification of the selection/recommendation of materials and production processes, and the proposed quantities to be reproduced, brought forth within the presentation/critique. <p><i>Assessment Tool</i> <i>Project Assessment: Materials and Production Processes (DESPRJ-3C)</i></p> <p><i>Standard</i> <i>Performance rating of 2 for each criteria</i></p> <ul style="list-style-type: none"> • maintenance and presentation of a module-based design portfolio and a design journal. Emphasis during the presentation/critique of the module-based portfolio with the teacher and/or peers will be placed on the quality of the product, and the student's discourse regarding: <ul style="list-style-type: none"> – the strengths and weaknesses of the designed solution – the justification for the selection and use of materials for the designed solution, recommendation for production process(es) and quantities to be reproduced. <p><i>Assessment Tool</i> <i>Presentations/Reports Materials and Production Processes (Advanced) (DESPRE-3C)</i></p> <p><i>Standard</i> <i>Performance rating of 3 for each criteria</i></p> <ul style="list-style-type: none"> • observations of individual effort and interpersonal exploration during the learning process. <p><i>Assessment Tool</i> <i>Basic Competencies Reference Guide and any assessment tools noted above</i></p>	<p>20</p> <p>20</p> <p>Integrated throughout</p>

MODULE DES3060: 3-D DESIGN STUDIO 3 (continued)

Concept	Specific Learner Expectations	Notes
Skills Development	<p><i>The student should:</i></p> <ul style="list-style-type: none"> • select an appropriate production process for the design proposal. Study and describe the stages in the production system, the roles of the various members of the production team that contribute to the process; e.g., economists, engineers, production managers, marketing specialists • describe the organizational and management aspects that are required to put a product into production. 	
Applied Problem Solving	<ul style="list-style-type: none"> • complete a project that requires the design of a product for quantity production (“quantity” could range from 5 products to >10,000 products depending on the nature of the projects). The materials and processes selected will be dependent on the intended quantities to be (theoretically) produced; e.g., furniture, kitchen appliances, electronic products, jewellery, clothing, architectural elements, such as moldings, fittings and fixtures, toys, sports equipment • identify the materials and production considerations to be addressed, write a design brief and prepare a plan to complete the project, which would include methodology such as objectives of the project, intended production quantities, steps required to achieve the objectives (which might include consultations with manufacturers), the proposed deliverables (e.g., drawings and model[s]) and a time schedule (e.g., a bar chart) • select and use appropriate materials and tools to explore concepts and to achieve the objectives outlined in the project brief 	<p>The processes used to produce products are many and varied. It is important that students understand that product manufacturing is a system of occurrences that are “designed.” By studying various manufacturing processes, students will see how a product is manufactured, the steps within the system and the impact on the materials used in the process. They must also consider the environmental impact of the process.</p> <p>It may be possible for students to test various materials as part of their selection process.</p> <p>It may be possible for students to visit a manufacturing site or to simulate a manufacturing situation.</p>

MODULE DES3060: 3-D DESIGN STUDIO 3 (continued)

Concept	Specific Learner Expectations	Notes
Applied Problem Solving (continued)	<p><i>The student should:</i></p> <ul style="list-style-type: none">• rationalize the selection of materials used in the design based on their physical properties, the intended quantities to be produced, the relationship to the project requirements and the production processes specified. Describe alternative materials and processes that might be appropriate for the production of the design in smaller and/or larger quantities.	
Presentation, Design Journal and Portfolio	<ul style="list-style-type: none">• see Specific Learner Expectations for 2-D Design Studio 1 and 2-D Design 3.	