

# DESIGN STUDIES

## SECTION J: SAMPLE STUDENT LEARNING GUIDES

The following pages provide background information, strategies and a template for developing student learning guides. Also included at the end of this section are several sample student learning guides for Design Studies.

A student learning guide provides information and direction to help students attain the expectations defined in a specified CTS module. It is designed to be used by students under the direction of a teacher.

Many excellent student learning guides (SLGs) are available for use and/or are in the process of being developed. While Alberta Education provides a development template accompanied by some samples, most student learning guide development is being done by individuals and organizations across the province (e.g., school jurisdictions, specialist councils, post-secondary organizations). Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 11) for further information regarding student learning guide developers and sources.

**Note:** A student learning guide is not a self-contained learning package (e.g., Distance Learning Module), such as you might receive from the Alberta Distance Learning Centre (ADLC) or Distance Learning Options South (DLOS).

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## BACKGROUND INFORMATION

A Student Learning Guide (SLG) is a presentation of information and direction that will help students attain the expectations defined in a specified CTS module. It is designed to be used by students under the direction of a teacher. A SLG is not a self-contained learning package such as you might receive from the Alberta Distance Learning Centre (ADLC) or Distance Learning Options South (DLOS).

Each SLG is based on curriculum and assessment standards as defined for a particular CTS module. Curriculum and assessment standards are defined in this document through:

- module and specific learner expectations (Sections D, E and F)
- assessment criteria and conditions (Sections D, E and F)
- assessment tools (Section G).

The SLG is written with the student in mind and makes sense to the student in the context of his or her CTS program. SLGs are designed to guide students through modules under the direction of the teacher. They can be used to guide:

- an entire class
- a small groups of students
- individual students.

In some instances, the Student Learning Guide may also be used as teacher lesson plans. When using SLGs as teacher lesson plans, it should be noted that they tend to be:

- learner-centred (versus teacher-directed)
- activity-based (versus lecture-based)
- resource-based (versus textbook-based).

### Components of a Student Learning Guide

The student learning guide format, as developed by Alberta Education, typically has *seven* components as described below.

#### 1. *Why Take This Module?*

This section provides a brief rationale for the work the student will do, and also establishes a context for learning (i.e., in relation to the strand, a life pursuit, a specific industry, etc.).

#### 2. *What Do You Need To Know Before You Start?*

In this section, prerequisite knowledge, skills and attitudes considered necessary for success in the module are identified. Prerequisites may include other modules from within the strand or from related CTS strands, as well as generic knowledge and skills (e.g., safety competencies, the ability to measure/write/draw, prior knowledge of basic information relevant to the area of study).

#### 3. *What Will You Know And Be Able To Do When You Finish?*

This information must parallel and reflect the curriculum and assessment standards as defined for the module. You may find it desirable to rewrite these standards in less formal language for student use.

#### 4. *When Should Your Work Be Done?*

This section provides a timeline that will guide the student in planning their work. The timeline will need to reflect your program and be specific to the assignments you give your students. You may wish to include a time management chart, a list of all assignments to be completed, and instructions to the student regarding the use of a daily planner (i.e., agenda book) to organize their work.

#### 5. *How Will Your Mark For This Module Be Determined?*

This section will interpret the assessment criteria and conditions, assessment standards, assessment tools and suggested emphasis as defined for the module within the context of the projects/tasks completed. Accepted grading practices will then be used to determine a percentage grade for the module—a mark not less than 50% for successful completion. (**Note:** A module is

“successfully completed” when the student can demonstrate ALL of the exit-level competencies or MLEs defined for the module.)

#### 6. *Which Resources May You Use?*

Resources considered appropriate for completing the module and learning activities are identified in this section of the guide. The resources may be available through the Learning Resources Distributing Centre (LRDC) and/or through other agencies. Some SLGs may reference a single resource, while others may reference a range of resources. Resources may include those identified in the Learning Resource Guide (Section I) as well as other sources of information considered appropriate.

#### 7. *Activities/Worksheets*

This section provides student-centred and activity-based projects and assignments that support the module learner expectations. When appropriately aligned with curriculum and assessment standards, successful completion of the projects and assignments will also indicate successful completion of the module.

### **Strategies for Developing Student Learning Guides**

Prior to commencing the development of a student learning guide, teachers are advised to obtain:

- the relevant Guide to Standards and Implementation
- the student learning guide template.

Information communicated to the student in the SLG must parallel and reflect the curriculum and assessment standards as defined for the module. Therefore, critical elements of the Guide to Standards and Implementation that need to be addressed throughout the SLG include:

- module and specific learner expectations
- assessment criteria and conditions
- assessment standards
- assessment tools.

Additional ideas and activities will need to be incorporated into the student learning guide. These can be obtained by:

- reflecting on projects and assignments you have used in delivering programs in the past
- identifying human and physical resources available within the school and community
- networking and exchanging ideas (including SLGs) with other teachers
- reviewing the range of resources (e.g., print, media, software) identified in the Learning Resource Guide (Section I) for a particular module/strand.

Copyright law must also be adhered to when preparing a SLG. Further information and guidelines regarding copyright law can be obtained by referring to the:

- *Copyright Act*
- *Copyright* and the *Can Copy Agreement*.

A final task in developing a student learning guide involves validating the level of difficulty/ challenge/rigour established, and making adjustments as considered appropriate.

A template for developing student learning guides, also available on the Internet, is provided in this section (see “Student Learning Guide Template,” pages J.5–10). Several sample student learning guides are also provided in this section (see “Sample Student Learning Guides,” starting on page J.11).

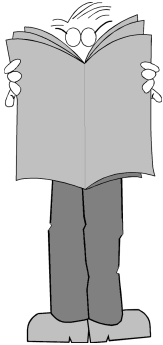
# CAREER & TECHNOLOGY STUDIES



## SAMPLE STUDENT LEARNING GUIDE TEMPLATE



# WHY TAKE THIS MODULE?



# WHAT DO YOU NEED TO KNOW BEFORE YOU START?



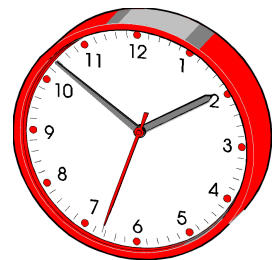
# WHAT

**WILL YOU KNOW AND  
BE ABLE TO DO  
WHEN YOU FINISH?**

- 
- 
- 
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# WHEN

**SHOULD YOUR WORK BE DONE?**



# HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
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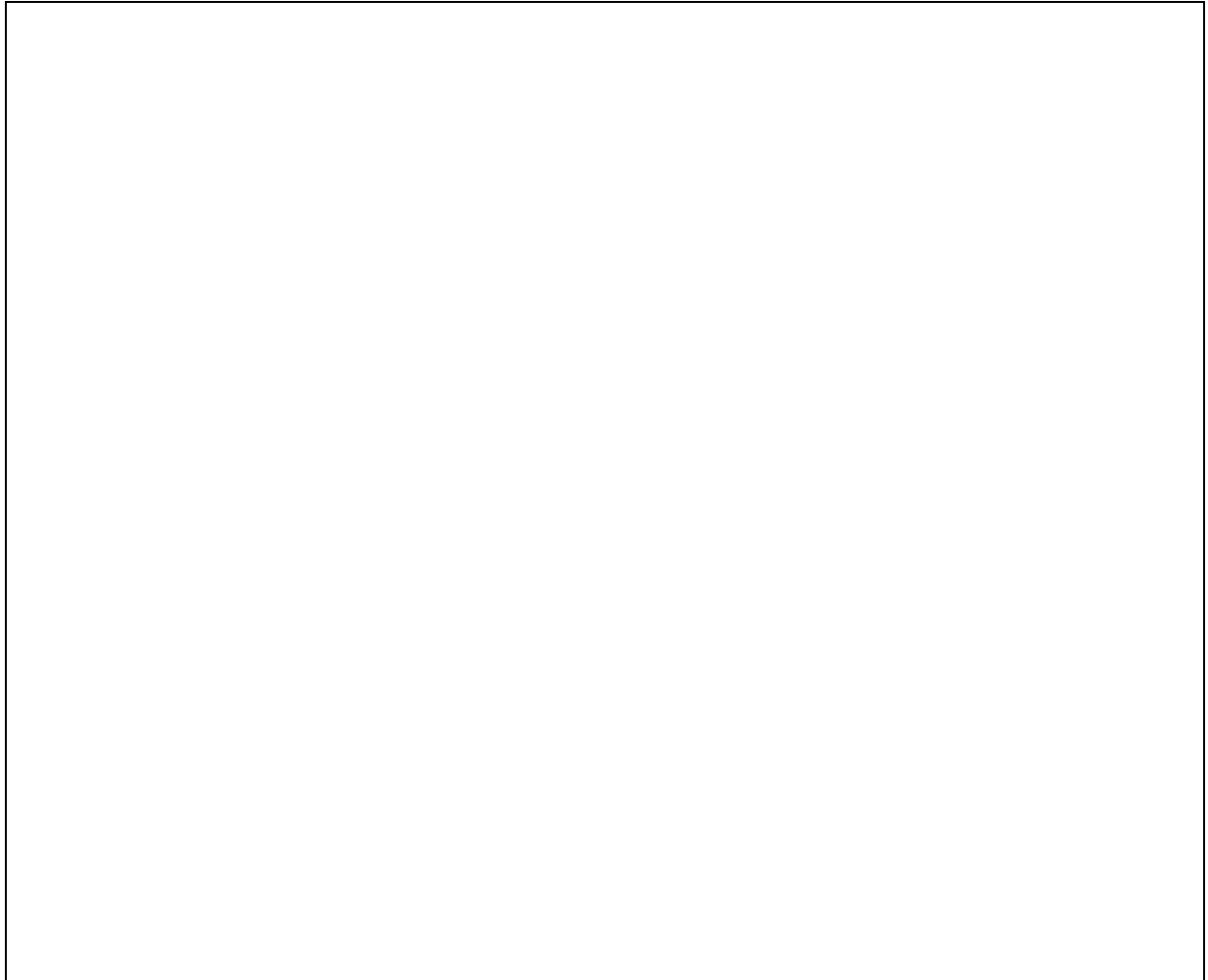


# WHICH RESOURCES MAY YOU USE?



<ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li></ul>
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# ACTIVITIES/WORKSHEETS



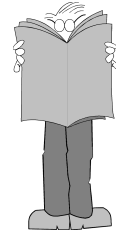
# CAREER & TECHNOLOGY STUDIES

## DESIGN STUDIES

### SAMPLE STUDENT LEARNING GUIDE

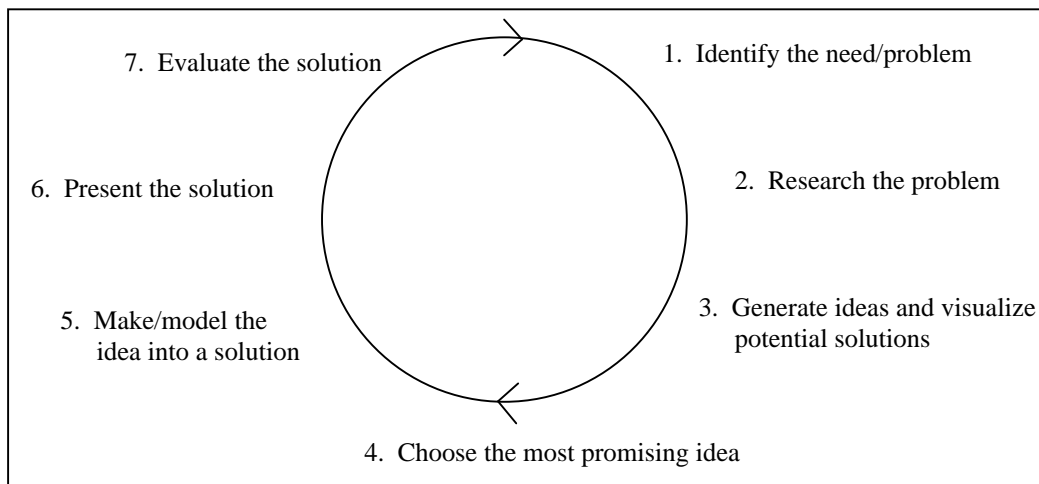
#### **DES1020 The Design Process**

# WHY TAKE THIS MODULE?



Design is about solving problems. Some of these problems are given to you while other ones you find yourself. For example, you may be asked by someone else (like your Students' Council) to design a poster to advertise a school dance. On the other hand, you may give yourself the job of designing a poster to advertise a garage or yard sale you are having. In each case the problem is the same – trying to inform other people about an event. Whether the problem facing you is small or large, there is a process you will go through to solve it.

There are several different problem solving strategies that designers use but all of them have some common elements. This diagram illustrates a basic problem-solving model:



Designers use this type of problem-solving strategy all the time. Sometimes, if the problem is quite simple, they may skip a step or two, but they must at least think about it. For complex problems, designers may repeat steps several times as the problem is reconsidered and different alternatives are tried. It is essential for designers to be curious and not to be satisfied with their first idea or possible solution.

# WHAT DO YOU NEED TO KNOW BEFORE YOU START?

There are no prerequisites identified for this module.

However, you should be comfortable in exploring new ideas and approaches to problem solving.



# WHAT WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

Upon completion of this module you will be able to:

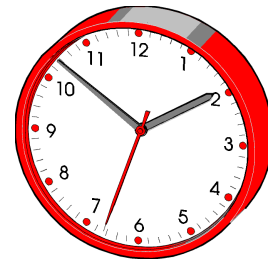
- identify a design process and apply it throughout the instructional period
- produce a designed solution
- select, organize and present design projects
- demonstrate basic competencies.
- 

# WHEN SHOULD YOUR WORK BE DONE?

You have three projects to complete during this module.

Your teacher will give you a timeline for completing tasks and assignments within this module.

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.

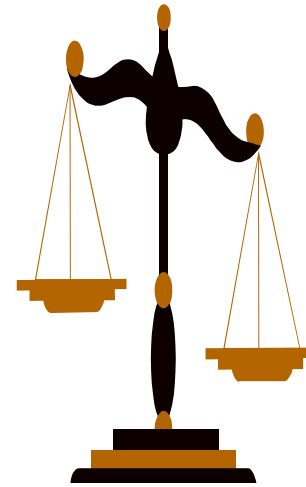


## DESIGN STUDIES

### DES1020 The Design Process

# HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
<p>You must first demonstrate <b>all</b> of the competencies required for this module.</p> <p>When you have done this, your percentage mark for the module will be determined as follows:</p> <ul style="list-style-type: none"> <li>• My observation of your use of the design process during each project and the quality of your Design Journal with respect to the evidence of problem identification, research notes, ideas generated, and any additional questions and/or ideas identified during the course of the module. 60%</li> <li>• Successful completion of each project: 30% <ul style="list-style-type: none"> <li>Project 1 10%</li> <li>Project 2 10%</li> <li>Project 3 10%</li> </ul> </li> <li>• Presentation of each project and discussion of your work; presentation of your portfolio showing completed projects and use of the design process. 10%</li> </ul>	



# WHICH RESOURCES MAY YOU USE?



- Baird, Tom. *Communicating Design* (Design and Technology in Action series). Heinemann Educational, Oxford, 1990.
- Chapman, C., and Peace, M.; Breckon, A. (Editor). *Collins CDT: Design and Realization*. Collins Educational, 1988.
- Crampton, K., and Finney, M.; Breckon, A. (Editor). *Collins CDT: Design and Communication*. Collins Educational, 1988.
- Fair, David and Kenny, Marilyn. *Design Graphics: Drawing and Presenting Your Design Ideas*. Hodder and Stoughton, 1987.
- Shadrin, Richard L. *Design and Drawing: An Applied Approach*. Davis Publications, Inc., Worcester, 1992.

# ACTIVITIES/WORKSHEETS

**Project 1:****Brief: WORKING PORTFOLIO**

**Problem:** In a design class, you very quickly gather together a lot of paper and other materials, some of which you will want to keep. You will also have finished projects that must be kept safe. Design a holder (portfolio) for this material that you can use throughout your stay in Design Studies to safely keep your ideas, rough work and finished work.

**Constraints:**

- The portfolio must be able to contain flat work on card 56 cm × 71 cm.
- The portfolio must lie flat for storage.
- Your name must be legibly written and prominently displayed on the outside of the portfolio.

**Materials:**

- cardboard
- binding tape
- newsprint
- ruler
- coloured markers
- cutting tools and scissors
- design journal

**Procedure:**

- Study different types of containers and folders.
- Review resources for ideas.
- Develop at least three different ideas for the two-dimensional (visual) design of your portfolio.
- Try selected design in rough on newsprint.
- Try bending, folding and binding with samples of materials supplied.
- Finalize two-dimensional (visual) design, apply it to the three-dimensional design (folder) and construct the folder.
- Present project portfolio.

**DES1020 The Design Process****Project 2:****Brief: PERSONAL MONOGRAM**

**Problem:** In the middle ages, knights had their monograms emblazoned on their shields so everyone would know who they were even when they were in full armor. Today individuals and companies develop trademarks, logotypes and monograms to identify themselves or their business to others and display them on signs, business cards, vehicles, the sides of buildings, etc. Your task is to design a monogram for yourself that you could use if you started a design company.

**Constraints**

- use your name or your initials
- you may use only one colour and tints and/or shades of that colour.

**Materials:**

- newsprint
- ruler
- graphite and coloured pencils
- typography sheets
- cutting tools and scissors
- mounting materials
- design journal

**Procedure:**

- Study different types of logos, trade marks and monograms in books, magazines and journals.
- Identify elements and principles of design used in sample designs.
- Develop at least three different ideas for the monogram.
- Try selected design in rough on newsprint.
- Finalize design on card.
- Identify how you used design elements and principles.
- Mount finished design for presentation.
- Present project portfolio.

**DES1020 The Design Process****Project 3A:****Brief: MATERIALS CONTAINER**

**Problem:** Everyone has the need for containers to keep things in. For young children, a container is useful for keeping pencils, crayons, erasers, pencil sharpeners, felt tipped pens, paints, brushes and things that they would use for drawing, colouring and painting. You are asked to design a container that is both durable and attractive and suitable for a child who is 4 to 6 years of age.

**Constraints:**

- the interior volume of the container must not exceed 3,000 cubic centimeters
- if you choose to decorate the container, you may use only one colour and tints and/or shades of that colour
- a designated space must be made for the child to place his/her name on the outside of the container.

**Materials:**

- newsprint
- cardboard
- ruler
- graphite and coloured pencils
- coloured markers
- cutting tools and scissors
- glue
- design journal
- *wood (optional extension)*
- *plastic sheeting (optional extension)*

**Procedure:**

- Study different types of containers: their uses, the materials they are made from, how they are constructed, how their interior space is organized, what size they are in relationship to what they contain, etc. Note this information and any ideas you have in your design journal.
- Develop at least three different ideas for the container you are designing.
- Make a scale model (scale 1:2) of your selected design out of newsprint and revise as required.
- Make a full-sized model of your selected design out of cardboard and decorate appropriately.
- Identify elements and principles of design used in your project.
- Present project portfolio.
- *Project Extension: You may make a prototype of your container out of wood or plastic if you want; however, this would be for your own personal use and not be considered part of the project.*

**DES1020 The Design Process****Project 3B:****Brief: PENCIL HOLDER**

**Problem:** Office Products Limited, a small office supply firm, wants to send out a promotional product to their customers. The company's owner has come up with the idea of a cardboard pencil holder that can be mailed out to her customers (flat) and then assembled by the recipient. Cost and time are both factors as this promotion will be followed in three months by a new catalogue. Yours is one of several designer firms that have been asked to submit designs for the pencil holder. You are to produce a prototype for evaluation by the company president and sales manager in two weeks time.

- Constraints:**
- The pencil holder laid out flat must fit within a manila envelope with the interior dimensions no larger than 22.5 cm × 30 cm.
  - The company name, Office Products Limited must be visible on the holder.
  - The holder must accommodate at least three standard pencils.
  - No more than one colour and tints and shades of that colour may be used in addition to the colour of the cardboard.
  - Approximate time required: 10 hours.

**Materials:**

newsprint	two-sided tape
cardboard	ruler
graphite and coloured pencils	coloured markers
coloured markers	cutting tools and/or scissors
typography sheets	design journal
glue	

- Procedure:**
- Study a pencil and try supporting it above your desk in different ways. Conduct research into "pencil holders" and desk organizers by looking at as many different kinds as you can (at home, in stores, through books and magazines).
  - Develop at least three ideas in your design journal for the shape of the pencil holder and for the graphics (lettering and colour). Support your sketches by writing down details about your ideas.
  - Try bending, folding and cutting scrap cardboard into different shapes. Experiment with different ways of joining the cardboard using tabs, glue, two-sided tape.
  - Select your most promising idea.
  - Make a model of your design and test it with the pencils.
  - Identify elements and principles of design used in your project.
  - Make your prototype.
  - Present project portfolio.

# CAREER & TECHNOLOGY STUDIES

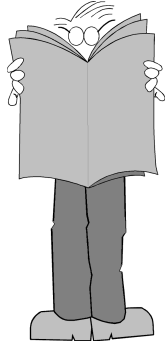
## DESIGN STUDIES

### SAMPLE STUDENT LEARNING GUIDE

### **DES1060 Drafting/Design Fundamentals**

### DES1060 Drafting/Design Fundamentals

# WHY TAKE THIS MODULE?



Having the ability draft out ideas so other people can understand them is very important in design. Designers often work collaboratively (together with others) on projects and therefore communication between the team members becomes very important. Well-drafted designs contribute to this communication. Also, designers need to be able to communicate their ideas to their clients, and the clients need to be able to understand the ideas being proposed and make suggestions and modifications. Again, this is communication.

# WHAT DO YOU NEED TO KNOW BEFORE YOU START?

There are no prerequisites identified for this module.

However, you need to be able to look at an object (e.g., a cup, a plant, a telephone) and draw it freehand with reasonable accuracy so that a person looking at your drawing is able to identify the object, recognize its shape, form and relative dimensions and see some of the detail it possesses. *DES1010: Sketch, Draw & Model* or skills acquired through other classes such as Art will provide helpful background knowledge to work successfully in this module.



**DES1060 Drafting/Design Fundamentals**

**WHAT WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?**

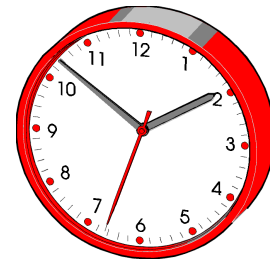
Upon completion of this module you will be able to:

- produce pictorial representations and multiview drawings from sketches and/or three-dimensional objects
- OR
- produce pictorial representations and surface developments for items in context; e.g., garments, sheet metal fabrication, packaging
  - select, organize and present design projects
  - demonstrate basic competencies.

**WHEN SHOULD YOUR WORK BE DONE?**

Your teacher will give you a timeline for completing tasks and assignments within this module.

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.



## DESIGN STUDIES

### DES1060 Drafting/Design Fundamentals

# HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
<p>You must first demonstrate <b>all</b> of the competencies required for this module.</p> <p>When you have done this, your percentage mark for the module will be determined as follows.</p> <ul style="list-style-type: none"> <li>Successful completion of each exercise and project: <ul style="list-style-type: none"> <li>Exercises and test 20%</li> <li>Project 1 20%</li> <li>Project 2 20%</li> <li>Project 3A <u>30%</u></li> <li>or</li> <li>Project 3B 90%</li> </ul> </li> <li>Presentation of projects and discussion of your work testing general understanding; of drafting terminology, procedures, conventions, etc. 10%</li> </ul>	



# WHICH RESOURCES MAY YOU USE?

- Baird, Tom. *Communicating Design* (Design and Technology in Action series). Heinemann Educational, Oxford, 1990.
- Crampton, K., and Finney, M.; Breckon, A. (Editor). *Collins CDT: Design and Communication*. Collins Educational, 1988.
- Fair, David and Kenny, Marilyn. *Design Graphics: Drawing and Presenting Your Design Ideas*. Hodder and Stoughton, 1987.
- Hepler, D. E., Wallach, P. R. and Hepler D. J. *Architecture, Drafting and Design*, 6th Edition, Glencoe/McGraw-Hill, 1991.
- Kicklighter, C. E., Baird, R. J. and Kicklighter, J. C. *Architecture: Residential Drawing and Design*. The Goodheart-Willcox Company, Inc., 1995.
- Walker, J. R. *Exploring Drafting: Fundamentals of Technology*. The Goodheart-Willcox Company, Inc., 1996.



# ACTIVITIES/WORKSHEETS

**Exercise 1: Pictorial Drawing**

- Select an object from those provided to you and use it as a reference of each of the drawings. You will be lead through each of the drawings.
- Produce *one of each* of the following drawings using a pencil and ruler:
  - isometric
  - oblique
  - one-point perspective
  - two-point perspective.
- Produce *one* of the following drawings using a pencil and drawing grid:
  - isometric
  - oblique.
- Produce *one* of the following drawings using a T-square, 30, 60, 90 set square and circle and ellipse templates:
  - isometric OR
  - oblique
  - one-point perspective
  - two-point perspective.
- Note: Use your Design Journal to keep notes.

**DES1060 Drafting/Design Fundamentals****Project 1: Isometric and Oblique Drawings****Brief: OFFICE DESK**

**Problem:** A desk manufacturer is putting out a catalogue of its products. One of these products will be a new line of double pedestal office desks made of metal with wooden veneer on the drawers and top. You have been provided with plans for the desk, and a sketch of what it will look like when assembled. Your job is to produce an isometric drawing or a cabinet oblique drawing of the desk that can be used as an illustration of the product in the new catalogue.

**Constraints:**

- Drawing must be completed on a sheet with dimensions (21.5 cm × 28 cm).

**Materials:**

- drawing paper (21.5 cm × 28 cm)
- pencil
- eraser
- ruler
- T-square
- 30, 60, 90 set square
- Design journal

**Procedure:**

- Study the dimensioned plan and sketch you are provided with.
- Draw desk with pencil using “light” lines.
- Indicate texture on veneered portions of desk.
- Darken in lines where appropriate.
- Finish drawing.
- Place drawing in portfolio.

**DES1060 Drafting/Design Fundamentals****Project 2: One- and Two- point Perspective Drawing****Brief: MEGABLOCKS**

**Problem:** Toys For Tots is a major Canadian toy manufacturer. They specialize in making toys for children ages four and under. A new product line “MEGABLOCKS” has recently been designed and will be available to customers early next year. “MEGABLOCKS” are large colourful blocks of lightweight foam that come in cubes, cylinders, triangular prisms, cones and pyramids. The dimensions of each cube are 30 cm × 30 cm × 30 cm with the other forms not exceeding this size. They can be stacked by children in different ways to produce towers, walls, chairs, etc.

The company has asked you to diagram each of the forms in one-point and two-point perspective and to draw a composition of the blocks in an arrangement a typical four-year-old child might make. The composition may be done using one- or two-point perspective. Three presentation drawings will be required.

**Constraints:**

- Drawing must be completed on a sheet of cartridge paper.
- The drawing must be done in pencil.
- Cast shadows and highlights may be included (optional).

**Materials:**

• cartridge paper	• ruler
• pencil	• design journal
• eraser	• sample reference forms (e.g., cone, cube, cylinder)

**Procedure:**

- Study the different forms from various angles and experiment with the different forms in various lighting conditions.
- Prepare line drawings of each form using one- and two-point perspective.
- Using either one- or two-point perspective, compose forms on a page as a four-year-old child might arrange them when playing.
- Finish drawing.
- Mount perspective drawings and isometric or oblique drawing.
- Present drawing portfolio.

## DES1060 Drafting/Design Fundamentals

### Exercise 2: Multiview Drawings

- Select an object from those provided to you and use it as a reference of each of the drawings. I will lead you through each of the drawings.
- Produce the following drawings using a pencil, ruler, T-square and set square:
  - border and title block
  - front view
  - top view
  - side view.
- Dimension the drawings produced and add information to title block.
- Using isometric grid paper, produce a pictorial representation of the object represented by the multiview drawing.
- Note: Use your Design Journal to keep notes.

### Exercise 3: Surface Developments

- Examine several flat patterns; e.g., cereal box, tissue box, french fry container, clothing pattern.
- Develop a simple pattern shape:
  - sides, top, bottom
  - add tabs and seams, bending lines
  - cut out and fold together.
- Using card stock, try scoring card on a curved line and then bend into shape.
- Note: Use your Design Journal to keep notes.

**DES1060 Drafting/Design Fundamentals****Project 3A: Multiview Drawing****Brief: GO-GO CAR**

**Problem:** Toys For Tots is a major Canadian toy manufacturer. They specialize in making toys for children ages four and under. Market research done by the company suggests that there is a need for a children's riding toy made of colourful plastic for children with an average age of three years. This new toy called the "GO-GO car" will go into production early next year. "GO-GO car" will be designed using basic forms (e. g., cube, cylinder, triangular prism, cone and pyramid) and will be sold in a colourful cardboard box with the outside dimensions of 70 cm × 40 cm × 40 cm.

The company has asked you to do basic working drawings for the "GO-GO car" including a front view, side view, top view and a pictorial representation using isometric projection. The completed drawings should be composed for presentation on one presentation sheet.

**Constraints:**

- Composition dimensions are 43 cm × 56 cm.
- Three views must be completed in pencil.
- Pictorial representation must indicate tone (colour is optional).
- Border and title block must be included.
- Manufacture, product name, your name, date drawn and scale of drawing must be included in title block information.

**Materials:**

• cartridge paper and/or vellum	• T-square
• pencil	• 30, 60, 90 set square
• eraser	• design journal
• ruler	• coloured pencils (optional)
• isometric graph paper	• sample "GO-GO car" (may be used for reference)

**Procedure:**

- Carefully examine the sample "GO-GO car" or sketches and dimensioning information provided.
- Select an appropriate scale in which to produce your drawings.
- Produce a front view, top view and side view.
- Prepare an isometric projection of the product.
- Finish drawings.
- Present drawing portfolio.

**DES1060 Drafting/Design Fundamentals****Project 3B: Surface Development****Brief: Box of Cookies**

**Brief:** Dog House Pet Food Corporation has developed a pet treat that they will market to dog owners attending dog shows. The new product is to be called Dawg Cookies. The company president wants a package developed to help market the new Dawg Cookies.

**Constraints:** This package will be made out of heavy card, stamped or cut out of a flat sheet and then shipped to the packaging department for assembly, filling and distribution. The president has asked that a package be designed in the shape of a dog house and that the package have a carrying handle. Buyers will open the top of the package to access the Dawg Cookies.

The package must be made to the following specifications:

- volume = 1500 cubic centimeters (approximate)
- height = 10 centimeters
- width = 10 centimeters
- length = 15 centimeters
- include tabs to allow fastening edges together
- carrying handle must be part of the package, not an added component
- package must display the produce name at least once

**Materials:**

- newsprint and/or cartridge paper and/or vellum
- card stock for model
- pencil
- eraser
- ruler
- scissors and/or knife
- T-square
- 30, 60, 90 set square
- design journal
- coloured pencils (optional)
- sample package from commercial sources (may be used as reference)

**Procedure:**

- Sketch out a basic design on light gauge paper, cut out and fold together to test shape, size, placement, etc.
- Produce surface development drawing on light gauge paper.
- Draw in product name on package.
- Transfer finished drawing to card.
- Complete drawing of product name on card.
- Cut out package from card and fold along bending lines.
- Fasten package together to produce model.
- Present as part of portfolio.

# CAREER & TECHNOLOGY STUDIES

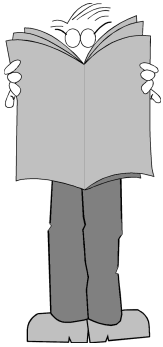
## DESIGN STUDIES

### SAMPLE STUDENT LEARNING GUIDE

**DES3070 Living Environment Studio 1**  
**DES3080 Living Environment Studio 2**  
**DES3090 Living Environment Studio 3**

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

# WHY TAKE THIS MODULE?



Designers who work in architecture, interior and environmental design must consider many factors as they design living spaces for their clients. The needs of the clients will vary depending on the intended outcome. For example, a person who owns a restaurant and wants to design its interior will require an outcome that will be aesthetically pleasing so customers will be attracted to the restaurant and feel comfortable once they arrive. This person will also want a design that is functional, easy to maintain and durable because it will need to serve many people over a long period of time. Some of these same qualities will also be required in this person's home, although the home design will be quite different from that of the restaurant. Similarly, this person and their family will also spend time in other environments such as public parks and will require a variety of services from the park(s) they go to.

As a group being given the task of designing a living environment, you must consider the needs of human beings, the needs of the environment, the aesthetic and functional quality of your designs, the best materials to use to produce the design and how the final product can best be produced either singly or in quantity. Throughout integrated project, you and/or your group will make decisions and answer questions pertaining to the design of a living environment for human use. Good luck.

# WHAT DO YOU NEED TO KNOW BEFORE YOU START?

There are no prerequisites identified for this module.

To be successful in this integrated project you will need to be able to work as a member of a design group and use a design process. You will need to conduct research and use your findings to develop new solutions.

Completion of *DES2040: Drafting/Design Applications* and either *DES2010: 2-D Design Applications* or *DES2020: 3-D Design Applications* will provide helpful background knowledge to work successfully in this module.



## DESIGN STUDIES

DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3

# WHAT WILL YOU KNOW AND BE ABLE TO DO WHEN YOU FINISH?

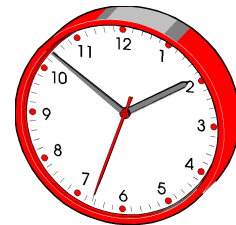
Upon completion of this module you will be able to:

- produce creative designed solutions based in architectural, environmental and/or interior design, that address human and/or environmental needs
- use elements, principles and processes of design to deal with identified human and/or environmental needs within design solutions
- describe how human and environmental requirements affect design
- produce advanced level designed solutions for problems in one or more living environment themes: architectural design, environmental design, interior design
- apply elements and principles of design; e.g., space, form, and ergonomics within architectural, environmental, and/or interior design
- make rational judgements with respect to aesthetic quality in architectural, environmental or interior design
- use appropriate materials and production processes to resolve set design problems
- identify materials and products used in architectural, environmental and/or interior design, and give reasons for their use based on their properties
- identify and/or specify production processes, and/or methods of manufacturing products common to architectural, environmental and/or interior design
- select, organize and present design projects
- demonstrate basic competencies.

# WHEN SHOULD YOUR WORK BE DONE?

Your teacher will give you a timeline for completing tasks and assignments within this module.

You may also wish to use a time-management planning chart to preplan the work that needs to be done in this module. Plan how you will use your class time as well as extra time needed to complete the assignments in this module.

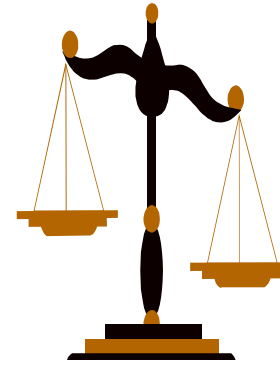


## DESIGN STUDIES

DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3

# HOW WILL YOUR MARK FOR THIS MODULE BE DETERMINED?

	PERCENTAGE
You must first demonstrate <b>all</b> of the competencies required for this module.	
When you have done this, your percentage mark for the module will be determined as follows.	
<ul style="list-style-type: none"> <li>• Successful completion of project.</li> </ul>	80%
<ul style="list-style-type: none"> <li>• Presentation of project and discussion of your work.</li> </ul>	20%



# WHICH RESOURCES MAY YOU USE?



- Ching, Francis D. K. *Interior Design Illustrated*. Van Nostrand Reinhold, New York, 1987.
- Foundation for the Advancement of Science and Education (PBS). *Future Habitats* (Futures 2 series), 1992. Distributed by Visual Education Centre (VEC).
- Foundation for the Advancement of Science and Education (PBS). *Graphic Design* (Futures 2 series), 1992. Distributed by Visual Education Centre (VEC).
- Foundation for the Advancement of Science and Education (PBS). *Industrial Design* (Futures 2 series), 1992. Distributed by Visual Education Centre (VEC).
- Hepler, Donald E., Wallach, Paul R. and Hepler, Dana J. *Architecture Drafting and Design*. 6th Edition. Glencoe/McGraw-Hill, 1991.
- Kicklighter, Clois E., Baird, Ronald J. and Kicklighter, Joan C. *Architecture: Residential Drawing and Design*. The Goodheart-Willcox Company, Inc., South Holland, Illinois, 1995.
- Kilmer, Rosemary and Otie Kilmer. *Designing Interiors*. Orlando, Florida: Harcourt, Brace, Jovanovich, 1992.
- Shadrin, Richard L. *Design and Drawing: An Applied Approach*. Davis Publications, Inc., Worcester, 1992.

# ACTIVITIES/WORKSHEETS

**Project: Architectural Design**

Choose *one* of the following projects:

- Brief 1:** Design a lunar community suitable for continuously sustaining life on the Earth's moon.
- Brief 2:** Design a condominium complex for seniors.
- Brief 3:** Design your dream house.
- Brief 4:** Design a Velodrome for the Olympic Summer Games of 2004.
- Brief 5:** Design the Information Centre of a wildlife theme park.

**Project: Environmental Design**

Choose *one* of the following projects:

- Brief 6:** Design an inner city public park of no less than 5 hectares.
- Brief 7:** Design an aviary for a local zoo.
- Brief 8:** Design a coastal fish farm.
- Brief 9:** Design a space station.
- Brief 10:** Design a sterile environment for a hospital emergency ward.

**Project: Interior Design**

Choose *one* of the following projects:

- Brief 11:** Design the interior of a day care centre.
- Brief 12:** Design the interior of a coffee house and deli.
- Brief 13:** Design the interior of a veterinarian's clinic.
- Brief 14:** Design the interior of a one-bedroom apartment.
- Brief 15:** Design the interior of an underwater research station.

## DESIGN STUDIES

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### *Design Briefs: Architectural Design*

#### **Brief 1: LUNAR COLONY**

**Problem:** It is the year 2010 and the first lunar colony is being planned by an international space exploration consortium. The Canadian Space Agency as a member of that consortium has asked for design proposals. Your architectural design group has agreed to submit a proposal in the form of scale drawings, a scale model and a prospectus describing:

- the components
- the materials to be used
- where the components would be manufactured
- how the components would be transported
- how the colony would be assembled on the moon
- how the features of your design will meet the needs of colonists.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

## DESIGN STUDIES

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 2: SENIORS' CONDOMINIUMS

- Problem:** Your architectural design group is bidding on an adult condominium complex for seniors. The complex is to have 40 separate residences, a community/recreation, and a manager's office. As some of the prospective residents may be disabled, wheelchair access to all facilities is required. The building site is in a suburban community supported by all utilities and by public transportation. A project proposal must be submitted in the form of scale drawings, a scale model and a prospectus describing:
- the components of the condominium complex
  - the materials to be used
  - how the features of your design will meet the general needs of the residents
  - features of your design which are unique and how these will benefit the residents
  - why your design proposal should be selected.
- Constraints:**
- Drawings must be completed on vellum.
  - The model must fit on a surface not exceeding one square metre.
- Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.
- Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

## DESIGN STUDIES

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 3: DREAM HOUSE

**Problem:** You have won three million dollars in the 649 lottery. You have decided to design and build the house of your dreams. The house may be located in an urban or rural setting. Total cost of property acquisition, utilities installation and house construction must not exceed one million dollars (Canadian).

The local land development board requires the following which you must provide before and development or construction can begin:

- a site plan showing utilities access
- a floor plan of the house
- front and side elevations
- plumbing, heating and electrical diagram
- a prospectus describing the house and its significant features which will have an impact on the building permit (e.g., fireplace, hot tub, pool, sauna, solarium).

**Constraints:** • Drawings must be completed on vellum.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience.

**DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3****Brief 4: OLYMPIC VELODROME**

**Problem:** A major Alberta centre is submitting a request to host the 2004 Olympic Summer Games. Part of the submission includes drawings, diagrams and/or models of proposed venues. Your design group has been asked to submit a design for the Velodrome, a new cycling facility to be constructed in a rolling, park-like setting on the western outskirts of the city. A project proposal must be submitted in the form of scale drawings, a scale model and a prospectus describing:

- the components of the Velodrome complex
- how the complex will relate to and take advantage of the surrounding natural features
- how contestants and spectators will be able to access the site, the competition area and the viewing area
- public facilities such as food concessions, washrooms, parking
- why your design proposal should be selected.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

## DESIGN STUDIES

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 5: INFORMATION CENTRE

**Problem:** Kananaskis Country is a major recreation area of Albertans and also attracts visitors from around the world. It is characterized by beautiful scenery and abundant wildlife. A new Information Centre is required that will serve tourists on a year around basis. Your design group is asked to submit a design proposal for the Centre. The proposal must be submitted in the form of scale drawings, a scale model and a prospectus describing:

- the components of the Information Centre
- how the Centre will relate to and take advantage of the surrounding natural features
- how staff will be accommodated
- public facilities such as food concession, washrooms, parking
- any special features (e.g., adjacent trails, emergency facilities, interpretive information centres)
- why your design proposal should be selected.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

**DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3***Design Briefs: Environmental Design***Brief 6: INNER CITY PARK**

**Problem:** As part of the revitalization of the core of a major Canadian city, planners have proposed the development of a park that would serve the public throughout the year. The proposed site has an area of 5 hectares, is bordered on two sides by a shallow canal frequented by boaters in the summer and has a monument to Canada's veterans (which cannot be moved) within its boundaries. A call for proposals has been made and your design group has been asked to prepare a design for the park. The proposal must be submitted in the form of scale drawings, a scale model and a prospectus describing:

- the park's major features
- how the park will relate to and take advantage of the surrounding natural and previously built features
- the kind of use the park is likely to receive at different times of the day and in different seasons
- playgrounds
- any special features (e.g., fountains, sports fields, performing arts centres)
- why your design proposal should be selected.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

**DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3****Brief 7: ZOO AVIARY**

- Problem:** A zoo has received a donation of five million dollars from a wealthy benefactor and bird fancier for the purpose of building and stocking an aviary. The building will be attached to an existing single storey structure used for zoo administration and containing a small restaurant. You are to design the aviary and submit concept drawings and a model of the facility to the zoo's board of directors at their next board meeting scheduled in eleven weeks. You must also submit a prospectus describing:
- the assortment of birds that would be housed in the facility
  - how the facility will safely accommodate the birds
  - how visitors will be able to circulate through the aviary so they can see the birds
  - how the aviary will relate to and take advantage of the surrounding natural and previously built features
  - the kind of use the aviary is likely to receive at different times of the day and in different seasons
  - public facilities such as washrooms
  - any special features (e.g., fountains, plant life, theme areas such as different climatic zones)
  - why your design proposal should be selected.
- Constraints:**
- Drawings must be completed on vellum.
  - The model must fit on a surface not exceeding one square metre.
- Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.
- Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

## DESIGN STUDIES

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 8: COASTAL FISH FARM

**Problem:** An opportunity has come your way to join a partnership that is establishing a commercial fish farm located in a sheltered inlet on the east coast of Vancouver Island, British Columbia. Indigenous varieties of fish will be raised in pens and shipped to market in Nanaimo. You are to design the farm including the pens, feed storage, office space and personal lodging for the farm manager. You must also submit a prospectus to your business partners describing:

- the assortment of fish to be raised in the facility
- how the fish farm will operate
- market potential
- potential environmental impact of the farm on the surrounding waters and land and the potential impact of these on the farm
- any special features (e.g., fish feeding or harvesting equipment, storage facilities)
- why your partners should support your design.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 9: SPACE STATION

- Problem:** The Canadian Space Agency as a member of an international space exploration consortium has asked for design proposals for a space station designed to orbit the Earth and act as a scientific research facility and a staging facility for space exploration and development. Your design group has agreed to submit a proposal that would describe the living conditions of the people assigned to the station and how these would be accommodated. The submission would take the form of scale drawings, a scale model and a prospectus describing:
- provision of day-to-day living needs
  - recreation facilities
  - work facilities
  - power sources
  - heating mechanisms
  - water production
  - food production
  - waste removal
  - storage and maintenance.
- Constraints:**
- Drawings must be completed on vellum.
  - The model must fit on a surface not exceeding one square metre.
- Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.
- Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 10: STERILE ENVIRONMENT

- Problem:** A hospital serves a community that has a strong industrial and manufacturing base. Some of this industry uses toxic and corrosive materials in their work. Should an accident occur, there is a possibility that workers will be contaminated by some of this material and require immediate hospital treatment in a sterile environment. Your design group has been given the task of designing a self-contained sterile environment capable of holding up to five patients at one time. Medical and support personnel must have access to the environment to administer medical treatment and perform other necessary functions. The submission would take the form of scale drawings, a scale model and a prospectus describing:
- provision of patient's medical needs
  - provision of patient's day-to-day living needs
  - access for medical and non-medical personnel
  - how the environment will be controlled
  - emergency back up resources (e.g., power, heat, water)
  - storage and maintenance.
- Constraints:**
- Drawings must be completed on vellum.
  - The model must fit on a surface not exceeding one square metre.
- Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.
- Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

**DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3***Design Briefs: Interior Design***Brief 11: DAY CARE CENTRE**

**Problem:** Just Like Home Day Care is expanding by opening a second day care in the same community. A suitable location has been found in a strip mall. The space has an area of 200 square metres on one level with an outside door leading to a grassy area that could be converted to a playground. Your design group must develop a floor plan for the building space and design the interior appropriately. Necessary components will include three separate spaces for groups of children, office space for the administration of the day care, a reception area, signage for the entrance and a plot plan for the playground area. Please submit scale drawings and a scale model of the facility and a prospectus describing:

- materials required to create an interior design for the day care
- particular features of the facility that would make it attractive to the children and their parents
- features that would help the staff in doing their job
- how standards are met or facilitated by the design.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

**DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3****Brief 12: COFFEE HOUSE AND DELI**

**Problem:** The Fine Food Emporium is well-established restaurant serving a standard menu of dishes to long-time customers. The opportunity has arisen to expand the business into the adjacent business and the owners have decided to open a specialty coffee house and deli. This new space is located on a busy southwest corner with a wide sidewalk on the south side. Your design group is to design the facility and the decor for this business and to suggest a business name based on the decor theme. Please submit scale drawings and a scale model of the facility and a prospectus describing:

- materials required to create an interior design for the business
- particular features of the business that would make it attractive to potential clients
- features that would help the staff in doing their job.
- how the environment will relate to the existing restaurant.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

## DESIGN STUDIES

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 13: VETERINARY CLINIC

- Problem:** The local animal hospital is slated for replacement in five months. The new facility will have a reception area, office, examination rooms, small animal surgery, large animal surgery, kennel and large animal holding area. Your design group is part of an architectural and engineering firm that has been selected to design the clinic. Your job is to design the decor for the reception area, office area, examination rooms and surgeries. Please submit scale drawings and a scale model of the facility and a prospectus describing:
- materials required to create an interior design for each area
  - features that would help the staff in doing their job
  - features that would increase the comfort and speed the recovery of the animals being cared for.
- Constraints:**
- Drawings must be completed on vellum.
  - The model must fit on a surface not exceeding one square metre.
- Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.
- Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

### DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2, DES3090 Living Environment Studio 3

#### Brief 14: A LOFTY APARTMENT

**Problem:** You are moving out for the first time. You have found in an old house a loft that can be converted into an apartment. It has sloped ceilings and two windows, one at each end of the space. The owner (your aunt) says that you can convert the loft into an apartment as long as you pay for the materials and pay for or do the work yourself. She will give you free rent for six months in exchange for your design and construction work.

Design the apartment to suit yourself. Please submit scale drawings and a scale model of the facility and a prospectus describing:

- materials required to create the design
- particular features that make the apartment your own.

**Constraints:**

- Drawings must be completed on vellum.
- The model must fit on a surface not exceeding one square metre.

**Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.

**Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.

**DES3070 Living Environment Studio 1, DES3080 Living Environment Studio 2,  
DES3090 Living Environment Studio 3****Brief 15: UNDERWATER RESEARCH STATION**

- Problem:** Underwater Research and Development has been awarded a contract to design and build an underwater research station that will be submerged in the Lake Huron to test how people adapt to life in an underwater environment. The station will have room for 10 people and contain separate living and working spaces. Your design group must submit a proposal that would describe the living conditions of the people assigned to the station make recommendations with respect to the interior design of the station and how this could enhance the quality of their existence. The submission would take the form of scale drawings, a scale model and a prospectus describing:
- the decor of the living and working areas
  - recreation facilities
  - how specific features of the design would enhance the living and working conditions.
- Constraints:**
- Drawings must be completed on vellum.
  - The model must fit on a surface not exceeding one square metre.
- Materials:** Use materials and equipment of your choice. Have your list approved by your teacher by the end of class 6.
- Procedure:** Select and use appropriate procedures based on your previous experience. Discuss any modelling construction procedures with your teacher prior to using them.