SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON.

COURSE OUTLINE

COURSE TITLE: Drafting and Design

COURSE CODE: ARC 202

PROGRAM: Architectural Technology

SEMESTER: I (Fall)

AUTHOR: B. Sparrow

DATE: September 1992

PREVIOUSLY DATED: September 1991

APPROVED: L P Arquette (DEAN) DATE: 92-08-18

DRAFTING AND DESIGN ARC 202

TOTAL CREDIT HOURS: 6
PREREQUISITES: ARC 113

I. PHILOSOPHY AND GOALS

This course is intended to introduce the student to commercial construction systems, with an emphasis on masonry and steel construction. The student will be introduced to the principles and applications of the requirements for building envelope details. The student will also refine design, detailing and drawing skills by completing presentation and working drawings for a small commercial building.

II. STUDENT PERFORMANCE OBJECTIVES

Upon successful completion of the course, the student will be able to:

1. Design a small commercial building given a site and a programme.
2. Draw details for a masonry cavity wall, applying the rainscreen principle.
3. Prepare presentation drawings using pen and ink.
4. Analyze conformance of a commercial building plan with Part 3 of the Ontario Building Code.
5. Construct and render a two point perspective using pen and ink.
6. Construct shade and shadow in a two point perspective.
7. Apply dimensioning techniques to masonry construction.
8. Draw a complete working drawing site plan, including grading.
9. Interpret and draw details for built-up and protected membrane roofs.
10. Understand the function and placement of air and vapour barriers.
11. Understand the principles of good detailing practices, including performance requirements.
12. Detail aluminium frame (curtain wall) window and glazing systems.

III. TOPICS TO BE COVERED

1. Masonry construction.
2. Masonry cavity walls and the rainscreen principle.
3. Detailing and dimensioning masonry construction.
4. Detailing open web steel joist/steel deck systems.
5. Design and detailing conventional and inverted roofs.
6. Presentation drawings for a commercial building using pen and ink.
7. Perspective rendering using pen and ink, shade and shadow.
8. Site design and landscape design.
9. Part 3 OBC, fire protection and fire rating.
10. Accessible design and Section 3.7 of the Ontario Building Code.

IV. LEARNING ACTIVITIES / REQUIRED RESOURCES

1.0 Masonry Construction

Upon successful completion of this unit, the student will be able to:	
1.1 Describe materials and methods of masonry construction.	Drafting equipment kit 8.5 X 11 Vellum
1.2 Define the rainscreen principle and its application in cavity wall construction.	Architectural Details for Insulated Buildings Read pp. 2-11 Review Series A Details A1-A8C
1.3 Draw details of masonry wall construction.	Read pp. 211-217

1.4 Draw details of steel joist/deck and masonry wall interfaces.

1.5 Understand and draw details of built-up, inverted and membrane roofing systems.

1.6 Roof drainage design.

1.7 Analyze and understand the principles of good detailing practice.

Architectural Details for Insulated Buildings
Review p. 4

2.0 Presentation Techniques

2.1 Review of two point perspective drawing.

Drafting Equipment Kit
8.5 X 11 Vellum
24 X 36 Vellum

2.2 Draw and render presentation drawings in pen and ink.

2.3 Construct shade and shadow in two point perspective.

3.0 Site Design

3.1 Understand and apply principles of site planning.

3.2 Understand and apply applicable regulations and by-laws to the design and planning process.

3.3 Examine landscape design and plant materials.

3.4 Examine and apply principles of windflow and snowdrifting to site design.

4.0 Air and Vapour Barriers

4.1 Define and distinguish the function of air and vapour barriers.	Architectural Details for Insulated Buildings Read pp. 162-163,169-170
4.2 Apply the principles of air and vapour barriers to wall and roof assemblies.	

5.0 Part 3 OBC

5.1 Apply Part 3 regulations to the planning and design of a small commercial building.	Ontario Building Code Part 3
5.2 Examine the requirements of Section 3.7 and the site and building design implications.	

6.0 Working Drawings for a Masonry Building.

6.1 Organize and prepare thumbnail sketches of drawing layout.	Architecture Design-Engineering-Drawing Chapter 16
6.2 Draw wall, aluminum window and roof details for a masonry and steel joist/steel deck assembly.	Architectural Details for Insulated Buildings Review details A4-A6
6.3 Draw plans, sections, elevations and site plan for a small commercial building.	
6.4 Fully dimension a floor plan for a masonry building.	
6.4 Apply notes and references to working drawing plans and details.	

V. METHOD OF EVALUATION

Students will be assigned a final grade based on successful completion of tests, assignments, projects and attendance, weighted as follows:

Major Assignment		
	Design Phase	15%
	Working Drawings	20%
	Perspective	5%
Detail Assignments		35%
Other Assignments		15%
Attendance		10%
TOTAL		100%

Late assignments will be penalized 10% for each day late. Attendance and punctuality will be considered in the student assessment.

A final letter grade will be assigned as follows:

A+	90-100%
A	80-89%
B	70-79%
C	55-69%
R	Repeat

VI. REQUIRED STUDENT RESOURCES

Architecture: Design Engineering Drawing
Latest Edition
William P. Spence
Glencoe

Architectural Details for Insulated Buildings
Ronald Brand
Van Nostrand Reinhold

Architectural Drafting Equipment Kit

In addition to those materials provided in the kit, the student will be expected to supply various other media and materials necessary to complete the assignments and projects.

VII. ADDITIONAL RESOURCES AND MATERIALS

Architectural Graphic Standards
Ramsey/Sleeper
Latest Edition
John Wiley & Sons

There are available in the library a number of texts and periodicals on design, drafting and construction.

VIII. SPECIAL NOTES

1. Students with special needs are encouraged to discuss required accommodations in confidence with the instructor.

2. The instructor reserves the right to modify the course and course outline as deemed necessary to meet the needs of the students.