SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ON.

COURSE OUTLINE

COURSE TITLE:	Drafting and Design
COURSE CODE:	ARC 113
PROGRAM:	Architectural Technology
SEMESTER:	II (Winter)
AUTHOR:	B. Sparrow
DATE:	4 January 1993
PREVIOUSLY DATED:	January 1992

APPROVED: L P Chaput (DEAN) DATE: 93-01-08

TOTAL CREDIT HOURS: 6
PREREQUISITES: ARC 111

I. PHILOSOPHY AND GOALS

This course provides the student with an introduction to advanced wood frame design and construction. The student will refine skills in drawing and drafting introduced in ARC 111, by completing design, presentation and working drawings for a multiple family residential building.

II. STUDENT PERFORMANCE OBJECTIVES

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

1. Design a multiple unit, wood frame residential building.
2. Understand and draw details for residential wood frame construction, including masonry veneer.
3. Demonstrate consistent hand lettering using pencil.
4. Draw presentation plans, sections and elevations of a residential wood frame building using pencil.
5. Prepare a partial set of working drawings for a multiple family wood frame building.
6. Draw and render a two point perspective using pencil on vellum.
7. Use the Ontario Building Code to check design compliance with Part 9.
8. Prepare a presentation drawing using ink and coloured pencil.
9. Identify and draw details for brick veneer used with wood frame construction.
10. Construct shadows for objects using solar charts.
11. Design a sun shading device given solar data and parameters.
13. Develop model construction techniques using cardboard.
14. Understand and apply principles, codes and practices of residential site planning.

III. TOPICS TO BE COVERED

1. Design of multiple unit residential buildings
2. Site planning for residential development
3. Landscape and environmental quality
4. Advanced presentation drawings in pencil
5. Drawing two point perspectives
6. Drawing perspectives for presentation
7. Detailing brick veneer over wood frame construction
8. Design and detailing of preserved wood foundations
9. Detailing multi-storey wood frame construction, including fire rated assemblies and fire separations
10. Design of sun shading devices

IV. LEARNING ACTIVITIES

REQUIRED RESOURCES

1.0 DESIGN OF MULTIPLE UNIT RESIDENTIAL BUILDINGS

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

1.1 Design a one and two bedroom apartment unit.

1.2 Prepare a colour presentation of a residential unit design.

- drafting equipment
- 8 1/2 X 11 vellum
- 24 X 36 vellum
- 24 X 36 white illustration board

2.0 SITE PLANNING AND LANDSCAPE DESIGN

2.1 Develop a site plan for a multi-unit residential building.

Architectural Graphics
p. 38-40

2.2 Understand principles of landscape design and impact on environmental quality.	Architecture p. 102-112
2.3 Prepare a colour presentation of a residential site plan.	Architecture Chapter 15

3.0 MULTIPLE UNIT RESIDENTIAL DESIGN AND CONSTRUCTION

3.1 Develop and draw floor plans for a multi-unit residential building.	
3.2 Develop and draw building sections and elevations for a multi-unit residential building.	Architectural Graphics p. 42-48
3.3 Prepare presentation drawings including site and floor plans, section and elevations using pencil on vellum of a multi-unit/multi-storey building.	
3.4 Check compliance of a multi-unit residential design with Part 9 of the Ontario Building Code.	

4.0 DRAWING AND RENDERING TWO POINT PERSPECTIVES

4.1 Identify one and two point perspectives.	Architectural Graphics p. 62-96
4.2 Construct and draw a two point perspective.	
4.3 Apply shade and shadow to a two point perspective.	A Graphic Vocabulary for Architectural Presentation

4.4 Construct and render a two point perspective of a multi-unit residential building.	Architectural Graphics p. 130-135
5.0 BRICK VENEER / WOOD FRAME CONSTRUCTION	
5.1 Understand the concept of brick veneer.	
5.2 Prepare and draw construction details for brick veneer assemblies.	
5.3 Prepare and draw construction details for multi-storey wood frame assemblies	Canadian Wood Construction Selected Brochures
5.4 Prepare a partial set of working drawings for a multi-storey wood frame, brick veneer building, including plans, site plan, building sections and elevations as well as wall sections.	Architecture Chapters 6-9 Chapter 16
6.0 PRESERVED WOOD FOUNDATIONS	
6.1 Identify and name the components of a preserved wood foundation.	Canadian Wood Construction Selected Brochures
6.2 Prepare and draw details of a preserved wood foundation assembly.	
7.0 FIRE RATED ASSEMBLIES AND FIRE SEPARATIONS	
7.1 Define a fire rated assembly and fire separation.	Ontario Building Code Part 9 and Appendices

7.2 Prepare and draw details of fire rated floor and wall assemblies for a multi-storey wood frame building.

7.3 Understand and draw details of STC rated assemblies for a multi-storey wood frame building.

8.0 SUN SHADING DEVICES

8.1 Understand and read a solar chart. Handouts

8.2 Construct true shadows of objects given time of day, direction, and latitude.

8.3 Design an appropriate sun shading device for a window opening.

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		
	Unit Design/Presentation	10%
	Building Design/Presentation	15%
	Perspective	10%
	Working Drawings	20%
Drafting Assignments and Tests		35%
Attendance		10%
TOTAL		**100%**

Late assignments will be penalized. 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
William P. Spence
Glencoe

Architectural Graphics
Second Edition
Francis Ching
Van Nostrand Reinhold

Manual on Metric Building Drawing Practice
National Research Council of Canada

Canadian Wood Construction
Canadian Wood Council
Selected Brochures

A Graphic Vocabulary for Architectural Presentation
Edward T. White
Architectural Media Ltd.

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

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.