SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: DRAFTING & DESIGN

Code No.: ARC 111-5 Semester: ONE

Program: ARCHITECTURAL

Author: MEL URSELL

Date: AUGUST, 1989 Previous Outline Dated: JUNE, 1984

APPROVED: _____ _____

Chairperson Date

DRAFTING & DESIGN — Course Name

ARC 111-5 — Course Number

Total Credit Hours 80

Prerequisite(s): _____

I. PHILOSOPHY/GOALS:

To identify and develop basic architectural drafting skills.

To identify and detail basic building components.

To research various sources of information related to design and construction.

II. STUDENT PERFORMANCE OBJECTIVES:

Upon successful completion of this course the student will be able:

1. To write a pretest in general drafting theory.
2. To review the techniques of mechanical and freehand lettering.
3. To review the use of the Architect's scale.
4. To solve various Architect's scale problems.
5. To practice and solve geometric construction problems as follows:
    a) To divide a line into a given number of parts
    b) To draw a hexagon given the distance across corners
    c) To draw a regular pentagon
    d) To plot a rectangular boundary given one basic line.

DRAFTING & DESIGN
COURSE NAME

ARCH 111-5
CODE NO.

6. To review the identity of orthographic projections.

7. To construct orthographic projections.

8. To solve orthographic missing line projections.

9. To identify the functions of the architectural draftsman.

10. To identify the steps in design and construction of any building from the basic concept to beginning of actual construction.

11. To identify the types of plans required for the complete design of a building.

12. To identify and construct an isometric pictorial drawing.

13. To identify and visualize shape description.

14. To identify and construct an oblique pictorial drawing in cabinet and cavalier.

15. To construct circular contours in isometric and oblique.

16. To identify and construct a two-point perspective.

17. To construct freehand pictorial sketches of various architectural objects in isometric or oblique.

18. To identify the techniques used in Architectural dimensioning.

19. To identify and draw the various architectural symbols.

20. To identify and draw the various architectural conventions.

21. To identify and draw the various electrical symbols.

22. To identify and draw the various mechanical symbols.

23. To identify and draw the various topographical symbols.

24. To solve problems involving the use of the National Building Code, "Part Nine", such as joist sizing, rafter sizing, load bearing, thermal insulated, and acoustically rated wall selection, etc.

25. To design and construct a drawing for a set of stairs.

26. To solve residential design problems such as traffic flow, circulation and separation of activities.

27. To identify and learn the use of various sources of information such as the various acts and regulations, trade literature and the architectural graphic standards, etc.

28. To identify and detail various architectural building systems such as:
    - wood frame construction
    - load bearing masonry
    - steel skeleton frame
    - post and beam construction

29. To identify the principles of modular construction.

30. To identify and draw framing details for a residential type structure.

31. To identify the design factors used in post and beam construction.

32. To select timber decking for post and beam construction.

33. To identify the most economical layout for a residential type building such as length of exterior walls, corners, etc.

34. To identify and solve various orientation problems in site planning.

35. To identify the various construction materials that have been "hard" or "soft" converted to S.I. at the present time.

36. To solve various assignments in S.I. conversion and involving the building code regulations.

37. To draw and convert existing Imperial Architectural details to S.I.

DRAFTING & DESIGN
COURSE NAME

ARC 111-5
CODE NO.

III. TOPICS TO BE COVERED:

1. Introduction
2. Lettering & Scales (Review)
3. Geometric Construction (Review)
4. Orthographic Projecting
5. Pictorial Drawing
6. Dimensioning
7. Symbols & Conventions
8. Sources of Information
9. Basic Building Systems (GENERAL)
10. Wood Frame Construction
11. Modular Building
12. Project
13. The S.I. System of Metrication

DRAFTING & DESIGN
COURSE NAME

ARC 111-5
CODE NO.

IV. LEARNING ACTIVITIES **REQUIRED RESOURCES**

4.0 ORTHOGRAPHIC PROJECTION

- 4.1 Its relation to Architectural Drawing

6.0 DIMENSIONING

- 6.1 As applied to Architectural Drawing Dimensioning rules

7.0 SYMBOLS & CONVENTIONS

- 7.1 Architectural
- 7.2 Mechanical
- 7.3 Electrical
- 7.4 Topographic

8.0 SOURCES OF INFORMATION

- 8.1 National Building Code
- 8.2 Acts & Regulations
- 8.3 Zoning Regulations
- 8.4 Trade Literature, etc.

9.0 BASIC BUILDING SYSTEMS (GENERAL)

- 9.1 Wood Frames
- 9.2 Load Bearing Masonry
- 9.3 Steel Skeleton Frame
- 9.4 Post & Beam Construction
- 9.5 Contemporary Module Construction

10.0 WOOD FRAME CONSTRUCTION

- 10.1 Framing lumber - softwood species
- 10.2 Nails - types used in construction
- 10.3 Framing details for residential buildings
- 10.4 Post & Beam Construction
- 10.5 Design factors
- 10.6 Structural design
- 10.7 Decking - calculations for deck design

DRAFTING & DESIGN
COURSE NAME

ARC 111
CODE NO.

11.0 MODULAR BUILDING

11.1 Description of various methods of modular constructions - ex UNICOM etc.

12.0 PROJECT

12.1 Working drawings for a small construction project of a residential or light commercial nature.

13.0 THE S.I. SYSTEM OF METRICATION

13.1 Linear measurements for floor plans, architectural details and site plans.

VII. ADDITIONAL RESOURCE MATERIALS

TEXT:

Architecture - Design Engineering & Drawing - by W. P. Spence

REFERENCE TEXTS:

Architecture - Realization Through Planning - G.N. Anthony (Pitman)

Building Construction Handbook - Merritt (McGraw-Hill)

Manual of Metric Building Drawing Practice - National Research Council

Architectural & Building Trades Dictionary - Burke Dalsell Townshed (General)

Technical Notes on Brick & Tile - Canadian Brick & Tile Association

Modular Coordination - R. S. Kent (National Research Council)

Canadian Wood Council Publication - Canadian Wood Council

Construction Metriguide - Domtar

Ontario Building Code

Architectural Graphic Standards - Ramsay & Sleeper

DRAFTING & DESIGN
COURSE NAME

ARC 111
CODE NO.

V. METHOD OF EVALUATION:

The following grades will be assigned:

A+	90 - 100	Consistently Outstanding
A	80 - 89	Outstanding
B	65 - 79	Above Average
C	55 - 64	Average
I	Incomplete	
R	Repeat	The student has failed to achieve the objectives of the course and must repeat the course

The "I" grade (incomplete) designation indicates that the student has not completed the objectives required in specific course areas.

Semester work will be made up of formal tests and assignments. All tests and assignments must be completed when assigned. Late assignments or projects will not be tolerated.

Attendance is also mandatory in all classes.

Tests and assignments will be given on a regular basis throughout the semester. The weighted grade between practical theoretical work will depend on the type of course. Final examinations are also mandatory for any students that does not maintain an "A" average in the course or who has not completed all assignments by their due date.

NOTE: Chronic absenteeism by any student will result in the student not being admitted to class and ultimately his failure to receive an acceptable grade in the course.

VIII. SPECIAL NOTES:

The student entering this course has had varied formal education and/or experience in Architectural Drafting and Design. For this reason, each student will be expected to write a pre-test to determine his general knowledge of drafting theory. After completion of the pre-test, the instructor will determine the speed at which each individual student may proceed from simple projects to the more complex and demanding working drawing projects. However, all students will review basic drafting theory as quickly as their individual abilities allow.