

SAULT COLLEGE
of Applied Arts and Technology
Sault Ste. Marie

COURSE OUTLINE

DRAFTING & DESIGN

ARC 113-5

revised March, 1979 by M. Ursell

ARCHITECTURAL DRAFTING

ARC 113-5

TEXT:

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

Architectural Technology - Obermeyer - McGraw-Hill

REFERENCE TEXTS:

Architecture - Realization Through Planning - by G. H. Anthony (Pitman)

Building Construction Handbook - by Merritt (McGraw-Hill)

Manual of Metric Building Drawing Practice - By National Research Council

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

Architectural Graphic Standards (5th Edition) - by Ramsay & Sleeper (General)

Masonry Simplified - by Dalsell Townshed (General)

Manual of Masonry Construction - by Cooksville-Laprarie Brick Ltd.

Technical Notes on Brick & Tile - by Canadian Brick & Tile Assoc.

Modular Co-ordination - by R. S. Kent - National Research Council.

Simplified Engineering for Architects & Builders - by H. Parker

Canadian Wood Council Publications - by Canadian Wood Council

Construction Metriguide - by Domtar

Topic Number	Periods	Topic Description	Reference
--------------	---------	-------------------	-----------

1	20	<u>Building Technology</u> <ul style="list-style-type: none">- the building and the site- types of subsurface investigation- soil categories- foundation types- unreinforced concrete wall footing design in S.I.- N.B.C. regulations governing foundations- roof types and design- basic structural systems- building flashings- load bearing masonry design & detail- detail of various structural systems- N.B.C. regulation governing walls, etc.- Selection of decks, open, web steel joists and bearing plate design	
---	----	--	--

2	20	<u>Contracts & Specifications</u> <ul style="list-style-type: none">- terminology- types- Canadian Format for Construction Specifications- tendering procedures- standard format of agreements- types of surety bonds and their application- project insurance requirements- Mechanics Lien Act- various specification writing assignments	
---	----	--	--

3	20	<u>Estimates</u> <ul style="list-style-type: none">- types- uses of various construction estimates- estimate assignments for students first semester project	
---	----	--	--

4	30	<u>Working Drawings</u> <ul style="list-style-type: none">- the student shall design and draw a complete set of working drawings for a low density class "C" occupancy project.	
---	----	---	--

NOTE: see objectives for description of requiremen

ARC 113-5

DRAFTING & DESIGN

PERFORMANCE OBJECTIVES:

The general objective of this course is to produce a set of working drawings for a low density residential type project. The students will also write a section of specifications for the above project and will construct a preliminary engineering estimate. The students will demonstrate good lettering, linework and layout accuracy. The students will work in groups (design team) for their major project.

UNIT 1

1. The student shall identify the requirements for site investigation.
2. The student shall identify the methods of subsurface exploration.
3. The student shall classify the major soil categories as to bearing capacity.
4. The student shall identify the terminology associated with simple unreinforced foundations.
5. The student shall design an unreinforced wall footing in S.I.
6. The student shall detail an unreinforced wall footing in S.I.
7. The student shall identify and be able to relate to others the N.B.C. regulations governing foundations.
8. The student shall identify the elements of architectural roof design.
9. The student shall consider the factors involved in roof design and construction.
10. The student shall identify the basic structural systems for low density buildings and select steel joists, deck and design bearing plate.
11. The student shall design a steel lintel.
12. The student shall identify the "rain screen wall principal" and its effects.
13. The student shall identify the types and locations for building flashings.
14. The student shall identify the principals of design for clay masonry bearing walls.
15. The student shall identify a diaphragm.
16. The student shall detail various structural systems in S.I.

UNIT 2

17. The student shall identify a building specification.

18. The student shall identify the types of specifications.
19. The student shall identify the common types of construction contracts.
20. The students shall identify the format for Canadian Specifications.
21. The student shall identify a tender.
22. The student shall identify the tendering procedure.
23. The student shall identify the "standard form of agreement between client and architect".
24. The student shall identify the general conditions for a set of specifications.
25. The student shall identify types of penalty clauses.
26. The student shall identify the performance bond.
27. The student shall identify the bid bond.
28. The student shall identify the labour and material payment bond.
29. The student shall identify the types of building and construction insurance.
30. The student shall identify the architect's liabilities and insurance of them.
31. The student shall identify the "Mechanics Lien Act".
32. The student shall construct the Standard Form of Construction Tender.

UNIT 3

33. The student shall identify the purpose of construction estimates.
34. The student shall identify the unit cost estimate and its application.
35. The student shall identify the square foot method and its application.
36. The student shall identify the cubic foot method and its application.
37. The student shall identify the quantity take-off method and its application.
38. The student shall identify the requirements for a construction estimate.
39. The student shall construct a preliminary engineering estimate for his first semester project.

UNIT 4

40. The students shall design and draw a complete set of working drawings for a low density class "C" occupancy project which shall include:
 - a) all floor plans
 - b) all elevations
 - c) all sections
 - d) all schedules
 - e) a site plan
 - f) custom details
 - g) all structural drawings
 - h) all mechanical drawings
 - i) all electrical drawings

NOTE:

The above project shall be dimensional in S.I. using the latest information available from government and manufacturers' literature.