

SAULT COLLEGE
of Applied Arts and Technology
Sault Ste. Marie

COURSE OUTLINE

DRAFTING & DESIGN
ARC 212-5

revised June, 1981 by M. Ursell

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ARCHITECTURAL DRAFTING

TEXT:

- Architecture - Design Engineering & Drawing by W.P. Spence
- Publisher McKnight & McKnight
- Architectural Technology - Obermeyer
- Publisher McGraw-Hill

REFERENCE TEXTS:

- Architecture - Realization Through Planning
- by G.H. Anthony (Pitman)
- Building Construction Handbook - by Merritt (McGraw-Hill)
- Manual on Metric Building Drawing Practices - by National Research Council
- Architectural & Building Trades Dictionary - by Burke Dalsell Townshed
(General)
- Architectural Graphic Standards - 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 Association
- Modular Co-ordination - by R.S. Kent - National Research Council
- Simplified Engineering for Architects & Builders - by H. Parker
- Architectural Graphics - by Martin (MacMillan)
- Architectural Rendering - by Halse (McGraw-Hill)
- Canadian Wood Council Publications
- Student Manual Technical Notes and Details in S.I.
- Legal Aspects of Architectural Practice O.A.A.
- G.M.S. Master Construction Specifications - Canadian Government

TOPIC	PERIODS	TOPIC DESCRIPTION	REFERENCE
1	20	<u>Floor & Roof Systems</u> a) One-way reinforced concrete roof and floor slabs, design and detail b) Two-way reinforced concrete slabs c) Flat slab construction d) Prefab concrete roofs and floors of concrete, steel, etc. e) Steel and wood roof decks f) Built up roofing - details and specifications	
2	20	<u>Walls-Design & Detail</u> a) Masonry terminology b) Solid masonry walls-design requirements c) Details of solid masonry walls d) Cavity walls-design requirements e) Details of cavity walls f) Bearing capacities g) Expansion joints in masonry walls h) Flexible anchorage of masonry walls to structural steel.	
3	10	<u>Custom Details</u> a) Commercial door and window details b) Stair details and layout c) Finish schedules d) Cabinets, counters, etc. e) Glass-types, manufacture of, and applications f) Door and window hardware	
4	10	<u>Timber Framing</u> a) Laminated beam and arch design and detail b) Details c) Applications d) Post and beam design and detail e) Timber trusses	
5	30	<u>Working Drawings of a Small Commercial Institutional or Industrial building</u> a) Foundation plans b) Floor plans c) Elevations d) Building sections and details e) Structural plans f) Electrical plans g) Mechanical plans h) Room, door and window schedules	

ARCHITECTURAL TECHNICIAN IV

Drafting & Design

ARC 212-5

The main objective of this course is to prepare the student for employment as an architectural draftsman or any of the other related fields as outlined in the official college calendar.

The objectives that the student shall be responsible for in this course

UNIT 1

1. To identify a one-way reinforced concrete suspended slab.
2. To identify a two-way reinforced suspended slab.
3. To design a one-way reinforced suspended slab.
4. To detail a one-way reinforced suspended slab.
5. To identify a suspended reinforced concrete flat slab.
6. To identify a suspended reinforced concrete ribbed slab.
7. To identify and detail various commercial flooring systems such as:
 - a) pre-cast concrete
 - b) metal pan
 - c) steel decking, etc.
8. To identify and detail various commercial roof systems such as;
 - a) light weight concrete
 - b) metal decking
 - c) wood decking
 - d) tile & concrete, etc.
9. To identify the various commercial roofing material such as:
 - a) rigid urethane foam.
 - b) fiber board insulation
 - c) flashing
 - d) built-up roofing materials, etc.
10. To detail a typical built-up roof fascia.
11. To detail a typical built-up roof expansion joint.
12. To detail a typical built-up roof storm drain.

UNIT 2

1. To select the N.B.C. regulations used in the design of solid masonry walls such as height, bearing and lateral support.
2. To identify and detail a cavity wall.
3. To select the N.B.C. regulations used in the design of cavity walls.
4. To learn the application of, and the detail of, expansion and control joints in masonry wall and floor construction.
5. To identify and detail various commercial curtain wall systems.
6. To design and detail a custom curtain wall system, or
7. To construct a structural model for a custom curtain wall system.
8. To compare the various wall systems as to:
 - a) fire rating
 - b) flexibility
 - c) economics of construction
 - d) sound transmission
 - e) thermal characteristics
 - f) bearing capacity
 - g) architectural design

UNIT 3

1. To identify and detail various commercial and custom doors.
2. To identify and detail various commercial and custom windows.
3. To identify and detail various stair types such as:
 - a) spiral
 - b) L-shaped
 - c) straight run
 - d) narrow "V"
 - e) winder
4. To identify and construct a room finish schedule for a commercial or industrial building.
5. To identify and detail cabinets, counters and other interior millwork.
6. To identify various glass types used in architecture.
7. To identify the various manufacturing processes for glass.

UNIT 4

1. To detail the glazing methods used for commercial glass installations.
2. To design and detail a glue laminated beam.
3. To identify the manufacturing procedure for glue laminated timber products.
4. To design a laminated timber tudor arch.
5. To layout & detail a laminated timber arch.
6. To identify the various timber trusses used for commercial and industrial applications.
7. To identify the principles and characteristics of post and beam construction.
8. To identify the types of posts and beams.

UNIT 4 (continued)

9. To investigate the structural requirements for post and beam construction.
10. To design and detail timber plank decking.
11. To design and detail solid wood posts.
12. To design and detail laminated wood posts.
13. To identify the procedures used and the requirements for fire treated wood.
14. To identify and compare the uses of various types of cedar shakes and cedar shingles.
15. To detail heavy timber construction for industrial buildings.
16. To identify plywood data for designers.
17. To identify the building code regulations governing the uses of plywoods.

All of the above specific and general objectives are to be completed in conjunction with one main objective of this course as follows:

UNIT 5

1. A complete set of working drawings for a small commercial, industrial or institutional building which shall include:
 - a) all foundation plans
 - b) all floor plans
 - c) all elevations (exterior)
 - d) all elevations (interior)
 - e) building sections and details
 - f) structured plans (concrete and steel)
 - g) electrical layout plans
 - h) mechanical plans (plumbing, etc.)
 - i) room schedules
 - j) window and door schedules
 - k) a title page
2. To convert working drawing dimensions.