SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: DRAFTING & DESIGN

Code No.: ARC 113-5

Program: ARCHITECTURAL TECHNICIAN

Semester: II

Date: JUNE, 1984

Author: MR. M. URSELL

New: _____ Revision: X

APPROVED: L.P. Arsenault
Chairperson

Date

DRAFTING & DESIGN
Course Name

ARC 113-5
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PHILOSOPHY/GOALS:

- to identify and understand basic building technology
- to write a specification division manually and with the use of the microcomputer
- to identify various contract types
- to design and draw an complete set of working drawings for a low density class "C" occupancy project

METHOD OF ASSESSMENT (GRADING METHOD):

SEE ATTACHED SHEET.

TEXT:

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

Student Workbook for the above

Manual of Metric Drawing Practice - by National Research Council

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)

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

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

Canadian Wood Council Publications - by Canadian Wood Council

Construction Metriguide - by Domtar

METHOD OF ASSESSMENT (all courses)

The following grades will be assigned:

A - 75-100%	consistently above average achievement
B - 66-74%	average achievement
C - 55-65%	satisfactory achievement
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 four 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 student that does not maintain an "A" average in the course or who has not completed all asignments 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.

ARCHITECTURAL DRAFTING

ARC 113-5

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
1.	20	Building Technology - 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	Contracts & Specifications - terminology - types - Canadian Format for Construction Specification - tendering procedures - standard format of agreements - types of security bonds and their application - Mechanics Lein Act - various specification writing assignments manually and with the aid of the microcomputer	
3.	20	Estimates - types - uses of various construction estimates - estimate assignments for students first semester project manually and with the aid of the micro-computer	
4.	30	Working Drawings - 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 requirements.

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 teams) 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 manually and with the aid of the microcomputer.
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 contract

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 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

33. The student shall write a specification division manually and with the aid of the computer.

UNIT 3

34. The student shall identify the purpose of construction estimates.

35. The student shall identify the unit cost estimate and its application.

36. The student shall identify the square foot method and its application.

37. The student shall identify the cubic foot method and its application.

38. The student shall identify the quantity take-off method and its application.

39. The student shall identify the requirements for construction estimates.

40. The student shall construct a preliminary engineering estimate for his semester project.

41. The student shall identify the computer applications for building construction estimating.

UNIT 4

42. The students shall design and draw a complete set of working drawing 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 retails
g) all structural drawings
h) all mechanical drawings
i) all electrical

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