

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY
SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: ARCHITECTURAL ENGINEERING III

Code No.: ARC 205

Program: ARCHITECTURAL TECHNICIAN (DRAFTING)

Semester: IV

Date: OCTOBER, 1986

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New: _____ Revision: ^X _____

APPROVED: *G.P. Crozitto*
Chairperson

Date _____

CALENDAR DESCRIPTION

ARCHITECTURAL ENGINEERING III

ARC 205

Course Name

Course Number

PHILOSOPHY/GOALS:

The student will have a basic knowledge in the design of light framing and the use of structural tables. He/she will be able to design simple structures in skeleton frame using steel and wood.

METHOD OF ASSESSMENT (GRADING METHOD):

A - 86 - 100%
B - 70 - 85%
C - 55 - 69%
R - Repeat
X - Work to be upgraded or new work assigned

- Marks will be accumulated and averaged using tests and assignments
- Final testing will be given students not achieving 75% average with no failures or 80% average with one failure 50-54% average.
- Neatness, attendance, lateness and attitude will be considered in assessment.

TEXTBOOK(S):

CISC DRAFTING FUNDAMENTALS

Applied Strength of Materials

REFERENCE:

C.I.S.C. Steel Handbook

ARCHITECTURAL ENGINEERING III

ARC 205

TOPIC NO.	PERIOD	TOPIC DESCRIPTION	REFERENCE
1.	12	<u>Beam Design - Steel/Wood</u> <ul style="list-style-type: none">- Selection of Beam Size- Loading- Design loads- Wall plates- Crippling- Shear- Deflection	
2.	10	<u>Column Design</u> <ul style="list-style-type: none">- Axial loading- Column design, steel/wood- Base plates	
3.	4	<u>Connections</u> <ul style="list-style-type: none">- Tables- Headers- Seats	
4.	6	<u>Drawings</u> <ul style="list-style-type: none">- Grid system- Details- Notes- Schedules	
5.	16	<u>Trusses</u> <ul style="list-style-type: none">- Stress diagrams- Bow's notation- Member design- Panel points- Splices- Smoleys tables	
6.	14	<u>Retaining Walls</u> <ul style="list-style-type: none">- Types- Checks- Loading- Design	

SPECIFIC OBJECTIVES

ARC 205

Beam Design - Steel & Wood

1. Identify loading
2. Calculate design loading
3. Flexure formula - calculation of and tables
4. Beam design - steel
5. Beam design - wood
6. Design wall plates
7. Design for crippling and know crippling formula
8. Design for shear
9. Design for deflection and know deflection formula for simple span with total volume, point load at center and combinations

Column Design

1. Identify columns under axial load
2. Identify K factor
3. Calculate least radius of gyration
4. Identify short, medium and long columns
5. Know rules for column design and apply
6. Design simple steel column base plates
7. Identify columns in wood for l/d range

Connections

1. Standard types
2. Special types
3. Tables

Drawings

1. Identify grid systems and their purpose
2. Identify and read column schedules
3. Identify and draw special details
4. Apply the information to student drawing projects

Trusses

1. Use Bow's notation
2. Draw and scale truss stress diagrams
3. Determine members in tension or compression
4. Calculate stresses in panel points mathematically
5. Use Smoley's tables
6. Calculate shop clearances
7. Calculate connector requirements
8. Panel point design and detail.

Retaining Walls

1. Identify types
2. Be able to do all checks
3. Design walls of the main types with different profile shapes
4. Draw graphically all types of different profiles, with and without surchar
5. Measure all dimensions and loads accurately to do all checks