SAULT COLLEGE
of Applied Arts and Technology
Sault Ste. Marie

COURSE OUTLINE

I^TH 626 AVT **2A**

r6ViS6d   June 19 81 by Joseph Sufady

TOPICAL OBJECTIVES

TOPIC 1,   Applications of Integration

The student is expected to be able to:

a) determine the moment of an area and a solid.

b) determine the moment of inertia of an area and a
   solid.

c) locate the centroid of an area or solid.

d) determine the radius of gyration of a solid.

e) calculate work done by a variable force.

f) calculate force due to liquid pressure.

TOPIC 2,   Derivatives of Trigonometric and Inverse Trigonometric
Functions

The student will be expected to:

a) know the basic trigonometric relations in section
   6-2 of the text.

b) determine the derivative of any function involving
   sine, cosine, tangent, cosecant, secant, and
   cotangent.

c) differentiate inverse trigonometric functions

d) apply this information towards physical applications
   as outlined in excercise 6-7.

TOPIC 3.   Dervatives of the Exponential and Logarithmic Functions

The student is expected to be able to:

a) differentiate logarithmic and exponential functions.

b) differentiate the natural logarithmic function
   and an exponential function with base "e".

TOPIC 4.   Methods of Integration

The student is expected to integrate using:

a) the general power formula

b) the basic logarithmic form

c) the exponential form

d) basic trigonometric forms

e) inverse trigonometric forms

f) integration by parts

g) Trigonometric Substitution

h) Tables

SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: MATHEMATICS

Code No.: MTH 626-4

Program: AVIATION

Semester: II

Date: OCTOBER, 1985

Author: J. SUFADY

New   Revision

APPROVED   Chairperson/'^ ^   Date **;^^ *mt***

AVIATION
MTH 626-4
MATHEMATICS

CALENDAR DESCRIPTION

MATHEMATICS   MTH 626-4

COURSE NAME   COURSE NUMBER

PHILOSOPHY/GOALS;

Students studying mathematics at this level are those individuals where a
certain degree of originality, a sense of logic and an ability to learn
independently are required of them in their major subject area. This cou
serves to exercise these three requirements and to also give them a theor
knowledge for their academic subjects.

METHOD OF ASSESSMENT (GRADING METHOD);

1- Three - four tests per semester.

2. Final Grade is a weighted average of these tests.

3. A failing grade at the end of the semester can be upgaded by writing
    two-hour comprehensive examination.

TEXTBOOK(S);

     Washington, Allan, J-, Technical Calculus With Analytic Geometry

OBJECTIVES;

The basic objective is for the student to develop an understanding of the
methods studied, knowledge of the facts presented and an ability to use t
in the solution of problems. For this purpose exercises are assigned. 1
will reflect the sort of work contained in other assignments. The level
competency demanded is the level required to obtain an overall passing a^
in the tests. The material to be covered is listed on the following page

AVIATION
MTH 626-4
MATHEMATICS

TOIC NUMBER	PERIODS	TOPIC DESCRIPTION	REFERE
1	9	Application of-Integration -Centroid of an area -Centroid of a solid -First Moment of an area -First Moment of a solid -Moment of inertia of an area -Moment of inertia of a solid -Radius of Gyration of a solid -Work done by a variable force -Force due to liquid pressure	
2	11	Derivatives of Trigonometric and Inverse Trigonometric Functions -Review Basic Trig relations -Derivation of Sine and Cosine Functions -Derivatives of the other Trig Functions -Derivatives of the Inverse Trig Functions	
3	12	Derivatives of the Exponential and Logarithmic Functions -Exponential and Logarithmic Functions -Derivative of Logarithmic Functions -Derivative of Exponential Functions	251-26
^	2^	Methods of Integration -Power Formula -Basic Logarithmic Form -The Exponential Form -Various Trigonometric Forms -Integration by parts -Integration by Trig substitution -Integration by use of Tables	269-3C