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SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

MATHEMATICS
Course Title:

MTH 654-4
Code No.:

AVIATION
% Program

III
Semester:

OCTOBER, 1985
Date:

W. MACQUARRIE
Author:

New   Revision

APPROVED   erTairpe^an   Date **- j ^ 4^^C-^**

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MATHEMATICS   MTH 654-4

Course Name   Course Number

PHILOSOPHY/GOALS:

When the student has successfully completed this course he/she will have
demonstrated an acceptable ability to pass tests based upon the course
contents as listed elsewhere. If, after completing the course, the student
takes further courses (or employment) in which he/she is required to apply
this material he should then, through practice, be able to develop a good
command of this subject matter.

METHOD OF ASSESSMENT (GRADING METHOD);

The students will be assessed by tests. These tests will include periodic
tests based upon blocks of subject matter and may, at the instructors
discretion include unannounced surprise tests on current work and/or a
final test on the whole course. A letter grade will be based upon a
student's weighted average of his/her test results. See also the
mathematic*s department annual publication "TO THE MATHEMATICS STUDENT" for
further details- This publication is made available to the students early
in each academic year.

TEXTBOOK(S):

TECHNICAL CALCULUS WITH ANALYTIC GEOMETRY; A.J. Washington
- Benjamin Cummings

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
these in the solution of problems. For this purpose exercises are
assigned. Tests will reflect the sort of work contained in the
assignments. The level of competency demanded is the level required to
obtain an overall passing average on the tests. The material to be covered
is listed on the following pages.

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AVIATIQN MATHEMATICS ^ MTH 654-4

TOPIC NO.	PERIODS	TOPICS	REFERENCES
1	8	Empirical Equations (Aviation Only)	Rice and Knight 2nd Ed,
		Linear empirical equations	Ch. 6
		Non-Linear empirical equations	p. 334-352
2	4	Interpolation (Aviation only)	
		(tabulated performance charts)	any 4 place log and
		Review basic interpolation trends in tabulated data (4 place logarithm and natural trig tables)	trig table
		Use of Aviation CR-3 type computers in interpolation (proportions)	
		Multiple interpolation procedures	Cessna 172M
		Practical problems in assorted	Cessna 180
		performance tables	Cessna 182
		(take-off landing, climb and cruise performance charts)	
3	3	Graphical (Performance Charts)	Cessna 172M
		(Aviation only)	Piper Twin Commanche
		Reading graphical charts	
		Normal critical path through multiple graph charts	
		Reverse path through multi-graph charts given conditions	
		Practical problems	
4	14	Derivatives of the Exponential and Logarithmic Functions	251-268 Ch. 7
		Exponential and Logarithmic functions	
		Derivative of logarithmic functions	
		Derivative of exponential functions	
5	25	Methods of Integration	269-3&1
		Power Formula	
		Basic logarithmic form	
		The exponential form	
		Various trigonometric forms	
		Integration by parts	
		Integration by Trig substitution	
		Integration by use of tables	

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AVIATION MATHEMATICS - MTH 654-4

TOPIC NO.	PERIODS	TOPICS	REFERENCES
6	3	Graph Preparation (Aviation only)	
		Procedures for making engineering	Cessna 172M
		Selection of axis, names, labelling techniques	
		Multiline graphs from tabulated performance charts	Piper Twin Commanche
		Interpolation in multiline graphs	
		Winds aloft graph on CR-3 computer	
		Practical assignments	