

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

COURSE OUTLINE

Course Title: MATHEMATICS
Code No, : MTH 654-4
Program: AVIATION
Semester: III (Three hours per week)
Date: JUNE, 1987
Author: W. MACQUARRIE

New

Revision:

APPROVED:


Chairperson

Date /

MTH-654

| TOPIC NO. | PERIODS | DESCRIPTION | REFERENCES |
|-----------|---------|---|---|
| 1 | 4 | ANALYTIC GEOMETRY .Properties, formulae and applications of the straight line, circle, parabola ellipse, and hyperbola | CH. 1 Pgs 1-58 |
| 2 | 8 | EMPIRICAL EQUATIONS .linear empirical equations two point method method of averages .non-linear empirical equations general polynomial function power function - 2-pt method - method of averaging logs - graphical method | Handout notes |
| 3 | 5 | GRAPHICAL PERFORMANCE CHARTS .reading graphical charts ,normal critical path through multi-graph charts .interpolation in multiline graphs •reverse path through multi-graph charts .double entry into multi-graph charts .simulated flight planning | Cessna 172M Piper Twin Commanche Manuals |
| 4 | 7 | DERIVATIVES OF EXPONENTIAL AND LOGARITHMIC FUNCTIONS .exponential and log functions .derivatives of logarithmic functions .derivatives of exponential functions .application of above | CH. 7 pgs 281-301 |
| 5 | 18 | METHODS OF INTEGRATION .power formula .Basic logarithmic form .exponential form .various trigonometric forms | CH. 8 & 9 pgs 302-359 |
| 6 | 4 | GRAPH PREPARATION •procedures for making engineering graphs including the selection of axis, scales, names, and labelling techniques .multiline graphs from tabulated performance charts .winds aloft graph on CR4 computer | Aircraft Manuals |

MATHEMATICS

MTH 654-4

Course Name

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PHILOSOPHY/GOALS:

The objective of this course includes the following:

- a review of analytic geometry of the straight line, circle, parabola, ellipse, and hyperbola.
- . a study of linear and non-linear empirical equations.
- . the layout and use of the graphical performance charts as found in the Cessna and Piper Aircraft operator's manuals used by the students,
- a study of the derivatives of exponential and logarithmic functions.
- . methods of integration, including power formula, basic logarithmic and exponential form, and various trigonometric forms,
- graph preparation procedures for making engineering graphs of aircraft performance data.

METHOD OF ASSESSMENT (GRADING METHOD);

The student will be assessed by written tests, including up to five major periodic announced tests based on large blocks of subject matter, and several unannounced short quizzes on current work, the latter being given at the discretion of the instructor. Up to two assignments on empirical equations and/or aircraft graphs may be included in the course. A final test on the entire course may also be included, counting up to 30% of the final semester grade. A letter grade will be determined based upon an average of the above.

GRADING:

A+ = 90 - 100%
A = 80 - 89%
B = 65 - 79%
C = 55 - 64%
I,X or R = less than 55%

See also the MATH DEPARTMENT publication "TO THE MATH STUDENT" for complete procedures and policies.

TEXTBOOK(S):

TECHNICAL CALCULUS WITH ANALYTIC GEOMETRY; A.J, Washington; 3rd. edn.
- Benjamin Cummings

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