UBC CURRICULUM CHANGE FORM *rev. '94*

FACULTY: Science
DEPARTMENT: Mathematics
DATE: January, 1996

Type of Proposal:

☐ CHANGE	☐ DELETE	■ NEW
■ Undergraduate	■ Course	☐ Program
☐ Graduate	☐ Number	☐ Credits
☐ Diploma	☐ Title	☐ Description
	☐ Hours	☐ Prerequisite
	☐ Other	

Present Calendar Entry:

Proposed Calendar Entry:

256 (3) MATH 256 Differential equations- ordinary and partial differential equations. Particular examples from physics. Laboratories demonstrate graphical and numerical analysis of realistic examples. Corequisite: MATH 253. [3-1*-0]

Rationale:

This is part of the new Mathematics curriculum for Applied Science students. Next year it will probably be required of all Electrical and a few other engineering students. It combines parts of the current MATH 255 and MATH 257, and adds a computer laboratory.

Course outline:

(4) *First order ordinary differential equations.*
(1) *Numerical methods.*
(7) *Second order constant coefficient equations.*
(7) *Linear systems of first-order ODE's.*
(3) *Fourier series.*
(11) *Heat equation, Laplace's equation, the wave equation.*

Laboratory outline:

(#1) *Slope fields, Euler's method.*
(#2) *More advanced numerical methods for solving first order ODE's.*
(#3) *Second order equations. Resonance.*
(#4) *Phase plane pictures.*
(#5) *Fourier series and the heat equation*
(#6) *The wave equation and other physical examples.*

Text:

Boyce & DiPrima, *Elementary Differential Equations*, supplemented by laboratory notes.

Since this course is a partial combination of existing courses, there are no new librray requirements. Laboratories can be accommodated with existing facilities.

Library requirements:

■ No change.
☐ As discussed above.

Name of library consultant: Bonny Stableford

Signature of library consultant: _____

Budget and space requirements:

- ☐ Information has been submitted in the Faculty budget to the President's Office.
- ☐ A Supplementary budget has been submitted.
- ■ No budget or space implications.

Effective Date: ☐ May 1 ■ September 1 Year: 1996

Faculty Curriculum Committee Chair _____

Dean or delegate _____