Mathematics 2260 **Fall 2017**

ORDINARY DIFFERENTIAL EQUATION (I)

Course Website: www.math.mun.ca/˜ou

Instructor:	Dr. C.H. Ou, Office HH-3014, Phone 737-8779, Email: ou@mun.ca
Office Hours:	Tue 10:00:00–12:00, Thur 10:00–12:00.
Lectures:	Slot 06(MTR), Classroom C-4002.
Labs:	None.
Text:	**Elementry Differential Equations and Boundary Value Problems** (9th Edition) by William E. Boyce and Richard C. DiPrima.
Prerequisite:	Mathematics 1001, 2000, 2050.
Evaluation:	10% assignments, 30% Term Tests, 60% Final Examination.

Important Dates

Sep 6	First day of lectures.
Oct. 9	Thanksgiving. No Classes.
Oct 12	**TERM TEST #1.** (held in the classroom).
Nov 13	**TERM TEST #2.** (held in the classroom).
Dec 1	Last day of lectures.
Dec 6	Exams Begin
Dec 15	Exams End

Notes

- There will be an assignment in each chapter(except the introduction). You must hand in your completed assignment at the **beginning of class** on the due date. Late assignments will **not be marked**.
- **Copy of assignments** from other students is a serious **academic offence** and you will get zero for this course.
- Attendance will be taken at the classroom. It will be used in deciding borderline cases at the end of semester.
- **Graphics calculators and programmable calculators will not be permitted during tests and exams.** Taking unauthorized formulas or notes into tests or exams electronically or receiving data electronically during the exam is regarded as "cheating on examinations" and is a serious academic offence.

- Final Supplementray examinations will be provided for students if all the following conditions are satisfied: (a) The student is in clear academic standing; (b) the student has a passing term mark, and; (c) the student's final grade is 45 to 49.

Course Outlines

UNIT 1 INTRODUCTION[1-2 lectures]
1.1 Definitions, Examples, Classification 1.1

UNIT 2 FIRST ORDER EQUATIONS[10-lectures]
2.1 Linear Equations
2.2 Separable Equations
2.3 Modeling with 1st Order Equations
2.4 Linear vs Nonlinear
2.5 Other Applications
2.6 Exact Equations, Integrating Factors

UNIT 3 SECOND ORDER LINEAR EQUATIONS[10 lectures]
3.1 Homogeneous Equations with Constant Coefficients
3.2 Fundamental Solutions
3.3 Linear Independence
3.4 Complex Roots
3.5 Reduction of Order
3.6 Method of Undetermined Coefficients
3.7 Variation of Parameters
3.8 Selected Applications

Unit 4 HIGHER ORDER LINEAR EQUATIONS[3 LECTURES]
4.1 General Theory
4.2 Homogeneous equation with constant coefficients
4.3 The method of undetermined coefficients
4.4 The method of variation of parameters

UNIT 5 THE LAPLACE TRANSFORM[7 lectures]
5.1 Definition and Properties
5.2 Solution of Diff. Equation. using Laplace Transforms
5.3 Step Functions
5.4 Differential equations with discontinuous forcing functions
5.5 Impulse Function
5.6 the Convolution

UNIT 6 LINEAR SYSTEMS
6.1 Introduction
6.2 Second order system