

UNIVERSITY OF NEW BRUNSWICK
DEPARTMENT OF MATHEMATICS & STATISTICS

MATHEMATICS 3503: Section 01B
Differential equations for engineers
Winter 2010

INSTRUCTOR: G. Hossain

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WEBSITE: <http://www.math.unb.ca/~ghossain/math-3503/>
(N.B.: all assignments will be announced online)

OFFICE: Tilley Hall 431-B

LECTURES: 8:30–9:20 MWF Tilley Hall 223

TUTORIAL: 8:30–9:20 T Tilley Hall 125

TEXTBOOKS:

1. *Calculus: Early Transcendentals* (6th ed.) by James Stewart
2. *Lecture Notes for Math 3503*, (revised July 2006) by B.O.J. Tupper (available from course website)

SYLLABUS: **Second order ordinary differential equations:** review of linear equations with constant coefficients; undetermined coefficients; variations of parameters (Stewart §17.1–§17.3)

Laplace transforms: definition; gamma function; inverse transform; step function; initial value problems; periodic functions; impulse function; convolution theorem (Tupper Chapter 1)

System of first order differential equations: homogeneous systems and nonhomogeneous systems using matrix methods (Tupper Chapter 2)

Fourier Series: orthogonal functions; trigonometric and complex Fourier series (Tupper Chapter 3)

MIDTERM:

- **Date:** February 24, 2010
- **Time:** 7-9 p.m.
- **Location:** MacLaggan Hall 105 (auditorium)
- **Format:** closed book, no calculators
- **Conflicts:** inform me as soon as possible

GRADING:

Midterm Exam	30%	(see above)
Homework Assignments	10%	(due Wednesdays by 1:00 p.m.)
Final Exam	60%	(cumulative)
