MATH 187 Technical Mathematics 2 (Engineering)

Use of calculators and computer programs are stressed throughout. Topics: antiderivatives, definite integral, integration techniques, polar co-ordinates, and applications including acceleration, area between curves, surface area, volumes, center of mass and force on submerged surfaces.

ORGANIZATION:

In-class workload:	5 hours lecture per week
Out-of-class workload:	5 hours per week
Prerequisites:	Math 185 or (Math 174 or 100, and 110)

TEXT: (Bring to class)

Basic Technical Mathematics With Calculus, (7th Edition, Metric Version), A.J. Washington, Addison Wesley, 2000.

OUTLINE:

Chapter 21	Plane Analytic Geometry
21-9	Polar Coordinates
21-10	Curves in Polar Coordinates
Chapter 25	Integration
25-1	Antiderivatives
25-2	The Indefinite Integral
25-3	The Area Under a Curve
25-4	The Definite Integral
25-5	Numerical Integration: The Trapezoidal Rule
25-6	Simpson's Rule
Chapter 26	Applications of Integration
26-1	Applications of the Indefinite Integral (Acceleration)
26-2	Area by Integration (Area between Curves)
26-3	Volumes by Integration
26-4	Centroids (Moments of Area)
26-6	Other Applications (Force on Submerged Surface)
Supplementary	Center of Mass (Moments of Mass)
Supplementary	Surface Area
Supplementary	Area of a surface of Revolution

Chapter 28	Methods of Integration
28-1	The General Power Formula
28-2	The Basic Logarithmic Form
28-3	The Exponential Form
28-4	Basic Trigonometric Form
28-5	Other Trigonometric Forms
28-6	Inverse Trigonometric Forms (if time permits)
28-7	Integration by Parts (Tabular Method)
28-8	Integration by Trigonometric Substitution
28-9	Integration by Partial Fractions: Nonrepeated Linear Factors
28-10	Integration by Partial Fractions: Other Cases
28-11	Integration by Use of Tables
Chapter 29	Expansion of Functions in Series (if time permits)
29-2	Maclaurin Series
29-3	Certain Operations with Series
29-5	Taylor Series

Supplementary Topics

S-3	Functions of Two Variables
S-4	Curves and Surfaces in Three Dimensions (Cartesian Coordinates)
S-6	Double Integrals

EVALUATION:

Assignments (10%): Problems will be assigned for each section; they are due at the beginning of the class on Mondays (starting January 13, 2003). **Papers turned in late by the end of the due date will get a penalty of 25% off**. Solutions should be presented in a neat and clear fashion and the paper should be well organized and stapled if there is more than one page – penalty applies to "sloppy papers". Complete solutions will be posted online at http://www.camosun.bc.ca/~lai.

Test (40%): There will be 4 tests (**Jan 17 Friday**, **Feb 7 Friday**, **Feb 28 Friday** and **Mar 21 Friday**). There is NO makeup (medical excuse must be accompanied by a physician's note). Complete solutions will be posted online at http://www.camosun.bc.ca/~lai.

Final Exam (50%): There is NO makeup.

Assignments	Tests (40%)				Final Exam.
	Test 1	Test 2	Test 3	Test 4	
10%	4%	11%	11%	14%	50%

GRADING:

A+	95-100%	B+	80-84	C+	65-69	F	0-49
A	90-94	B	75-79	C	60-64		
A-	85-89	B-	70-74	D	50-59		

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2003 Quarter 2
(Jan 06 2003 – Mar 21 2003)

Web: http://www.camosun.bc.ca/~lai

	Monday	Tuesday	Wednesday	Thursday	Friday
07:30-08:20	Office Hour	Office Hour	Office Hour	Office Hour	Office Hour
08:30-09:20					
09:30-10:20					
10:30-11:20				Office Hour	
11:30-12:20	Office Hour				Office Hour
12:30-13:20	Math 187 (TEC 175)	Math 187 (TEC 175)	Math 187 (TEC 175)	Math 187 (TEC 175)	Math 187 (TEC 175)
13:30-14:20					
14:30-15:20					
15:30-16:20					
Math Lab Assistance					

Regular office hours will be announced in class.
Additional Office Hours: By Appointment; Drop In.

Hints:

1. Attend all classes.
2. Start working on assignments early.
3. Studying in groups is an efficient way to learn mathematics; on the other hand, learn to solve problems yourself.
4. Learn to write mathematics in a clear fashion (students in other classes at the same level as ours should be able to understand your work without second-guessing).
5. Interurban Math Lab: TB142