



**School of Arts & Science
MATHEMATICS DEPARTMENT**

**MATH 187-01
Technical Mathematics 2
2008-Q2**

COURSE OUTLINE

The Approved Course Description is available on the web @ _____

Ω Please note: this outline will be electronically stored for five (5) years only.
It is strongly recommended students keep this outline for your records.

1. Instructor Information

(a)	Instructor:	Gilles Cazelais		
(b)	Office Hours:	Posted on website		
(c)	Location:	CBA 158		
(d)	Phone:	380-4495	Alternative Phone:	
(e)	Email:	cazelais@camosun.bc.ca		
(f)	Website:	http://pacificcoast.net/~cazelais/		

2. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Upon completion of this course the student will be able to:

1. Use differential calculus to determine slopes, tangents, and normals to curves; use Cartesian and polar coordinates; apply numerical differentiation.
2. Use integral calculus to determine the area under a curve; find antiderivatives, indefinite integrals, and definite integrals; integrate natural logarithms, and apply basic techniques of integration.
3. Use calculus to find: acceleration, speed, distance, area between curves, area of a surface revolution, volumes, moments of area and mass, centroids and centers of mass, and force on submerged surfaces.

3. Required Materials

(a)	Texts	Allyn J. Washington, <i>Basic Technical Mathematics with Calculus</i> , 8th Edition
(b)	Other	

4. Course Content

1. Integration
 - Antiderivatives (section 25.1)
 - The Indefinite Integral (section 25.2)
 - The Area Under a Curve (section 25.3)

- The Definite Integral (section 25.4)
- Numerical Integration: The Trapezoidal Rule (section 25.5)
- Simpson's Rule (section 25.6)
- 2. Applications of Integration
 - Applications of the Indefinite Integral (section 26.1)
 - Areas by Integration (section 26.2)
 - Volumes by Integration (section 26.3)
 - Centroids (section 26.4)
 - Moments of Inertia (section 26.5)
 - Other Applications (section 26.6)
- 3. Methods of Integration
 - The General Power Formula (section 28.1)
 - The Basic Logarithmic Form (section 28.2)
 - The Exponential Form (section 28.3)
 - Basic Trigonometric Forms (section 28.4)
 - Other Trigonometric Forms (section 28.5)
 - Inverse Trigonometric Forms (section 28.6)
 - Integration by Parts (section 28.7)
 - Integration by Trigonometric Substitution (section 28.8)
 - Integration by Partial Fractions: Nonrepeated Linear Factors (section 28.9)
 - Integration by Partial Fractions: Other Cases (section 28.10)
- 4. Expansion of Functions in Series
 - Maclaurin Series (section 29.2)
 - Certain Operations with Series (section 29.3)
 - Computation by Use of Series Expansion (section 29.4)
 - Taylor Series (section 29.5)
- 5. Supplementary Topics
 - Polar Coordinates (section 21.9)
 - Curves in Polar Coordinates (section 21.10)
 - Functions of Two Variables (section S-4)
 - Curves and Surfaces in Three Dimensions (section S-5)
 - Partial Derivatives (section S-6)
 - Double Integrals (section S-7)

5. Basis of Student Assessment (Weighting)

The final grade will be calculated according to the following breakdown:

4 Quizzes:	50%
Final Exam:	50%

If your final exam grade is higher than your term grade, then your final exam grade will count as 100% of your final grade.

6. Grading System

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Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8

80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at camosun.ca or information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	<i>In progress:</i> A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

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7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of

this policy. The policy is available in each School Administration Office,
at Student Services and on the College web site in the Policy Section.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED

MATH 187

Technical Mathematics 2

Instructor: Gilles Cazelais

Office: CBA 158 (phone number: 370-4495)

Office hours: http://pacificcoast.net/_cazelais/schedule.html

Email address: cazelais@camosun.bc.ca

Course web page: http://pacificcoast.net/_cazelais/187.html

Textbook

Basic Technical Mathematics with Calculus (8th Edition) by Allyn J. Washington.

Evaluation

- Four tests: 50%
- Comprehensive final exam: 50%

Course Outline

1. INTEGRATION

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- The Area Under a Curve (section 25.3)
- The Definite Integral (section 25.4)
- Numerical Integration: The Trapezoidal Rule (section 25.5)
- Simpson's Rule (section 25.6)

2. APPLICATIONS OF INTEGRATION

- Applications of the Indefinite Integral (section 26.1)
- Areas by Integration (section 26.2)
- Volumes by Integration (section 26.3)
- Centroids (section 26.4)
- Moments of Inertia (section 26.5)
- Other Applications (section 26.6)

3. METHODS OF INTEGRATION

- The General Power Formula (section 28.1)
 - The Basic Logarithmic Form (section 28.2)
 - The Exponential Form (section 28.3)
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