CAMOSUN COLLEGE	***School of Access*** ***MATHEMATICS DEPARTMENT*** **MATH 173 – X01** **Basic Technical Mathematics 2** **Quarter 2, 2014/5**

COURSE OUTLINE

The Approved Course Description is available on the web @
http://camosun.ca/learn/calendar/current/web/math.html#MATH173

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:	Patricia Wrean (Pat)		
(b)	Office Hours:	Posted on office door and website		
(c)	Location:	CBA 153		
(d)	Phone:	(250) 370-4542	Alternative Phone:	
(e)	Email:	wrean@camosun.bc.ca		
(f)	Website:	http://wrean.disted.camosun.bc.ca/math173/		

2. Intended Learning Outcomes

Upon successful completion of this course a student will be able to:

1. Calculate angles for problems involving parallel lines and/or triangles. Solve geometry problems involving similar triangles. Calculate sides of triangles using the Pythagorean theorem.
2. Solve right triangles using trigonometry. Solve word problems involving right-angled triangles. Solve triangles using the laws of sines and cosines.
3. Find the domain and range of a function. Identify whether a relation is a function. Compose and decompose functions. Sketch transformations of functions.
4. Graph quadratic functions and identify the vertex, axis of symmetry, and maximum/minimum values. Solve word problems involving maximum/minimum function values.
5. Factor polynomial functions and find the zeros and their multiplicities. Graph polynomial functions. Graph rational functions, identifying their zeros and asymptotes.
6. Evaluate exponential and logarithmic expressions. Solve equations and plot graphs involving exponents and logarithms. Use properties of logarithms to simplify expressions. Solve word problems involving applications of exponential functions such as compound interest, exponential growth, and exponential decay.
7. Calculate trigonometric functions for any angle. Convert between degrees and radians. Graph all six trigonometric functions. Transform sine and cosine graphs.
8. Prove trigonometric identities involving Pythagorean, sum-and-difference, co-function, and double-angle identities. Simplify expressions involving the composition of trigonometric functions and their inverses. Solve equations involving trigonometric identities.
9. Perform arithmetic operations ~~on~~ using the trigonometric form of complex numbers.
10. Given the equation for a particular conic section, graph the conic section and identify relevant features (centre, vertices, foci, etc.). Given the graph of a conic section, find its equation.
11. Determine the formula for the general term of any arithmetic or geometric sequence. Find the terms of any sequence given its recursive formula. Convert between sigma notation and. the expanded form of a series. Calculate the sum of an infinite geometric series. Solve word problems involving sequences and series. Expand a binomial using Pascal's triangle.

3. Required Materials

(a) J.A. Beecher, J.A. Penna, and M.L. Bittinger, *Algebra and Trigonometry*, 4th edition, Pearson Addison-Wesley, 2012. (Earlier editions are also acceptable.)

(b) Calculator policy: Only regular scientific calculator (non-programmable, non-graphing) will be permitted for quizzes and exams. Also, calculators that manipulate radicals in exact form, such as the Casio FX-300ES, are specifically not allowed. The use of electronic devices other than calculators, such as cell phones, MP3 players, iPods, electronic translators, etc., during exams is not allowed.

4. Course Content

(the hours given are approximations only)
G.* refers to a section on the Geometry Notes)

Intro		(0.5 hours)
G.1	Triangles	(1.5 hours)
G.2	Similar Triangles	(3 hours)
6.1	Trigonometric Functions of Acute Angles	(2 hours)
6.2	Applications of Right Triangles	(2 hours)
6.3	Trigonometric Functions of Any Angle	(2 hours)
1.2	Functions and Graphs	(1 hour)
2.1	More on Functions	(1 hour)
2.2	The Algebra of Functions	(2 hour)
2.3	The Composition of Functions	(1 hour)
2.4	Symmetry and Transformations	(3 hours)
3.3	Analyzing Graphs of Quadratic Functions	(2 hours)
4.1	Polynomial Functions and Models	(1 hour)
4.2	Graphing Polynomial Functions	(1 hour)
4.3	Polynomial Division; The Remainder and Factor Theorem	(1 hour)
4.4	Theorems about Zeros of Polynomial Functions	(2 hours)
4.5	Rational Functions	(3 hours)
5.1	Inverse Functions	(1 hour)
5.2	Exponential Functions and Graphs	(1 hour)
5.3	Logarithmic Functions and Graphs	(2 hours)
5.4	Properties of Logarithmic Functions	(2 hours)
5.5	Solving Exponential and Logarithmic Equations	(2 hours)
5.6	Applications and Models: Growth and Decay	(2 hours)
Review of 6.1-6.3		(1 hour)
6.4	Radians, Arc Length, and Angular Speed	(2 hours)
6.5	Circular Functions: Graphs and Properties	(2 hours)
6.6	Graphs of Transformed Sine and Cosine Functions	(2 hours)
7.1	Identities: Pythagorean and Sum and Difference	(2.5 hours)
7.2	Identities: Cofunction, Double-Angle, and Half-Angle	(1 hour)
7.3	Proving Trigonometric Identities	(2 hours)
7.4	Inverses of the Trigonometric Functions	(2 hours)
7.5	Solving Trigonometric Equations	(2.5 hours)
8.1	The Law of Sines	(2 hours)
8.2	The Law of Cosines	(1 hour)
8.3	Complex Numbers: Trigonometric Form	(2 hours)
10.1	The Parabola	(2 hours)
10.2	The Circle and the Ellipse	(2 hours)
10.3	The Hyperbola	(2 hours)
11.1	Sequences and Series	(1 hour)
11.2	Arithmetic Sequences and Series	(1 hour)
11.3	Geometric Sequences and Series	(1 hour)
11.7	The Binomial Theorem	(1 hour)

5. Basis of Student Assessment (Weighting)

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

Quizzes:	40%
Assignments:	10%
Final Exam:	50%

If your final exam grade is higher than your term work grade and your term work is **50% or higher**, then your final exam grade will count as 100% of your final grade.

Final Exam: The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar, "students are expected to write tests and final examinations at the scheduled time and place." Exceptions will only be considered due to **emergency** circumstances as outlined in the calendar. The calendar specifically states that "holidays or scheduled flights are not considered to be emergencies."

Quizzes: The lowest quiz grade will be dropped when calculating the average of your quizzes. This allows a student to be absent on any one quiz day for any reason, including illness, without penalty. There is no provision for "making up" a missed quiz.

Assignments: The lowest assignment grade will be dropped when calculating the average of your assignments. This allows a student to miss any one assignment for any reason, including illness, without penalty.

Late Policy: Assignments that are late will be given a 25% penalty if the solutions have not yet been posted to the course website. Once the solutions have been posted, late assignments will not be accepted.

Collaboration Policy: Students are encouraged to collaborate (work together) on assignments. However, you must be prepared to answer similar questions on your own for the quizzes, so it is vital that you yourself understand all of the assigned questions and work that you turn in.

6. Grading System *http://www.camosun.bc.ca/policies/policies.php*

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 http://camosun.ca/about/policies/education-academic/e-1-programming-&-instruction/e-1.5.pdf for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: 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	*In progress*: A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. *(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)*
CW	*Compulsory Withdrawal:* 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.

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. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section. http://camosun.ca/about/policies/education-academic/e-2-student-services-&-support/e-2.5.pdf

ACADEMIC PROGRESS POLICY

There is an Academic Progress Policy designed to enhance a learner's likelihood of success. Students should become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section.
http://camosun.ca/about/policies/education-academic/e-1-programming-&-instruction/e-1.1.pdf

Math Room: Technologies Centre (TEC) 142 (phone: 370-4492): This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).