Sir Wilfrid Laurier Secondary School
Grade 12 Mathematics for College Technology – MCT 4C
1.0 credits
Course Outline

Course Description
This course enables students to extend their knowledge of functions. Students will investigate and apply properties of polynomial, exponential, and trigonometric functions; continue to represent functions numerically, graphically, and algebraically; develop facility in simplifying expressions and solving equations; and solve problems that address applications of algebra, trigonometry, vectors, and geometry. Students will reason mathematically and communicate their thinking as they solve multi-step problems. This course prepares students for a variety of college technology programs.
Prerequisite: Functions and Applications, Grade 11, University/College Preparation, or Functions, Grade 11, University Preparation

Strands and Overall Expectations

Exponential Functions
- solve problems involving exponential equations graphically, including problems arising from real-world applications;
- solve problems involving exponential equations algebraically using common bases and logarithms, including problems arising from real-world applications.

Polynomial Functions
- recognize and evaluate polynomial functions, describe key features of their graphs, and solve problems using graphs of polynomial functions;
- make connections between the numeric, graphical, and algebraic representations of polynomial functions;
- solve polynomial equations by factoring, make connections between functions and formulas, and solve problems involving polynomial expressions arising from a variety of applications.

Trigonometric Functions
- determine the values of the trigonometric ratios for angles less than 360º, and solve problems using the primary trigonometric ratios, the sine law, and the cosine law;
- make connections between the numeric, graphical, and algebraic representations of sinusoidal functions;
- demonstrate an understanding that sinusoidal functions can be used to model some periodic phenomena, and solve related problems, including those arising from real-world applications.

Applications of Geometry
- represent vectors, add and subtract vectors, and solve problems using vector models, including those arising from real-world applications;
- solve problems involving two-dimensional shapes and three-dimensional figures and arising from real-world applications;
- determine circle properties and solve related problems, including those arising from real-world applications.

Evaluation
The final report card mark will be determined according to the **student's overall achievement of all of the course expectations** as set out in The Ontario Curriculum Mathematics documents. Students will be given **multiple and varied opportunities to demonstrate their achievement of the expectations within each strand** throughout the term (70% of final grade) as well as in the summative activity and final exam (total 30% of final grade).
*The student demonstrates, in **all** of the overall expectations, specified knowledge and skills with:*

a **high degree** of effectiveness	**Level 4** (80-100)	Achievement surpasses the provincial standard.
considerable effectiveness	**Level 3** (70-79)	Achievement represents the **provincial standard.**
some effectiveness	**Level 2** (60-69)	Achievement is approaching provincial standard.
limited effectiveness	**Level 1** (50-59)	Achievement falls much below the provincial standard.
	Below Level 1 (49 and below)	*Student does not achieve at least *limited effectiveness* in <u>all</u> overall expectations.

Guidelines for Missed Evaluations and Academic Fraud

1. Upon missing a test or presentation, students will be required at the teacher's discretion, either to:
    a) Complete the test or presentation immediately upon return to school; or
    b) Make arrangements with the teacher for a make-up; or
    c) Write the missed test Friday morning at 7:30 a.m. of that week.
    Failure to complete the missed test/presentation according to the negotiated schedule will result in a mark of zero.

    Note: Certain forms of formal summative evaluations (exams, summative project presentations or tasks, etc.) are time sensitive. This means they must be completed at and within a specific time. Students must be present and prepared for these summative evaluations. Any absence will result in a mark of **zero**, unless validated by an official certificate. (ex. Medical Certificate).

2. If an assignment is late or incomplete, a student will be provided with a second opportunity. Students who are provided with a second opportunity, **shall complete the required assignment within five school days**. If no evidence is forthcoming after five days, a mark of zero will be assigned.

3. Copied, borrowed or stolen work provides no evidence of learning. Teacher will document and archive the work in question. Students may be allowed to resubmit the assignment. The teacher and administrator will define the parameters for the completion of this task.

General Course Information

Students must bring the following materials to each class:

- textbook
- separate Math binder (to hold notes, tests, quizzes, handouts)
- pencil case (to hold pencils, erasers, ruler, coloured pens)
- scientific calculator
- lined and graph papers

The text used for this course is **Mathematics for College Technology** *(Addison-Wesley, $90.45). The student is responsible for the cost of replacement or repairs, if the text is lost, or damaged.*

Graphing Calculators

Calculators with graphing technology are permitted for most evaluations, and are of great assistance for homework. Students without a handheld model can access online versions at home or through a smartphone.