

***St. Peter Catholic High School  
Mathematics Department***

***MCT4C – Mathematics for College Technology  
2018-2019***

**Teacher** Mr. M. Couturier & Prof. Prof. Esmaeil Mahdavi

**Prerequisite Course** MCR3U or MCF3M

**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.

**Overall Course Expectations or Topics**

**Chapter Four – Trigonometric Functions**

- Exploring angles, defining trigonometric functions
- Exploring the right angle triangle and its applications

**Chapter Eight – Trigonometric Functions of Any Angle**

- Exploring the signs of trigonometric angles
- Exploring radians and the applications of radian measure

**Chapter Nine – Vectors**

- Exploring vectors and vector components
- Exploring vector addition and its applications
- Exploring the Law of Sines and the Law of Cosines

## **Chapter Ten – Graphs of Trigonometric Functions**

- Exploring graphs of  $y = \sin(bx + c)$  and  $y = \cos(bx + c)$
- Exploring graphs of  $y = \tan x$ ,  $y = \cot x$ ,  $y = \sec x$  and  $y = \csc x$

## **Chapter Five – Systems of Linear Equations**

- Solving systems of two or three linear equations algebraically or by elimination

## **Chapter Six – Factoring and Fractions**

- Exploring special products and factoring using common factors and differences of squares
- Exploring the sum and differences of cubes
- Exploring operations using fractions

## **Chapter Eleven – Exponents and Radicals**

- Exploring fractional exponents and simplest radical form
- Exploring operations using radicals

## **Chapter Thirteen – Exponential and Logarithmic Functions**

- Exploring exponential and logarithmic functions and their properties
- Exploring logarithms of base 10 and natural logarithms

## **Chapter Twelve – Complex Numbers**

- Exploring operations using complex numbers
- Exploring polar form and exponential form and its applications

## **Chapter Two – Geometry**

- Exploring triangles, quadrilaterals and circles

## **Course Resources**

Textbook : Basic Technical Mathematics with Calculus SI Version – included in course  
See handout for websites and additional information

[www.habfanforever.com/MCT4C](http://www.habfanforever.com/MCT4C)

## **Required Materials to meet with success in this course**

- Binder, Pencils, Pens, Ruler, Loose leaf paper, Graph paper and Scientific Calculator

## **Report Card Grade**

The Report Card grade is based on evidence collected through observations, conversations, and student products (tests/exams, assignments for evaluation). Some evidence will carry greater weight than other evidence. Determining a report card grade will involve professional judgement and interpretation of evidence that reflects the student's most consistent level of achievement, with special consideration given to more recent evidence.

## **Mark Breakdown (for High-School portion only)**

### **Term Work - 70 %**

Term work is based on a variety of performance tasks over the course of the term that demonstrates: knowledge, thinking, communication, and application. For this course, the term mark is assessed as follows:

### **Summative - 30%**

The summative evaluation must take place completely in class and may take the form of a final exam, or a variety of summative performance tasks and/or student portfolios that demonstrate the comprehensive achievement of the overall course expectations and the four areas of the achievement chart (knowledge, thinking, communication, and application). For this course, the final 30% is assessed as follows:

<b>CPT</b>	<b>20%</b>
<b>Final Exam</b>	<b>10%</b>

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**Student and Parent/Guardian Acknowledgement**

We have read the above course outline and are aware of the student responsibilities to attend class on a regular basis and to provide evidence of learning within the established timelines.

Student's Name (print): \_\_\_\_\_

Student's Signature \_\_\_\_\_

Parent/Guardian Name (print): \_\_\_\_\_

Parent/Guardian Signature: \_\_\_\_\_

**Parent or Student Comments or Expectations for this course (optional):**

# Standards for all Courses

## Catholic Graduate Expectations

Our goal for all students is that they experience an education based on the Catholic Graduate Expectations to become:

- A Discerning Believer Formed in the Catholic Faith Community
- An Effective Communicator
- A Reflective and Creative Thinker
- A Self-Directed, Responsible, Life-Long Learner
- A Collaborative Contributor
- A Caring Family Member
- A Responsible Citizen

<http://www.eoccc.org/expectations.html>

## Assessment, Evaluation, and Reporting

The primary purpose of assessment and evaluation is to improve student learning. The development of learning skills and work habits is a key indicator of future success.

The following learning skills and works habits will be developed, assessed, and reported during this course:

<b>Responsibility</b>	fulfills responsibilities and commitments
<b>Organization</b>	manages time to complete tasks and achieve goals
<b>Independent work</b>	uses class time appropriately to complete tasks
<b>Collaboration</b>	works with others and promotes critical thinking
<b>Initiative</b>	demonstrates curiosity and an interest in learning
<b>Self-Regulation</b>	sets goals and monitors progress towards achievement

## The Achievement Chart

Students will be assessed and evaluated in a balanced manner on the following four areas:

1. Knowledge and Understanding – specific content and understanding of its meaning
2. Thinking – the use of critical and creative thinking skills and/or processes
3. Communication – the ability to convey meaning through a variety of forms
4. Application – the use of knowledge and skills to make connections

Students may be given multiple opportunities using a variety of assessment tasks to demonstrate their achievement of the curriculum expectations in this course.

### **Levels of Achievement**

The achievement chart identifies four levels of achievement:

Level 1 achievement falls below the provincial standard

Level 2 achievement approaches the provincial standard

Level 3 achievement is at the provincial standard

Level 4 achievement surpasses the provincial standard

### **Group Work**

Collaboration is an important 21<sup>st</sup> Century skill. Students will take part in a variety of group work activities throughout the year. Student work within group work will be evaluated independently and each student will be assigned an individual mark.

### **Homework**

Homework that is assigned is intended to assist the student in consolidating their skills and preparing for classroom instruction. Homework will be reported as part of the learning skills on the report card.

### **Attendance**

In order to fully participate in this course, students must have regular attendance. Excessive absences and lates have a negative impact on student learning. Attendance will be reported as part of the learning skills on the report card.

### **Evidence for Evaluation**

Evidence of student achievement for evaluation is collected over time from three different sources –observations, conversations, and student products. “Student products” may be in the form of tests or exams and/or assignments for evaluation.

Students are responsible for providing evidence of their learning within given timelines. Students will be assigned consequences for cheating, plagiarism, and not completing work. A number of strategies will be attempted to ensure that all work is submitted on time. Loss of school privileges may be a consequence for not meeting academic responsibilities. Deducting marks for late assignments may occur if the student does not submit materials despite being provided alternative opportunities for work completion.

### **Awarding of Course Credit**

Students who earn a mark of 50% or greater will earn one credit for the course with the following exceptions:

Students who do not provide sufficient evidence of achievement of course expectations will not earn their credit regardless of their mark.

Students who do not complete their summative evaluation (exam and/or end of year performance task) will not earn their credit regardless of their mark.