

# St. Clair Catholic District School Board

## STUDENT INFORMATION SHEET / OUTLINE OF COURSE OF STUDY

<b>School</b>	St. Patrick's High School
<b>Department</b>	Mathematics
<b>Course Title</b>	Principles of Mathematics (MPM 2D1)
<b>Grade</b>	10
<b>Course Type</b>	Academic
<b>Department Head</b>	Mrs. Majeski
<b>Credit</b>	one full
<b>Ministry Document</b>	Mathematics Grade 9 and 10 (revised)
<b>Prerequisite</b>	MPM 1D1

### Course Description

This course enables students to broaden their understanding of relationships and extend their problem-solving and algebraic skills through investigation, the effective use of technology, and abstract reasoning. Students will explore quadratic relations and their applications; solve and apply linear systems; verify properties of geometric figures using analytic geometry; and investigate the trigonometry of right and acute triangles. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

### How This Course Supports the Ontario Catholic Graduate Expectations:

Through the use of the Catholic course profile as well as additional resources (I.C.E. documents) the Ontario Catholic Graduate expectations will be addressed.

### How This Course Supports the Competencies of Choices Into Action:

Career Exploration Activities through classroom experience (page19, Choices into Action ).

## 1. Overall Expectations for Student Learning

Through this course, the student will be expected to demonstrate knowledge, skills and values related to the following strands.

### Strand 1 Quadratic Relations of the form $y = ax^2 + bx + c$

- Determine the basic properties of quadratic relations
- Relate transformations of the graph of  $y = x^2$  to the algebraic representation  $y = a(x - h)^2 + k$
- Solve quadratic equations and interpret the solutions with respect to the corresponding relations
- Solve problems involving quadratic relations

### Strand 2 Analytic Geometry

- Model and solve problems involving the intersection of two straight lines

- Solve problems using analytic geometry involving properties of lines and line segments
- Verify geometric properties of triangles and quadrilaterals, using analytic geometry

### **Strand 3 Trigonometry**

- Use their knowledge of ratio and proportion to investigate similar triangles and solve problems related to similarity
- Solve problems involving right triangles, using the primary trigonometric ratios and the Pythagorean theorem
- Solve problems involving acute triangles, using the sine law and the cosine law

### **2. Expectations re: Learning Skills**

It is expected that students will demonstrate the following learning skills (this is not intended to be an exhaustive list). Learning skills will be assessed according to criteria which have been clearly communicated to students and will be reported separately from student achievement of the curriculum expectations. The student's demonstrated learning skills in each course will be evaluated using the four-point scale

(E - Excellent, G - Good, S - satisfactory, N - Needs Improvement )

- Strong work habits during class time
- Completed homework and assignments
- Organizational skills on a daily basis
- Initiative in all areas of the course
- Independent learning ability
- Team work ability
- Frequent review of concepts and skills

### **3. Supports For Higher Learning :**

Whenever accommodations are made to address student learning needs, or alternative or modified expectations are identified for a student, these accommodations, modifications, or alternative expectations will be outlined in an IEP and will be communicated to parents.

### **4. Course Breakdown & Assessment and Evaluation Strategies:**

<b>Unit</b>	<b>Unit Title / Description</b>	<b>Assessment &amp; Evaluation Strategies</b>	<b>Unit Planning Notes</b>
Unit 1	Using Linear Systems to Solve Problems	checklists, assignments, tests	
Unit 2	Coordinate Geometry	checklists, assignments, tests	
Unit 3	Introduction to Quadratic Relations	checklists, assignments, tests	
Unit 4	More Quadratic Relations	checklists, assignments, tests	

Unit 5	Trigonometry	checklists, assignments, tests	
Unit 6	Trigonometry of Non-Right Triangles	checklists, assignments, tests	

**5. Key Dates, Special Events, and Additional Considerations:**

- to be announced by the teacher

**6. Teaching / Learning Strategies:**

Instruction in this course will include but not be limited to the following:

- use of technology tools: graphing calculators, computers
- presentation of homework solutions to class
- whole class activities
- pairs activities
- group work/ data collection

**7. Assessment and Evaluation:**

Student achievement of the learning expectations will be evaluated according to the following breakdown.

Categories of the Achievement Chart	Weighting ( % )	
	Term Evaluation	Final Evaluation Activity / Exam
Knowledge / Understanding	40	40
Thinking	15	15
Application	35	35
Communication	10	10
<b>Final Mark</b>	<b>70%</b>	<b>30%</b>

**8. Learning Resources:**

Textbook: Mathematics 10, Nelson Publishing

**9. School, department and classroom policies:**

- Cell phones off and away unless instructed by the teacher
- Be prepared for class every day: paper, pencil, eraser, graph paper, scientific calculator
- Keep work complete and up to date
- Correct all tests and assignments