

**Islamic Foundation School**

**Course Outline**

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| **Course Title:** Principles of Mathematics |
| **Course Code:** MPM2D |
| **Course Type:** Academic |
| **Grade:** 10 |
| **Credit Value:** 1.0  |
| **Prerequisites:** Principles of Mathematics, Grade 9, Academic |
| **Co requisites:** None |
| **Course developed by:** Hasan Malik | **Date:** August 28,2014 |
| **Course revised by:** Hasan Malik | **Date:** January 27,2015 |
| **Course based on Ministry curriculum document:** Ministry of Education Curriculum Document 2005 titled as: “Mathematics; The Ontario Curriculum; Grades 9 and 10” |



**ISLAMIC FOUNDATION SCHOOL**

**Course Outline – Principles of Mathematics** **(MPM2D)**

**Course Type: Academic, Grade: 10, Credit Value: 1.0**

**Prerequisite: MPM1D(Grade 9, Academic) , Co-requisite: None**

**Department: Mathematics**

**Teacher: Hasan Malik**

***Course Description / Rationale***

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 problem

***Overall Curriculum Expectations***

By the end of this course, students will:

1. determine the basic properties of quadratic relations;
2. relate transformations of the graph of y = x² to the algebraic representation y = a(x – h)²+ k;
3. solve quadratic equations and interpret the solutions with respect to the corresponding relations;
4. solve problems involving quadratic relations
5. model and solve problems involving the intersection of two straight lines;
6. solve problems using analytic geometry involving properties of lines and line segments;
7. verify geometric properties of triangles and quadrilaterals, using analytic geometry
8. use their knowledge of ratio and proportion to investigate similar triangles and solve problems related to similarity;
9. solve problems involving right triangles, using the primary trigonometric ratios and the Pythagorean theorem;
10. solve problems involving acute triangles, using the sine law and the cosine law

***Outline of Course Content***

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| **Unit** | **Chapter and topic** | **Approximate hours** |
| **Review** | Review of Essential Skills and Knowledge – Part 1 | 10 |
| **1 – Anayltic Geometry** | 1. Using Linear Systems to Solve Problems
 | 30 |
|  | 1. Coordinates and Geometry
 |
| **Review** | Review of Essential Skills and Knowledge – Part 2 | 5 |
| **2 – Quadratic Functions** | 1. Analyzing and Applying Quadratic Models
 | 25 |
|  | 1. Graphing Quadratic Relations and Using them as models
 |
| **Review** | Review of Essential Skills and Knowledge – Part 3 | 5 |
| **3 – Trigonometry** | 1. Introduction to Trigonometry
 | 25 |
|  | 1. Investigating Non-Right Triangles as Models for Problems
 |
| **Review/Final Project** | Final exam review | 10 |
| Total Hours: | 110 |

***Teaching & Learning Strategies***

In this class, a variety of teaching strategies will be used to enhance students learning. These include (but are not limited to): note taking, interactive lessons, cooperative work, investigations, independent learning and study notes.

***Learning Skills:***

In addition to earning a mark on the report card, Learning Skills will be evaluated as outlined by **Growing Success. Assessment, Evaluation and Reporting in Ontario Schools. 2010**. The Learning Skills are: Responsibility, Organization, Independent Work, Collaboration, Initiative, and Self-Regulation. The Learning Skills are evaluated using four-point scale: E for Excellent, G for Good, S for Satisfactory, and N for Needs Improvement

***Obtaining Extra Help:***

Students are expected and encouraged to seek extra help from the teacher when needed**.** From home, students are encouraged to visit [www.khanacademy.com](http://www.khanacademy.com) for further explanations on confusing concepts.

***Late Assignment Submission Policy***

*“Students are responsible not only for their behaviour in the classroom and the school but also for providing evidence of their achievement of the overall expectations within the time frame specified by the teacher, and in a form approved by the teacher.”* **Growing Success, page 43**. If a student has not already procured an extension from a teacher and does not meet assignment deadlines, he/she has up until the time the marked assignments are returned to submit the work for a full mark. Any work submitted after this will be marked and given a mark up to 50.

***Achievement Policy***

For Grades 9 to 12, a final grade (percentage mark) is recorded for every course. The final grade will be determined as follows:

• Seventy per cent of the grade will be based on evaluation conducted throughout the course. This portion of the grade should reflect the student’s most consistent level of achievement throughout the course, although special consideration should be given to more recent evidence of achievement.

• Thirty per cent of the grade will be based on a final evaluation administered at or towards the end of the course. This evaluation will be based on evidence from one or a combination of the following: an examination, a performance, an essay, and/or another method of evaluation suitable to the course content. The final evaluation allows the student an opportunity to demonstrate comprehensive achievement of the overall expectations for the course. **Growing Success. Assessment, Evaluation and Reporting in Ontario Schools. 2010**

Homework is also an essential part of each department's curricula and students are responsible for all work assigned in each class. On-going assessment will occur to allow all students the opportunity to be successful. Students will be evaluated in all four categories of the achievement chart.

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| **Term Work (70%)** |  | **Category Weight** |
| In class assignments (15%) | Knowledge & Understanding (35%) |
| Tests (43.5%) | Application (35%) |
| Quizzes (11.5%) | Communication (15%) |
|  | Thinking/Inquiry (15%) |
| **Cumulative Evaluation (30%)** |  |
| Final Exam (30%) |

***Resources***

*Mathematis 10* (Nelson)

***Plagiarism***

Students are expected to think independently and work honestly. All students must avoid presenting the work or ideas of others as their own. It is in the best interest of each student to build habits which contribute to genuine academic, personal, and social growth, and which attest to sound character. Plagiarism is an academic dishonesty which cannot be tolerated at IFS. The first offence will result in a mark of zero and all previous work may be put to scrutiny. Subsequent offence may result in removal from school. (IFS Student Planner, page 31)