



Islamic Foundation School Course Outline

Course Title: Functions	
Course Code: MCR3U	
Course Type: University Preparation	
Grade: 11	
Credit Value: 1.0	
Prerequisites: Principles of Mathematics, Grade 10, Academic	
Co requisites: None	
Course developed by: Hifzurrahman Patel	Date: August 20, 2008
Course revised by: Hifzurrahman Patel	Date: August 27, 2013
Course based on Ministry curriculum document: Ministry of Education Curriculum Document 2007 titled as: “Mathematics; The Ontario Curriculum; Grades 11 and 12”	



ISLAMIC FOUNDATION SCHOOL

Course Outline – Functions (MCR3U)

Course Type: University Preparation, Grade: 11, Credit Value: 1.0

Prerequisite: MPM2D(Grade 10 Academic) , Co-requisite: None

Department: Mathematics

Teacher: Hifzurrahman Patel

Course Description / Rationale

This course introduces the mathematical concept of the function by extending students' experiences with linear and quadratic relations. Students will investigate properties of discrete and continuous functions, including trigonometric and exponential functions; represent functions numerically, algebraically, and graphically; solve problems involving applications of functions; investigate inverse functions; and develop facility in determining equivalent algebraic expressions. Students will reason mathematically and communicate their thinking as they solve multi-step problems.

Overall Curriculum Expectations

By the end of this course, students will:

1. demonstrate an understanding of functions, their representations, and their inverses, and make connections between the algebraic and graphical representations of functions using transformations; (Strand A)
2. determine the zeroes and the maximum or minimum of a quadratic function, and solve problems involving quadratic functions, including problems arising from real-world applications; (Strand A)
3. demonstrate an understanding of equivalence as it relates to simplifying polynomial, radical, and rational expressions. (Strand A)
4. Evaluate powers with rational exponents, simplify expressions containing exponents, and describe properties of exponential functions represented in a variety of ways; (Strand B)
5. make connections between the numeric, graphical, and algebraic representations of exponential functions; (Strand B)
6. identify and represent exponential functions, and solve problems involving exponential functions, including problems arising from real-world applications. (Strand B)
7. Demonstrate an understanding of recursive sequences, represent recursive sequences in a variety of ways, and make connections to Pascal's triangle; (Strand C)
8. demonstrate an understanding of the relationships involved in arithmetic and geometric sequences and series, and solve related problems; (Strand C)
9. make connections between sequences, series, and financial applications, and solve problems involving compound interest and ordinary annuities. (Strand C)
10. determine the values of the trigonometric ratios for angles less than 360° ; prove simple trigonometric identities; and solve problems using the primary trigonometric ratios, the sine law; and the cosine law; (Strand D)
11. demonstrate an understanding of periodic relationships and sinusoidal functions, and make connections between the numeric, graphical, and algebraic representations of sinusoidal functions; (Strand D)
12. identify and represent sinusoidal functions, and solve problems involving sinusoidal functions, including problems arising from real-world applications. (Strand D)

Outline of Course Content

Unit #	Unit Title	Time Allotted (hours)	Strand(s)
0	Preparation and Getting Ready	10	
1	Patterns of Growth: Sequences	14	C: Discrete Functions
2	Series and Financial Applications	15	C: Discrete Functions
3	Introducing Functions	11	A: Characteristics Of Functions
4	Quadratic Functions and Rational Expressions	11	A: Characteristics Of Functions
5	Modeling Periodic Functions	15	D: Trigonometric Functions
6	Extending Skills with Trigonometry	11	D: Trigonometric Functions
7	Exploring exponential Functions	14	B: Exponential Functions
Review and Summative Evaluation		9	All
Total		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

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.

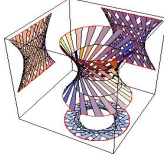
Achievement Policy

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.

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%)		

Accommodation Policy

Some students are able, with certain accommodations, to participate in the regular course curriculum and to demonstrate learning independently. Accommodations allow access to the course curriculum without any changes to the knowledge and skills the student is expected to demonstrate. Islamic Foundation School is committed to accommodating the needs of each and every student. Accommodations may include, but are not limited to: additional time to complete tests or assignments, permitting oral responses to test questions, use of technology and multimedia, preferential seating, style of presentation, and methods of organization.

Resources

Mathematics 11 (Nelson)
Graphing Calculators

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)

The best guarantees of success in Mathematics are faithful attendance and homework done on a daily basis. There is no substitute!!