



# Al Musanna College of Technology

Department of Information Technology  
Mathematics Section

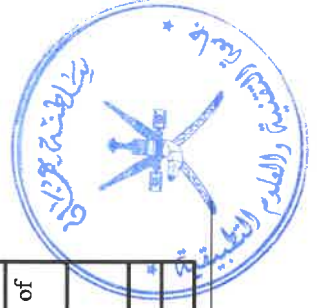
Academic Year: 2017 – 2018, Semester – I (Sep 2017)

## GFP – Foundation Level

Course Code: FPMT0001

Course Name: BASIC MATHEMATICS – L2

<b>Course Goals</b>	To ensure that students are equipped with the mathematical understanding and skills necessary to meet the cognitive and practical requirements of post-secondary or higher education studies in a variety of disciplines.
<b>Course Objectives</b>	
This course should enable the student to:	A student who satisfactorily complete the course should be able to:
1. Understand the concept of set of real numbers and its properties.	1. Describe the set of real numbers, all its subsets and their relationship.
2. Understand mathematical facts, concepts, laws and techniques to solve mathematical problems.	2. Identify and use the arithmetic properties of subsets of integers, rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable.
3. Understand the concept of polynomials and its factorization.	3. Demonstrate an understanding of the exponent laws, and apply them to simplify expression and manipulate fractions, ratios, decimals, and percentages.
4. Solve real life problems using linear and quadratic equations.	4. Understand measurements and conversion from one unit to another.
5. Understand symmetry, trigonometry and angle of elevation and depression.	5. Simplify rational expressions and rationalize numerators or denominators.
	6. Translate worded problems into mathematical expression and model simple real life problems with equations and inequalities.
	7. Solve linear equations, equations involving radicals, fractional expression and inequalities.
	8. Use coordinate plane to solve algebraic and geometric problem, and understand geometric concepts such as equation of a circle, perpendicular, parallel, and tangent lines.
	9. Use the three types of symmetry of an equation to sketch its graph.
	10. Perform operations on polynomials and manipulate numerical and polynomial expressions and solve first degree equations.
	11. Use the quadratic formula to find roots of a second-degree polynomial.
	12. Know the relationship between degree and radian measure of an angle and find the length of a circular arc and the area of a sector.
	13. Understand trigonometric and circular functions and use the fundamental trigonometric identities in various problems.
	14. Solve a right angle triangles using angle of elevation and depression.
	15. Apply knowledge of basic algebra and trigonometry in real life problems.



Course Goals	To introduce to students the mathematical knowledge on reasoning function, relations, trigonometry, geometry and fundamentals of statistics that could be applied in solving natural problems.	
Course Objectives		
This course should enable the student to:	A student who satisfactorily complete the course should be able to:	
1. Understand mathematical facts, concepts, theorems, laws and techniques to solve mathematical problems	1. Demonstrate knowledge and skills on the different functions (combining, inverse, and polynomials) by drawing graphs correctly. 2. Solve equations of exponential and logarithmic functions.	
2. Understand functions and equations, trigonometry and geometry	3. Demonstrate knowledge and skills on trigonometry: Its graphs, formulae, functions and laws.	
3. Understand descriptive and inferential statistics.	4. Solve for special notation and formulae that represent and generate arithmetic and geometric sequences.	
4. Perform calculation and plotting graphs using an appropriate technology.	5. Demonstrate knowledge and skills on analytic geometry such as conic sections.	
5. Appreciate the use of mathematics to model and solve situation in the real world.	6. Demonstrate knowledge and skills on the fundamentals of descriptive and inferential statistics.	
	7. Use appropriate software to interpret equations and graphs.	
	8. Solve mathematical problems that are based on real – life situations.	



Course Goals	To ensure that students are equipped with the mathematical understanding and skills necessary to meet the cognitive and practical requirements of post-secondary or higher education studies in a variety of disciplines.
Course Objectives	
This course should enable the student to:	A student who satisfactorily complete the course should be able to:
1. Prepare them for going for Business and Arts oriented specializations to learn and solve mathematical problems	<ol style="list-style-type: none"> <li>1. Solve two variable linear equations, inequalities and sketch their graphs.</li> <li>2. Interpret a series of three simultaneous inequalities of two variables, display them graphically and determine the solution set.</li> <li>3. Demonstrate an understanding of the definition of a function and its graph.</li> <li>4. Solve quadratic, exponential , log equations and inequalities..</li> </ol>
2. Enable them to meet the prescribed learning outcomes.	<ol style="list-style-type: none"> <li>5. Solve simple real life problems involving linear, quadratic and exponential functions graphically and algebraically.</li> <li>6. Determine the zeroes and the maximum or minimum of a quadratic function and solve related problems including those arising from real world applications.</li> <li>7. Sketch the graphs of quadratic, exponential and logarithmic functions.</li> </ol>
3. Prepares students to acquire knowledge and skills for further studies in their specializations.	<ol style="list-style-type: none"> <li>8. Compare the simple and compound interest and relate compound interest to exponential growth.</li> </ol>
4. Perform Calculations and plotting graphs using an appropriate technology.	<ol style="list-style-type: none"> <li>9. Undertake the computations for problems of interest, annuities, capitalized cost, depletion allowances, stocks and bonds.</li> </ol>
5. Appreciate the use of mathematics to model and solve situations in the real world.	<ol style="list-style-type: none"> <li>10. Use the results of mathematical calculations to help evaluate various options in reaching financial decisions, whether personal or business related while taking into consideration financial ethics and jurisprudence.</li> <li>11. Understand the inverse relationship between exponents and logarithms and use this relationship to solve related problems.</li> </ol>
6. Understand mathematical facts, concepts , laws and techniques to solve mathematical problems	<ol style="list-style-type: none"> <li>12. Understand the basic concept of descriptive statistics, mean , median , mode and Summarize data into tables and simple graphs. (bar charts, histogram and pie charts).</li> <li>13. Understand the basic probability concepts and compute the probability of simple events using tree diagrams and formulas for permutations and combinations.</li> </ol>

