

# Syllabus of Math Course GRC002

Section Number	Topics	Hrs
1.1	<p><b>Chapter 1: Exponential and logarithmic functions</b></p> <p><i>Inverse functions</i></p> <p>Introduction to inverse functions , graphs of inverse functions , composition of a functions and its inverse and find an inverse function.</p>	5
1.2	<p><b><i>Exponential functions and their applications</i></b></p> <p>Exponential functions , graphs of exponential functions and the natural exponential functions .</p>	2
1.3	<p><b><i>Logarithmic functions and their applications.</i></b></p> <p>Logarithmic functions, graphs of logarithmic functions , domains of logarithmic functions and common and natural logarithms.</p>	2
1.4	<p><b><i>Properties of logarithms and logarithmic scales.</i></b></p> <p>Properties of logarithms.</p>	3
1.5	<p><b><i>Exponential and logarithmic equations.</i></b></p> <p>Solve exponential equations and solve logarithmic equations.</p> <p><b>Review1</b></p>	4
2.1	<p><b>Chapter 2 : systems of equations and inequalities.</b></p> <p><b><i>Systems of linear equations in two variables.</i></b></p> <p>Substitution method for solving a system of linear equations , elimination method for solving a system of linear equations and applications of systems of equations.</p>	3
2.2	<p><b><i>Systems of linear equations in more than two variables.</i></b></p> <p>Systems of equations in three variables , triangular form , non-square systems of equations , homogeneous systems of equations and applications.</p>	4
2.3	<p><b><i>Inequalities in two variables and systems of inequalities.</i></b></p> <p>Graph an inequality, systems of inequalities in two variables and nonlinear systems</p>	3

	of inequalities.	
3.1	<b>Chapter 3: Matrices and Determinants.</b>  <i>The algebra of matrices.</i>  Definitions, properties of matrices , matrices operations, matrix form for system of equations and applications.	<b>3</b>
3.2	<i>The inverse of a matrix.</i>  Finding the inverse of a matrix and solving systems of equations using inverse matrices .	<b>3</b>
3.3	<i>Determinants.</i>  Determinant of a $2 \times 2$ matrix , minors & cofactors , evaluate a determinant using expanding by cofactors , evaluate a determinant using elementary row operations and condition for a square matrix to have a multiplicative inverse.	<b>3</b>
3.4	<i>Cramer's rule.</i>  Solving a system of equations using cramer's rule.	<b>3</b>
4.1	<b>Chapter 4 : sequences &amp; series.</b>  <i>Infinite sequences and summation notation.</i>	<b>3</b>
4.2	<i>Arithmetic sequences and series.</i>	<b>4</b>
4.3	<b>Geometric sequences and series.</b>  <b>Review2</b>	<b>4</b>
	<b>Total</b>	<b>56</b>

**R.N. Rufmann, V.C. Barker and R.D. Nation, "College Algebra and Trigonometry",  
6 th. Edition, Houghton Mifflin Company ,2008**