



**COURSE TITLE : BUSINESS MATHEMATICS**

**COURSE CODE: QAM 101**

**CREDIT UNITS: 04**

**COURSE LEVEL : UG**

L	T	P/S	SW/ FW	Total Credit Units
4	-	-	-	04

**Course Objectives:**

The objective of this course is to orient the students towards the basic concepts of mathematics and its applications in the business world.

**Pre-requisites:**

The student should have basic knowledge of tenth standard CBSE level mathematics.

**Student Learning Outcomes:**

- The students after completion of the program will be able to understand the mathematical concepts and terminology involved in Algebra, Derivatives and basic arithmetic operations on Matrices.
- The students will be able to interpret and solve business related problems.
- The students will have strong foundation for further study in Management, Operations, Accounting, Marketing and Finance.

Course Contents/Syllabus:	Weightage (%)
<b>Module I : Algebra</b>	
<ul style="list-style-type: none"> <li>▪ Introduction to Business Mathematics,</li> <li>▪ Scope and Importance, Indices and Surds;</li> <li>▪ Logarithm- Definition and properties, common logarithms;</li> <li>▪ Linear, Quadratic and Simultaneous Equations - Methods of solving quadratic equation, Roots of quadratic equation, simultaneous equations with two or three unknowns,</li> <li>▪ Inequalities with Graphs.</li> </ul>	<b>20%</b>
<b>Module II : Data Arrangement</b>	
<ul style="list-style-type: none"> <li>▪ Arithmetic and Geometric Progression and its Applications in Business,</li> <li>▪ Permutations and Combinations and its applications in business.</li> </ul>	<b>10%</b>
<b>Module III : Coordinate Geometry</b>	
<ul style="list-style-type: none"> <li>▪ Concepts of Co-ordinate Geometry, Cartesian Coordinate System, Coordinates of midpoint,</li> <li>▪ Distance between two points, Section Formula,</li> <li>▪ Equation of straight line (slope-intercept form, slope- point form, two point form),</li> <li>▪ Intersection between two lines – equation parallel line, perpendicular line</li> </ul>	<b>15%</b>
<b>Module IV : Differential Calculus</b>	
<ul style="list-style-type: none"> <li>▪ Function: Definition, Types of Functions, Concepts of Limits and Continuity,</li> <li>▪ Differentiation- definition, derivatives of Algebraic, Logarithmic and exponential function,3.</li> <li>▪ Business application of differentiation;</li> <li>▪ Chain Rule, Product Rule, Quotient Rule,</li> <li>▪ Maxima and Minima (single variable case),</li> <li>▪ Applications to business problems</li> </ul>	<b>20%</b>

<b>Module V : Integration</b>	<b>10%</b>
<ul style="list-style-type: none"> <li>▪ Concepts of Integration ,</li> <li>▪ Indefinite Integration and methods of integration (Exponential &amp; Algebraic functions),</li> <li>▪ Product Rule ,Business Application of Integration</li> </ul>	
<b>Module V1 : Matrices</b>	<b>25%</b>
<ul style="list-style-type: none"> <li>▪ Definition and Types of Matrices- Conversion of linear equations to matrix form, Algebra of Matrices,</li> <li>▪ Transpose of a Matrix, Determinants( order 2 and 3), Cofactors, Adjoint of a Matrix, Inverse of Matrix,</li> <li>▪ Applications to business problems and solving simultaneous equations up to 3 variables using Cramer’s Rule and Matrix Inversion Method.</li> </ul>	

**Pedagogy for Course Delivery:** The course pedagogy will include lectures, numerical practice and discussion on business applications of the topics covered.

**Assessment/ Examination Scheme:**

<b>Theory L/T (%)</b>	<b>Lab/Practical/Studio (%)</b>	<b>End Term Examination</b>
<b>30%</b>		<b>70%</b>

**Theory Assessment (L&T):**

<b>Components (Drop down</b>	<b>Continuous Assessment/Internal Assessment</b>					<b>End Term Examination</b>		
	<b>CT</b>	<b>H</b>	<b>C</b>	<b>V</b>	<b>A</b>	<b>EE</b>		
<b>Weightage (%)</b>	15	10	-	-	5	70		

**References:**

1. Sharma J K (2014), Business Mathematics: Theory and Applications (2nd Edn), Ane Books Pub. ,Delhi,
2. Raghavachari M(1999), Mathematics for Management, Tata McGraw -Hill
3. Piskunov N (2003) ,Differential & Integral Calculus, Moscow MIR Publishers
4. Sancheti and Kapoor(2010), Business Mathematics, Sultan Chand & Sons