

## CO-wise Syllabus

1	CO1	Statement	Illustrate the concept of equation and apply for solving quadratic equations and systems of linear inequality in two variables.
		Syllabus	<b>Algebra:</b> Fundamental Theorem of Algebra (without proof), solution of quadratic equations. Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Solution of the system of linear inequalities in two variables-graphically.
2	CO1	Statement	Apply the concept of arithmetic, and geometric progressions for finding the sum to n terms and infinite number of terms
		Syllabus	<b>Arithmetic and Geometric Progressions:</b> Arithmetic progression (A.P.), general term of A.P., sum of a series in A.P., arithmetic mean (A.M.) Geometric progression (G.P.), general term of a G.P., sum of n terms of a G.P., sum of infinite terms in G.P., geometric mean (G.M.), relation between A.M. and G.M. Sum to n terms of the special series $n$ , $n^2$ and $n^3$ in A.P..
3	CO1	Statement	Remember the concept of coordinate system and apply for finding distance of a point from a line and conics.
		Syllabus	<b>Coordinate Geometry</b> : Straight Lines: Introduction, Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axes, point-slope form, slopeintercept form, two point form, intercepts form and normal form. General equation of a line. Distance of a point from a line, with numerical examples. Conic Sections: Sections of a cone: circle, ellipse, parabola, hyperbola and pair of intersecting lines. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle, with numerical examples.
4	CO1	Statement	Understand the concept of differentiation and apply for finding rate of change, slope
		Syllabus	<b>Calculus I:</b> Introduction, Definition of limit, continuity and differentiability, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric function, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, exponential, logarithmic and parametric forms. Logarithmic differentiation. Derivative introduced as rate of change both as that of distance function and geometrically.
5	CO1	Statement	Remember the concept of differentiation and apply for finding the derivative of different types of functions and maxima and minima.
		Syllabus	<b>Calculus II:</b> Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretations illustrated examples. Applications of Derivatives: Applications of derivatives: rate of change, increasing/decreasing functions, tangents & normals, approximation and errors, maxima and minima of one variable. Simple problems (that illustrate basic principles and understanding of the subject as well as real- life situations).

**B.Tech First Year: Regular Course Lecture Plan Session 2023-24**

<b>Subject Name</b>	<b>Elementery Mathematics-I (BBT 101)</b>
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<b>CO No.</b>	<b>Unit Name</b>	<b>Syllabus Topics</b>	<b>Lecture No</b>
<b>1</b>	<b>Algebra</b>	Fundamental Theorem of Algebra(Only statement),	1
		Solution of quadratic equation by Factorisation	2
		Solution of quadratic equation by Discrimant Formula	3
		Solution of quadratic equations in the complex number system	4
		Introduction of linear equation and Linear inequalities	5
		Algebraic solutions of linear inequalities in one variable	6
		Their representation on the number line	7
		Graphical solution of linear inequalities in two variables	8
<b>2</b>	<b>G.P</b>	Arithmetic Progression(A.P) and its general term	9
		Sum of n terms of a A.P	10
		Geometric Progression(G.P.)	11
		its general term(G.P.)	12
		Sum of n terms of a G.P & Infinite Terms	13
		Sum to n terms of the special series $n, n^2$ and $n^3$ .	14
		Arithmetic mean (A.M) , Geometric Mean (G.M ) and relation between A.M and G.M	15
		Sum to n terms of the special series $n, n^2$ and $n^3$ .	16
<b>3</b>	<b>Coordinate Geometry</b>	Introduction of Straight Lines,Slope of a line and and Condition of parallel and perpendicularity of two lines	17
		Angle between two lines	18
		Various forms of equations of a line: parallel to axes	19
		Point-slope form,intercepts form	20
		Equations of a line normal form	21
		Equations of a line, two point form	22
		General equation of line	23
		Pair of intersecting lines	24
		Distance of a point from a line and distance between line	25
		Sections of a cone: circle, ellipse, parabola, hyperbola, a point and a straight line	26
		Standard Equation of circle and ellipse, and their properties	27
		Standard Equation of parabola and hyperbola and their properties	28

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<b>4</b>	<b>Calculus I</b>	Introduction, Definition of limit	29
		Continuity	30
		Differentiability	31
		Derivative of sum, Difference and Product functions	32
		Derivatives of quotient of functions and composite functions	33
		Derivatives of polynomial, Trigonometric functions	34
		Derivatives of Composite functions, Chain Rule	35
		Derivatives of Inverse trigonometric functions	36
		Exponential, Logarithmic and Parametric Form	37
		Derivatives of polynomial, Trigonometric functions	38
		Logarithmic differentiation,	39
		Derivative introduced as rate of change both	40
		<b>5</b>	<b>Calculus II</b>
Lagrange's Mean Value Theorem (without proof) and its	38		
Applications of Derivatives as rate change	39		
Increasing and decreasing functions	40		
Tangents & Normals to the given curve	41		
Approximations & Errors and Simple problems (that illustrate basic principles)	42		
Maxima and minima of one variable.	43		
Simple Problems related to real life situations	44		