SYLLABUS PLANNED

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| **Theory** | **Target Date** | **Covered Date** | **Sign.** |
| **Unit – 1 Algebra – Introduction****\***Complex Numbers: definition of complex number |  |  |  |
| * Real and imaginary parts of a complex number
 |  |  |  |
| * Polar and Cartesian Form and their inter conversion
 |  |  |  |
| * Conjugate of a complex number
 |  |  |  |
| * Modulus and amplitude
 |  |  |  |
| * Addition & subtraction of complex numbers
 |  |  |  |
| * Multiplication of complex numbers
 |  |  |  |
| * Division of complex numbers
 |  |  |  |
| * Logarithms and its basic properties
 |  |  |  |
| **Unit – 2 Binomial Theorem, Determinants and Matrices-Introduction,** Meaning of nPr & nCr (mathematical expression) |  |  |  |
| * Binomial theorem (without proof) for positive integral index (expansion and general form)
 |  |  |  |
| * Binomial theorem for any index (expansion up to 3 terms - without proof)
 |  |  |  |
| * First binomial approximation with application to engineering problems
 |  |  |  |
| * Determinants and Matrices – Evaluation of determinants (up to 2ndorder)
 |  |  |  |
| * Solution of equations (up to 2 unknowns) by Crammer’s rule
 |  |  |  |
| * Definition of Matrices and its types, addition & subtraction of matrices (up to 2nd order). Test
 |  |  |  |
| * Multiplication of matrices (up to 2nd order).
 |  |  |  |
| * Revision**, Assignment**
 |  |  |  |
| **Unit – 3 Trigonometry – Introduction**, Concept of angle |  |  |  |
| * Measurement of angle in degrees, grades, radians and their conversions.
 |  |  |  |
| * T-Ratios of Allied angles (without proof)
 |  |  |  |
| * Sum formulae and their applications (without proof)
 |  |  |  |
| * Difference formulae and their applications (without proof)
 |  |  |  |
| * Product formulae (Transformation of product to sum, difference and vice versa
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * Applications of Trigonometric terms engineering

problems such as to find an angle of elevation |  |  |  |
| * Applications of Trigonometric terms in engineering problems such as to find height, distance etc.
 |  |  |  |
| * Revision
 |  |  |  |

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|  **Unit – 4 Co-ordinate Geometry - Introduction** | **Target Date** | **Covered Date** | **Sign.** |
| * Cartesian co-ordinates (two dimensional)
 |  |  |  |
| * Polar co-ordinates (two dimensional)
 |  |  |  |
| * Distance between two points
 |  |  |  |
| * mid- point
 |  |  |  |
| * Centroid of vertices of a triangle
 |  |  |  |
| * Slope of a line, Test
 |  |  |  |
| * Equation of straight line in various standards forms (without proof)
 |  |  |  |
| * Slope intercept form, intercept form
 |  |  |  |
| * One-point form, two-point form,
 |  |  |  |
| * Symmetric form, normal form, general form
 |  |  |  |
| * Intersection of two straight lines, concurrency of lines
 |  |  |  |
| * Angle between straight lines, parallel lines and perpendicular lines
 |  |  |  |
| * Angle between perpendicular lines
 |  |  |  |
| * Perpendicular distance formula
 |  |  |  |
| * Conversion of general form of equation to the various forms.
 |  |  |  |
| * Revision **, Assignment**
 |  |  |  |
| **Unit – 5 Geometry of Circle and Software – Introduction CIRCLE*** General equation of a circle and its characteristics
 |  |  |  |
| * To find the equation of a circle, given:
	1. Centre and radius
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * To find the equation of a circle, given:

**(ii)** Three points lying on it |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * To find the equation of a circle, given:

(iii) Coordinates of end points of a diameter |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| **SOFTWARE - MATLAB Or Sci. Lab software ,** Theoretical Introduction |  |  |  |
| * MATLAB or Scilab Simple Calculator (Addition of values)
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * MATLAB or Scilab Simple Calculator (Subtraction of values)
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * MATLAB or Scilab Simple Calculator - (Trigonometric functions) - General Practice**, Assignment**
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |
| * MATLAB or Sci lab Simple Calculator – (Inverse Trigonometric functions) - General Practice
 |  |  |  |
| * Solve Problems related to previous topic - General Practice
 |  |  |  |
| * Solve Problems related to previous topic
 |  |  |  |