**Lesson Plan**

Name of the Faculty : Miss. Deepika

Discipline : Computer Engg.

Year : 1st Year

Subject : Mathematics

Lesson Plan : 30 Weeks (From August 2018-April 2019)

Workload (Theory/Practical) per week (in hours): Theory-03, Tutorial-01

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| Week | Theory | Tutorial |
| Lecture Day | Topic(Including assignment/test) | Tutorial Day | Topic |
| 1st | 1st | **Unit-I(Algebra**) | 1st | Problems Related to Algebra. |
| Introduction to algebra. |
| 2nd | Indices and Law of Indices. |
| 3rd | Problems related to law of indices. |
| 2nd | 4th | Formula of Factorisation and expansion i.e. (a+b)2, (a3+b3) etc. | 2nd | Problems Related to law of indices. |
| 5th | Problems related to factorisation. |
| 6th | Problems related to expansion. |
| 3rd | 7th | Revise Indices and Law of Indices. | 3rd | Problems related to Factorisation and expansion. |
| 8th | Revise Problems related to factorisation. |
| Revise Problems related to expansion. |
| 9th | Introduction to Partial fraction. |
| 4th | 10th | Definition of Polynomial fraction proper & improper fractions and definition of partial fractions. | 4th | Problems related to polynomial fractions. |
| 11th | Problems related to Polynomial fraction proper & improper fractions and partial fractions. |
| 12th |  Resolve proper fraction into partial fraction with denominator containing non-repeated linear factors. |
| 5th | 13th |  Problems related to convert proper fraction into partial fraction with denominator containing non-repeated linear factors. | 5th | Problems related to complex numbers. |
| 14th | Introduction to complex numbers. |
| 15th | Definition of complex number, real and imaginary parts of a complex number. |
| 6th | 16th | Problems related to complex Numbers. | 6th | Problems related to complex numbers. |
| 17th |  Problems related to complex Numbers. |
| 18th | Polar and Cartesian Form and their inter conversion. |
| 7th | 19th | Problems related to Polar and Cartesian form. | 7th | Problems related to complex numbers. |
| 20th | Conjugate of a complex number. |
| 21th | Problems related to Conjugate of a complex number. |
| 8th | 22th | Modulus and amplitude. | 8th | Problems related to complex numbers. |
| 23th | Addition subtraction, multiplication and division of complex number.  |
| 24th | Problems related to Modulus and amplitude. |
| 9th | 25th | Problems related to Addition subtraction, multiplication and division of complex number. | 9th | Problems related to Logarithms. |
| 26th | Logarithms and its basic properties. |
| 27th | Problems related to Logarithms. |
| 10th | 28th | Introduction to Determinants and Matrices. | 10th | Problems related to Determinants and Matrices.  |
| 29th | Simple problems related to Determinants and Matrices. |
| 30th | Evaluation of determinants (up to 3 order) by laplace method. |
| 11th | 31th | Solution of equations (up to 3 unknowns) by Cramer’s Rule. | 11th | Problems related to laplace method and Cramer’s Rule. |
| 32th | Problem related to laplace method and Cramer’s rule. |
| 33th | Definition of Matrices and types and simple problems. |
| 12th | 34th | Addition and subtraction of Matrices. | 12th | Addition and subtraction of Matrices.Multiplication of Matrices (up to 2 order).  |
| 35th | Multiplication of Matrices (up to 2 order).  |
| 36th | Permutation, combination formula. |
| 13th | 37th | Values of nPr and nCr. | 13th | Problems related to Permutation, combination formula. |
| 38th | Problems related to nPr and nCr . |
| 39th | Binomial theorem for positive integral index , General term. |
| 14th | 40th | Simple problems related to Binomial theorem for positive integral index. | 14th | Problems related to Binomial theorem for positive integral index. |
| 41th | **UNIT-2(Trigonometry)** |
| Introduction to Trigonometry. |
| 42th | Concept of angle: measurement of angle in degrees and simple problems. |
| 15th | 43th | Grades, radians and their conversions and related problems. |  | Problems related to trigonometry. |
| 44th | T-Ratios of standard angle (00,300,450etc) and fundamental Identities. |
| 45th | Problems related to T-Ratios of standard angle (00,300,450etc). |
| 16th | 46th | Allied angles (without proof) Sum, Difference formulae and their applications (without proof). | 16th | Problems related to trigonometry. |
| 47th | Product formulae (Transformation of product to sum, difference and vice versa). |
| 48th |

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

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| 17th | 49th | Problems related to trigonometry. | 17th | Problems related to trigonometry. |
| 50th | **Unit-3**(**Co-ordinate Geometry)** |
| Introduction to Co-ordinate Geometry, Point: Distance Formula, Mid Point Formula. |
| 51th | Centroid of triangle and area of triangle. |
| 18th | 52th | Problems related to Co-ordinate Geometry. | 18th | Problems related to Co-ordinate Geometry. |
| 53th | Straight Line: Slope of a line, equation of straight line in various standards forms(without proof). |
| 54th | (slope intercept form, intercept form, one-point form, two-point form, normal form, general form). |
| 19th | 55th | Angle between two straight lines and related problems. | 19th | Problems related to Straight Line. |
| 56th | Problems related to straight line. |
| 57th | Circle: General equation of a circle and identification of centre and radius of circle. |
| 20th | 58th | find the equation of a circle, given:\* Centre and radius\* Coordinates of end points of a diameter. | 20th | Problems related to Circle. |
| 59th | Problems related to circle. |
| 60th | **UNIT-4**(**Differential Calculus)** |
| Definition of function; Concept of limits (Introduction only). |
| 21th | 61th | Problems related to four standard limits only.  | 21th | Problems related to limits. |
| 62th | Problems related to limits. |
| 63th | Differentiation of standard function (Only formulas) and Differentiation of Algebraic function. |
| 22th | 64th | Trigonometric functions, Exponential function, Logarithmic function. | 22th | Differentiation problems. |
| 65th |  Problems related to above differential functions. |
| 66th | Differentiation of sum, product and quotient of functions and related problems. |
| 23th | 67th | Successive differentiation (up to 2nd order) and related problems.  | 23th | Problems related to differential calculus applications. |
| 68th | Application of differential calculus in: 1. Rate measures
2. Maxima and minima
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| 69th | **UNIT-5**(**Integral Calculus)** |
| Integration as inverse operation of differentiation with simple examples. |
| 24th | 70th | Simple standard integrals, Integrations by parts and related Simple problems. | 24th | Problems related to integration. |
| 71th | • Evaluation of definite integrals with given limits.  π/2 π /2 π/2 Evaluation of ∫ sinnx. dx, ∫ cosnx dx , ∫ sinmx cosnx dx 0 0 0using formulae without proof (m and n being positive integers only) using pre-existing mathematical models.  |
| 72th | Applications of integration: for evaluation of area under a curve and axes (Simple problems where the limits are given). |
| 25th | 73th | Numerical integration by Trapezoidal Rule. | 25th | Problems related to Trapezoidal Rule and Simpson’s 1/3rd Rule.  |
| 74th | Numerical integration by Simpson’s 1/3rd Rule. |
| 75th | **UNIT-6**(**Differential Equations)** |
| Definition, order, degree and linearity, of an ordinary differential equation. |
| 26th | 76th | Solution of Ist order and Ist degree differential equation by variable separable method (Simple problems). | 26th | Problems related to differential equations. |
| 77th | Problems related to differential equations. |
| 78th | **UNIT-7**(**Statistics)** |
| 27th | 79th | Measures of Central Tendency: Mean, Median, Mode. | 27th | Problems related to Mean, Median, Mode. |
| 80th | Problems related to Mean, Median, Mode. |
| 81th | Measures of Dispersion: Mean deviation from mean, Standard deviation. |
| 28th | 82th | Problems related to Mean deviation from mean, Standard deviation. | 28th | Problems related to Mean deviation from mean, Standard deviation and Coefficient of rank correlation. |
| 83th | Correlation coefficient and Coefficient of rank correlation (Simple problems) |
| 84th | Problems related to Correlation coefficient and Coefficient of rank correlation.  |
|  | 85th | **Tests** | 29th |  |
| 86th |
| 87th |
| 30th | 88th | 30th |
| 89th |
| 90th |