**Lesson Plan**

**Name of Faculty :**  Gaurav Singh Sisodia/ Rajbir Singh

**Discipline :** Mathematics

**Semester :** 3rd Sem. EE

**Subject :** Mathematics –III (MAT-201-L)

**Lesson Plan Duration:** 15 weeks

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| **Week** | **Theory** |
| **Lecture Day** | **Topic (Including Assignment/Test)** |
| 1st | 1 | Euler’s Formulae  |
| 2 | Dirichlet’s Condition for Fourier expansions |
| 3 | Problems and Solutions |
| 4 | Fourier expansion of functions having point of discontinuity |
| 2nd | 5 | Change of interval |
| 6 | Odd and even functions |
| 7 | Problems and Solutions |
| 8 | Fourier expansion of square wave |
| 3rd | 9 | Rectangular wave, saw-toothed wave |
| 10 | Half and full rectified wave |
| 11 | Half range sine and cosine series |
| 12 | Problems and Solutions |
| 4th | 13 | Fourier integrals Theorem |
| 14 | Fourier transforms |
| 15 | Fourier sine & cosine transforms |
| 16 | Properties of Fourier transforms,  |
| 5th | 17 | Convolution theorem |
| 18 | Shifting theorem (both on time and frequency axes) |
| 19 | Fourier transforms of derivatives |
| 20 | Fourier transforms of integrals  |
| 6th | 21 | Fourier transform of Dirac delta function |
| 22 | Problems and Solutions |
| 23 | Functions of complex variable, limit & continuity of a function |
| 24 | Exponential , Trigonometric, Hyperbolic &Logarithmic functions |
| 7th |  | ----------------------------**Ist Minor Test**--------------------------- |
| 8th | 25 | Differentiability & Analyticity |
| 26 | C-R equations: necessary & sufficient condition for function to be analytic |
| 27 | Polar form of C-R equations, Harmonic functions |
| 28 | Integration of complex functions |
| 9th | 29 | Problems and Solutions |
| 30 | Cauchy Theorem, Cauchy- Integral formula. |
| 31 | Power series, radius and circle of convergence  |
| 32 | Taylor's Maclaurin's and Laurent's series |
| 10th | 33 | Zeroes and singularities of complex functions |
| 34 | Residues. Evaluation of real integrals using residues (around unit circle) |
| 35 | Residues. Evaluation of real integrals using residues (around semi circle) |
| 36 | Problems and Solutions |
|   11th | 37 | Introduction of Probability Distributions and Hypothesis Testing |
| 38 | Expected value of a random variable  |
| 39 | Baye’s Theorem |
| 40 | Discrete and continuous probability distribution. |
| 12th | 41 | Testing of a hypothesis, tests of significance for large samples  |
| 42 | Properties and application of Binomial distribution. |
| 43 | Student’s t-distribution (applications only) |
| 44 | Chi-square test of goodness of fit |
| 13th | 45 | Problems and Solutions |
| 46 | Linear Programming problems formulation |
| 47 | Solution of LPP using Graphical Method |
| 48 | Canonical and Standard form of LPP |
|  14th |  | ----------------------------**2nd Minor Test**--------------------------- |
| 15th | 49 | Linear Programming problems formulation |
| 50 | Solution of LPP using Simplex Method |
| 51 | Solution of LPP for degeneracy problem |
| 52 | Solution of LPP using Dual Simplex Method |