Topics for Presentation - MATHEMATICS

1. Ordinary differential equation
2. Series solution for second order differential equation
3. (a) Roll's theorem and its geometric interpolation
   (b) Lagrange's Mean value theorem and its geometric interpolation
4. Basic concept of Integration (Single and multiple integration)
5. Improper Integrals
   (a) Gamma functions (b) Beta functions
6. Fundamental theorem of calculus
7. Analytic function
8. Contour Integrals
9. Basic concept of vector calculus gradient, divergence and curl with physical interpretation
10. Introduction to Fourier series, Fourier integral and Fourier transforms along with applications