## D.B.F.Dayanand College of Arts and Science, Solapur

## CERTIFICATE COURSE IN MATLAB SOFTWARE

**Objectives :** To introduce students a software which is used for interpreting results in the industry. To make students know drawing graphs of complex functions, solving differential equations, doing difficult integration using software.

## **Syllabus**

- 1. Symbolic maths
- 2. Differentiation : first and second order
- 3. Integration
- 4. Limits
- 5. Simplification and substitutions-collection and expansion of factors
- 6. Basic algebraic operations
- 7. Integral transforms : Laplace, Fourier, Z-transforms
- 8. Plotting of graphs : 2D and 3D
- 9. Solving algebraic operations : Quadratic and cubic
- 10. Determinants
- 11. Graphical representation of solutions of ordinary and partial differential equations. Numerical solutions to the system of linear equations, solution of algebraic and transcendental equations, ordinary and partial differential equations.

Reference books :

- a) Advanced Engineering Mathematics with MATLAB by Thomas L.Harman, James Daboney, Norman Richert
- b) Advanced Engineering Mathematics with MATLAB by Dean G.Duffy,CRC Press
- c) Exercise in Computational Mathematics with MATLAB by Tom Lyche, Jean-Louis Merrien, Springer Publications