Course code	Course Title	C	H	I	E	T
17U2PSM2	Numerical Methods	2	2	25	75	100

Unit 1   **Curve fitting (**Problems and theory)

Principle of least squares - Fitting a straight line – Fitting a parabola – Fitting of an exponent curve.

Unit 2   **Roots of algebraic equations** (Problems and theory)

Iterative method of successive approximations – Bisection method – Newton–Raphson method.

Unit 3   **Simultaneous equations** (Problems only)

Gauss elimination method – Gauss–Jordan method – Inverse of a matrix.

Unit 4   **Interpolation and numerical integration** (Problems only)

Lagrange's interpolation – Trapezoidal method – Simpson's one third rule.

Unit 5   **Numerical solution of ordinary differential equations** (Problems only)

Euler's method – Improved Euler's method – Modified Euler's method – The Runge-Kutta Second order method.

Text Book(s):
1. A.Singaravelu, Numerical methods, Ist Edition, 2002, Meenakshi Agency, Chennai.
   Unit 1: Pages 1.15–1.33.

   Unit 2: Pages 2.2–2.20.

   Unit 3: Pages 2.41–2.51, 2.77.

   Unit 4: Pages 4.9–4.14, 4.31–4.33.

   Unit 5: Pages 5.12–5.20.

References:
1. V. Rajaraman, Computer Oriented Numerical Methods, 3rd edition, 1997, McGraw Hill.