I Year I Semester   **L   P   C**

Code: 17CC104   **4   0   3**

GEOMETRIC MODELLING

Unit - I
Cubic splines –I Definition, Explicit and implicit equations, parametric equations, Algebraic and geometric form of cubic spline, Hermite cubic spline, tangent vectors, parametric space of a curve, blending functions.

Unit - II
Cubic Splines-II: four point form, reparametrization, truncating and subdividing of curves. Graphic constructionand interpretation, composite pc curves.
Bezier Curves: Bernstein basis, equations of Bezier curves, properties, derivatives.

Unit - III
B-Spline Curves: B-Spine basis, equations, knot vectors, properties, and derivatives.

Unit – IV
Surfaces: Bicubic surfaces, Coon's surfaces, Bezier surfaces, B-Spline surfaces, surfaces of revolutions, Sweep surfaces, ruled surfaces, tabulated cylinder, bilinear surfaces, Gaussian curvature.

Unit – V
Solids: Tri cubic solid, Algebraic and geometric form.
Solid modeling concepts: Wire frames, Boundary representation, Half space modeling, spatial cell, cell decomposition, classification problem.

TEXT BOOKS:
   1. Elements of Computer Graphics by Roger & Adams Tata McGraw Hill.
   2. Geometric Modeling by Micheal E. Mortenson, McGraw Hill Publishers

REFERENCES:
   1. Computer Aided Design and Manufacturing, K.Lalit Narayan, K.Mallikarjuna Rao,MMM Sarcar, PHI Publishers