MANIPAL UNIVERSITY JAIPUR

School of Automobile Mechanical and Mechatronics Engineering
Department of Mechanical Engineering
Course Hand-out
Computer Aided Design| ME 1709 | 3 Credits | 3 0 0 3
Session: Jul 18 – Dec 18 | Faculty: Mr. Arpit Khandelwal/ Dr. Santosh Patil/ Dr. R K Gupta| Class:
B.Tech VII Semester

Course Outcomes: At the end of the course, students will be able to
[1709.1] Describe the design process and basic CAD **skills** for engineering design and drawing
[1709.2] Evaluate the CAD transformations and curve fitting
[1709.3] Illustrate the core concepts of computer graphics
[1709.4] Represent parametric cubic, Bezier, B-spline curves and surfaces and solids
[1709.5] Possess a good understanding of solid modelling for employability in design of components.

A. Syllabus

Introduction to CAD, Geometric transformation techniques, Representation of curves, curve fitting techniques, Cubic curves, Beziers and b-splines, Hermite curve, Rational curves\NURBS. Types and representation of surfaces, Analytic surfaces, Synthetic types, Polygon surfaces, Quadric and super quadric surface, Bezier and B-spline surface, Hermite surface, Coon's surface, Blobby objects. Solid Modeling: Constructive solid geometry, Boundary representation, CAD standards, Graphical kernel system (GKS), Data exchange standards for modelling data

B. Text Books

I. I.K. Zeid, CAD/CAM Theory and Practice, Tata McGraw Hill New Delhi, 1998.
II. D.F.Rogers and J Alan Adams, Mathematical Elements for Computer Graphics, Tata McGraw Hill New Delhi, 2002.

Reference Book

I. D.F.Rogers and J A Adams, Procedural Elements for Computer Graphics, McGraw