

# Rapid Prototyping and Tooling

Review of solid modeling techniques with comparison advantages and disadvantages, basic principal of RP processes, classification of RP processes various industrial RP systems like stereo lithography, fused deposition modeling, selective Laser Sintering, Laminated object manufacturing, 3D printing, Ballistic particle modeling etc, roll of rapid prototyping and rapid tooling in product development and simultaneous engineering. Process planning for rapid prototyping, STL file generation defects in STL files and repairing algorithm, slicing and various slicing procedures, accuracy issues in rapid prototyping, strength of RP parts, surface roughness problem in rapid prototyping, part deposition orientation and issues like accuracy, surface finish, build time, support structure, cost etc, rapid tooling techniques such as laminated metallic tooling, direct metal laser sintering, vacuum casting. Introduction to reverse engineering, integration of reverse engineering and rapid prototyping.

## **Text Book:**

1. Rapid Prototyping And Tooling, Karunakaran K.P, Vijay P Bapat, Ravi B, Rapid Prototyping Cell, IIT-Mumbai.

## **Reference Book**

1. Computer Aided Manufacturing, Elanchezhian C, Sunder Selwyn T, Shanmuga Sundar G, Laxmi Publications
2. Rapid Prototyping: Theory And Practice by Ali K Kamrani ,Springer Publication