

# Design for Additive Manufacturing



## FULL COURSE CONTENT

- Evaluation of existing manufacturing technologies, their limitations and advantages over AM
- An evaluation over the AM process, from CAD to finished parts
- A cross industry look at the wider AM landscape and other AM technologies, the limitations, advantages, and applications of each
- History of AM technologies
- The processes and uses of both FDM & Polyjet
- Reasons to consider a commercial-level 3D printer
- Deep examination of FDM materials, examples of applications, colour, slice heights and support
- What materials are applicable to certain scenarios
- Basic examination of Stratasys Polyjet materials, examples of applications, colour, slice heights and support
- What materials are applicable to certain scenarios
- DfAM FDM Design rules
- What is an .STL file, how do they work? How does it relate to my print?
- Brief examination of .STL fixing techniques
- Orientation considerations for printing speed, surface quality and material usage
- Walls, ribs, slice heights and tool paths
- Differences between contour and raster toolpaths
- Appropriate draft angles and self supporting structures
- Holes and chamfers in FDM printing
- Practical design exercises redesigning parts for FDM
- Strategies for sectioning parts
- Strategies for assemblies and moving parts
- Implementation of threads, and nuts
- Infills and interior build styles
- Case study reviews of real world applications
- Adding text to 3D prints
- Tolerances of specific Stratasys machines
- Pre processing software
- Demonstration of GrabCAD features for FDM printing
- Orientation considerations for Polyjet printing
- Wall thickness, fillets and clearances for Polyjet parts and assemblies
- Topology Optimisation and Generative Design, what it is and how it can be used in AM

All equipment is provided for delegates including laptops and writing pads. There is no requirement for a 3D printer at the course.