Course Curriculum

## The Rapid Prototyping Lab in Siemens Coe provides a 3-D visualization for digitally rendered items, rapid prototyping can be used to test the efficiency of a part or product design before it is manufactured in larger quantities.

**The RPT Lab offers:**

✔ Online and Hands- On training on Grabcad and F270 machine.

✔ Course Completion Certificate

# Course Description

## RPT Concepts, Technologies, Definitions, and applications

Fast paced course for anyone who wants to understand what is RPT and Additive manufacturing.

The course has 5 parts:

* What is Rapid prototyping?
* What is Additive manufacturing
* Methodology of RPT
* Rapid prototyping cycling process
* The Technologies of RPT

We start by showing the step by step cyclic process of RPT and evolution of Additive manufacturing. After this we take an in depth looks at the many technologies that are part of RPT, describing their functions, technology requirements. Finally, we recap what we have learned providing hands on trained using the FDM machine and Wave wash tank uses.

# Prerequisites and Target Audience

## What will students need to know or do before starting this course?

Basic knowledge of CAD is needed and some mid-level understanding about the manufacturing methods. These will all be explained but prior understanding will simplify the session to be smooth.

## Who should take this course? Who should not?

Anyone who wants an easy introduction to the Rapid prototyping and creative manufacturing methods using the additive manufacturing process.

# Curriculum

## Module 1: Introduction to RPT

Covers the opportunities of Additive manufacturing and shows the transformation of the manufacturing from Removal to additive by 3-D printing technology. After completion student will understand why RPT and what are the cyclic process of RPT.

## Module 2: The Technologies of RPT

This section describes the technologies used in the RPT (various printers) with real time examples and applications. It also describes the current trends in all technology areas. After completion the student will understand the various technologies of RPT and its applications.

## Module 3: Small brief about fused deposition modeling.

This section describes the FDM technology used widely for plastic parts specialized 3D printers and production-grade thermoplastics to build strong, durable and dimensionally stable parts with the best accuracy and repeatability of any 3D printing technology. It also describes the setup, calibration process. After completion the student will understand the importance of FDM 3-D printing and its application.

## Module 4: GrabCAD Print and SLICING

This lecture describes the GrabCAD Print that allows you to save time by directly printing CAD files rather than converting CAD files into STL files.

After this lecture the student should understand how digital 3D models transforms into printing instructions for your 3D printer to create an object.

## Module 5: Printing and Support Removal

This section provides a deeper understanding and hands-on learning experience on how actually FDM machine works and what are the post processing techniques. After completion student will understand what Additive manufacturing is and what the applications of RPT are.