

**Course Title:** Rapid Prototyping for Product Design (1-0-1) (ME 1801)

**Fall 2019 Schedule:** TR 1:30pm – 2:45pm during Sep 23, 2019 - Oct 25, 2019 in CoC #53

**Instructor:** Dr. Amit Jariwala ([amit.jariwala@gatech.edu](mailto:amit.jariwala@gatech.edu))

**Description:**

This is a hands-on course where students will learn to utilize prototyping processes as a means to validate design solutions. Students will be introduced to additive manufacturing (AM) processes and common makerspace tools/equipment (like laser cutters, woodshop tools, waterjet, etc.) The course will briefly introduce the concept of hybrid manufacturing in the context of rapid prototyping scoped around tools available within academic makerspaces. Students will design and build prototypes to demonstrate competencies on utilizing prototyping equipment as well as validate specific design requirements.

**Software:** AutoDesk Fusion 360

**Course Topics:**

- Overview of design & prototyping process
  - Phases of design
  - Need for prototyping/design validation
  - Types of prototyping
- Discussion on Prototyping Tools
  - Tour of Invention Studio
  - Process capability evaluation/comparison
  - Hands-on learning and demonstration of competency on equipment
- Group project
  - Prototyping strategy and process planning

**Course Outcomes:**

- To enable students to identify design specifications, functional requirements and develop a process to validate design solutions
  - Students will identify relationships between design requirements and develop a validation strategy
  - Students will demonstrate how prototypes help validate design requirements
- To develop in students the ability to identify, evaluate and utilize rapid prototyping processes
  - Students will gain hands-on skills to utilize fabrication tools/processes
  - Students will be able to compare and select appropriate prototyping tool/process for an intended purpose