COURSE CONTENT

Course Code	DR3008
Course Title	Advanced Development and Prototyping
Pre-requisites	DR3006 Product Design III *(applies to ADM students only)* OR MA4831 Computer-Aided Engineering *(applies to MAE students only)*
No of AUs	3
Contact Hours	39 hours studio contact

Course Aims

This intermediate level course will allow you to conceptualize, develop, detail and build functional prototypes for various types of products. You will be taught principles on how to design for manufacturing and be introduced to various prototyping techniques. This course will prepare you in creating functional prototypes for product design projects undertaken in year 4 of your studies.

Intended Learning Outcomes (ILO)

By the end of the course, you should be able to:

1. Describe design for manufacturing and various types of techniques used for the creation of functional product prototypes.
2. Develop a range of manual and digital techniques and processes in order to create functional product prototypes.
3. Apply prototyping techniques to create functional prototypes for a variety of product designs.
4. Present your prototyping design project in a clear and cohesive manner through visual presentations and virtual/ physical objects.
5. Constructively discuss and critique on prototyping and presentation techniques employed in your own work and the work of your peers.

Course Content

What is a prototype?
You will be introduced to different types and characteristics of prototypes and their use throughout different stages of the product development process.

Design for manufacturing
You will be introduced to principles and material characteristics for the designing of parts for manufacturing. You will also be taught to consider various fastening and joining techniques used for parts made from a variety of materials.

Prototyping techniques
You will be introduced to various manual and digital techniques and workflows for creating prototypes; technologies such as 2-dimensional and 3-dimensional computer numerical control (CNC) machining, rapid prototyping, 3-dimensional scanning, and reverse engineering will be covered. Strategies for iteration, assembly, fastening & joining, and material substitution will also be covered.

Prototyping design projects
You will apply design for manufacturing knowledge and prototyping techniques to realize design

prototyping projects based on various themes.