

Overview

The focus of this module is centred around **additive manufacturing**. A term some would think is relatively new, however, the basic principle of what we know as additive manufacturing has been around since the dawn of time. In this course, we will explore the principles of additive manufacturing and the tools we have available to us today to design and produce using these methods. The specific focus of this course will be around the use of **filament-based 3D printing**, the **setup process, software utilized** and **material** options available.

Features and Benefits

1. Delegates will be exposed to the use and application of additive manufacturing using 3D printers. This module will also cover the process of designing for moulds and the link between additive manufacturing and mould making.
2. Machine Operation, Servicing & Troubleshooting
3. Materials
4. The Printing Process
5. Mould design and approaches to making
6. Take full advantage of our new **Hybrid Learning** by attending on **campus** or **virtually**. Have all your classes ready to be **downloaded** and **watched**, anytime, anywhere.

7. Attendees will **gain confidence** and enhance their practical skills and knowledge in this field.
8. The delegates get exposure to additive manufacturing using 3D printing to create prototypical part whereafter rapid replication can be implemented using mould making and casting.

Course Prerequisites

- Attended Introduction to Technical Drawing / Experience with Drafting, design, modelling of 3D parts or components
- Basic knowledge of Autodesk Fusion 360 would be beneficial
- Computer Literate specifically focused on Microsoft Windows

Course Outline

Module 1: Introduction to 3D Printing

Students will be exposed to the use and application of additive manufacturing using 3D printers.

- What is additive manufacturing
- Global position and advancements in 3D printing

Module 2: The 3D printer

- Preparing the machine for printing
- Printing bed adjustments

Module 3: Creating a basic design in Autodesk Fusion 360

- Basic form visualization
- Form/model Export

Duration

In Class/Virtual Class, Hybrid Learning

1 Day (08:30 – 16:00) Classes are presented via our **Hybrid Learning** allowing learners the **flexibility** to attend on campus or in the comfort of their home or workplace.

What you get

On completion the learner will earn:

- **Certificate of Completion** from **The Academic Institute of Excellence**

Note: All certificates are electronically issued.

Delivery Methods

- Full Time

Module 4: Utilizing external slicing software in preparation for 3D printing

Various 3D printers come with their manufacturer slicing software, which is recommended to use with the printer, however, these slicing software all utilize similar approaches to translate virtual geometry into code that can be understood by the 3D printer.

- What is the purpose of slicing software
- How 3D printers use the information from the slice

Module 5: Printing

- Model setup within the slicing software
- Temperatures, speeds, offsets and supports
- Running a print and what to look out for Print removal and cleaning



Outcomes & Skills

Upon completion of this course, learners will have acquired these skills

- What is additive manufacturing
- Global position and advancements in 3D printing
- Preparing the machine for printing
- Printer adjustments
- Basic form visualization
- Creating a basic design
- Utilizing external slicing software
- 3D printing and model setup