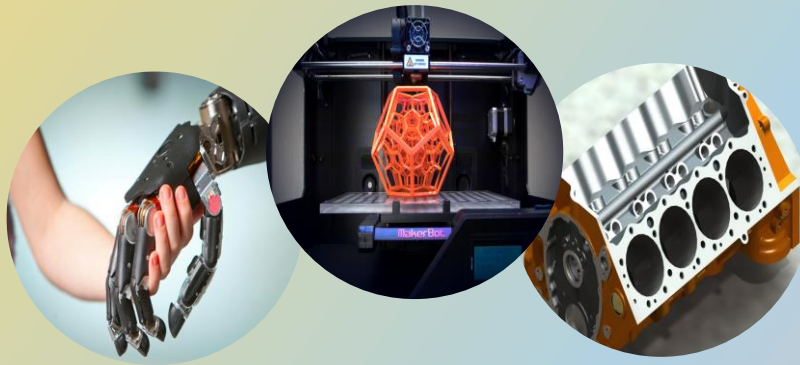


## Department of Mechanical Engineering – **NEW**

### Master of Science with Specialisation in “Advanced Manufacturing”



To respond to Government’s call on RIE2020 and an increasing demand from Industry on advanced manufacturing technologies especially on Additive Manufacturing (AM) or 3DPrinting (3DP), the Department of Mechanical Engineering at NUS has introduced a new specialisation named “**Advanced Manufacturing**” for M.Sc/M.Eng. The aim is to provide a learning platform for NUS post-graduate students to be trained on Advanced Manufacturing technologies with the main focus on Additive Manufacturing (AM) or 3DPrinting (3DP). The multi-disciplinarily trained professionals with good AM and 3DP backgrounds are thus making the students highly valued by the local and global industry.

#### Modules Offered:

- Additive and Non-Conventional Machining Process (ME5608)
- Computer Aided Development for 3DP (ME5612)
- Advanced Robotics (ME5402/EE5106R)
- Material Characterization (MST5002)
- Modelling of Machining Processes (ME6604)
- Fracture and Fatigue of Material (ME5513)
- Engineering Materials in Medicine (ME6505)
- Sustainable Product Design & Manufacturing (ME5611)
- Advanced Processing of Metallic Material (MLE5204)
- Structure and Properties of Material (MST5001)
- Mechanical Behaviour of Materials (MLE5102)
- Topics in Industrial Design: Interaction Design (ID5951B)
- Topics in Industrial Design: Healthcare Design (ID5951C)
- Topics in Additive Manufacturing/3DP (ME5600A & ME5600B)\*

\*The two project modules (ME5600A & ME5600B) in the specialisation will give students the opportunity to design and fabricate parts using 3D printing machines. Students will learn the operation of 3D printing machines and knowledge related to Design for 3D Printing, 3DP Processes and Materials.

**Criteria for Specialization:** Must take 5 Module from the list above (Compulsory Modules: ME5608 and ME5612 or ME6505)

#### Registration open for existing and new MSc students

For further details, please contact A/Prof Lu Wenfeng ([mpelwf@nus.edu.sg](mailto:mpelwf@nus.edu.sg)), Prof Jerry Fuh ([mpefuhyh@nus.edu.sg](mailto:mpefuhyh@nus.edu.sg)) or Salmiah from ME Office.

Registration at: <https://goo.gl/forms/mYwv757hprmrWxc32>

Website: <http://am.nus.edu.sg>

## Center Capability

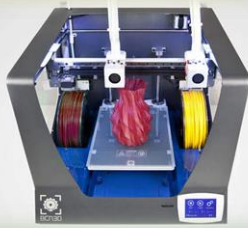
### Fused Deposition Modeling (FDM) Printers



#### UP BOX 3D Printer

Build Size: 255 X 205 X 205 mm

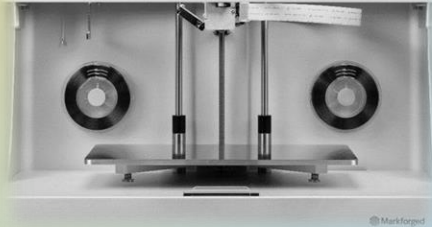
Materials: PLA, ABS



#### BNC3D Sigma 3D Printer (Dual Head)

Build Size: 210 X 297 X 210 mm

Materials: PLA, ABS, PVA & Flexible Material



#### Mark forged Mart Two Composite Printer

Build Size: 320 X 132 X 160 mm

Materials: Nylon + Fiber



#### Moment 3D Printer

Build Size: 145 X 150 X 160 mm

Materials: PLA, ABS & Flexible Material



#### Zmorph 3D Printer (Dual Colour)

Build Size: 250 X 235 X 165 mm

Materials: PLA, ABS & Flexible Material

### SLA\DLP 3D Printers



#### Formlabs Form 1+ SLA Printer

Build Size: 125 X 125 X 165 mm

Materials: Transparent, White, Castable & wide range of Resins



#### ASIGA PICO 2HD DLP Printer

Build Size: 71 X 40 X 76 mm

Materials: Transparent, Castable, Dental & wide range of Resins

### SLM Printer



#### EOS M290 Metal 3D Printer

Build Size: 250 X 250 X 325 mm

Materials: Stainless Steel, Titanium, CobaltChrome, Aluminum etc.



#### EOS P396 Plastic 3D Printer

Build Size: 340 X 340 X 600 mm

Materials: PA2200, PA1101, PrimePart, CarbonMide etc..



#### FaroArm Scanner



#### Geomagic Touch

### Food Printer

### Hand-held Scanners



#### Artec Eva



#### Artec Spider

### Software

- Materialise Mimics
- Materialise 3-Matics
- Materialise Magics
- Geomagic Design X
- Geomagic Freeform
- Solidworks
- Simplify 3D
- Cura
- Repetier Host



## Projects by ME5600A Module Students



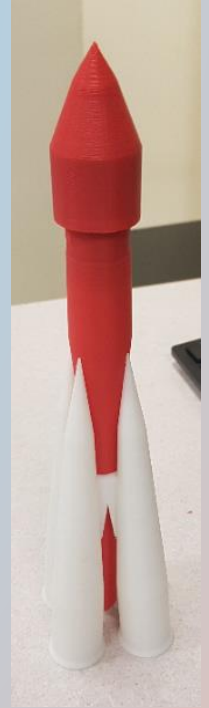
Lightweight Aircraft  
(FDM)



2-Stokes V Engine  
(FDM)



Trolley Wheel  
(FDM)



Missile  
(FDM)



Taj Mahal  
(FDM)



Turner's Cube  
(FDM)



Dental Braces  
(SLA & FDM)

## Parts Printed with SLS Printers



Skull



Pelvic Region



Heart

## Parts Printed with EOS P396 Plastic SLS Printer



Parts Printed with EOS M290 Metal SLS Printer