Master of Science in Engineering (Mechanical)

Course overview:

Areas of Research – Mechanical Stream

Mechanical Engineering

- Aerodynamics
- Biomechanics
- Building Services
- Computer aided engineering (cfd: computational fluid dynamics and fea: finite element analysis)
- Cooling of Electrical Machines
- Energy
- Energy Storage
- Environmental engineering
- Formability of sheet materials
- Internal combustion engines
- Naval architecture
- Pressure vessels
- Refrigeration
- Robotics, Prosthetics, Mechatronics, Teleoperation and Automation
- Robotic grasping, manipulation and dexterity
- Solar desalination
- Solar heating and cooling
- Sound and vibration
- Structural integrity
- Structural analysis of composite materials

- Structural mechanics and thermo-fluids
- Welding
- Wind turbines

Metallurgy and Materials

- Laser shock peening for automotive gears
- Shot peening of austempered ductile iron
- Tribocorrosion of biomaterials and its mitigation using surface engineering
- Iron-based biodegradable alloys
- Implant development
- Coatings for neural electrodes
- Aerospace materials
- Mechanical testing of graphene membranes
- Graphene synthesis
- Heritage materials
- Surface engineering for additive manufactured parts for marine transport
- Photocatalytic surfaces for greywater treatment at a micro scale
- Materials for Sterilisation of 2nd class water

Industrial and Manufacturing Engineering

- Computer aided engineering design
- Concurrent engineering
- Industrial automation
- Industrial robotics and mechatronics
- Industrial sustainable development
- Intelligent systems in design and manufacturing
- Micro manufacturing
- Product development technologies and methodology
- Quality engineering
- Rapid prototyping
- Robotic grasping and handling