

## Medical Devices

### MATERIALS

- Semi-solid material processing
- Composite materials processing
- Laser material processing
- Material property characterisation
- Advanced processes to improve functionality of biomaterials
- Polymer and hydrogel processing
- Thermal spraying surface engineering
- Powder processing
- Degradable polymers (polyesters, polypeptides) for hydrogels and drug delivery
- Bioconjugated porous polymers as scaffolds and for bioseparation
- Bioabsorbable implants
- Medical applications of magnesium alloys

### MODELLING AND DESIGN

- Casting
- High shear rate and temperature rheology
- Non-contact topography characterisation
- Rapid manufacturing
- Finite element analysis
- Design manufacturing Processes
- Computation modelling of the in-service behaviour of medical devices
- Finite element modelling
- Soft tissue testing and constitutive modelling
- Design and development of orthopaedic medical devices
- Ultrasonic medical device technology

### MICROFLUIDICS

- Integrated lab-on-a-chip technologies
- Comprehensive polymer microfabrication facility for rapid and cost-efficient prototyping
- Integration of particulate/monolithic stationary phases into microfluidic platforms

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