



Position Title	PhD Studentship – Finish machining of orthopaedic implants
Project Abstract	<p>UHMWPE (ultra-high-molecular-weight-polyethylene) materials are used to manufacture bearing components for orthopaedic implant systems. These products are produced on 5 axis CNC machines from blocks/bar stock. The challenges with machining this material are the long lengths of swarf and burrs on the finished machined components. If the swarf wraps around the cutting tool or part it can result in process issues such as poor surface finish, illegible part marking or part transfer location issues. Burrs remaining on the part results in secondary manual operations to remove.</p> <p>Controlling machine parameters such as chilled air cooling, cutting tool geometries and CAM tool paths are known variables that can reduce continuous swarf or burrs on parts. There are other factors but the criticality of each and their interactions are not understood. A stable machining and reduced inspections will ultimately lead to automation opportunities and lights out manufacture possibilities.</p>
Experience	The PhD position is funded for 4 years, including a monthly stipend and materials and travel budget. Applicants should hold a minimum of an honours bachelor's degree at 2:1 level or equivalent in a relevant subject such as Materials Science/Polymer Engineering/Biomedical Science. Candidates should also have a strong interest in Materials for Health.
Funding	The studentship will cover fees up to €5,500 pa and a stipend of €18,500 pa
Location	Athlone Institute of Technology
Closing Date	Friday 29 th June 2018
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