

SEAM Looks to Advance Precision Engineering Sector

'Manufacturing Ireland' looks at the progress being made by the Enterprise Ireland-funded SEAM centre, dedicated to advancing the area of precision engineering among others.



Dr Ramesh Raghavendra (corner left) and Dr Craig Sturrock (corner right) discuss the merits of the x-ray tomography technology with Dr Jimmy Devins (second left). Also pictured (l-r) are Prof Kieran Byrne; Dr Jennifer Melia, Enterprise Ireland; Cllr Jack Walsh, Mayor of Waterford

Ongoing industrial research in the area of precision engineering is vitally important for the continued development of the sector. In order to compete successfully both at home and in global markets engaging in applied research is an important consideration for both indigenous and multinational companies. A dedicated facility to continuous research and development, SEAM (South Eastern Applied Materials Research Centre) located at Waterford Institute of Technology, has been a success story in expanding opportunities in the precision engineering area.

The facility is funded by Enterprise Ireland under the Applied Research Enhancement (ARE) Programme

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and carries out applied materials research and materials engineering activities in the medical/bio medical sectors utilising niche technologies. Research activity at the centre mainly focuses on x-ray microtomography; microwave processing and magnetically-targeted nanoparticles in biomedicine. The work done at the facility adds to the intellectual capital that industry can tap into to move economic activity in Ireland further up the value chain with a greater concentration on applied research, development and innovation

Diverse Range of Companies

Researchers at SEAM, which opened last year, work with a diverse range

of companies in the precision engineering sectors, pharmaceutical, biomedical and medical devices, electronics, aerospace, food, wood composites and consumer products. SEAM's aim is to give access to niche technology and expertise to companies seeking to remain competitive.

Among the services offered by SEAM are characterisation and failure analysis, strategic research partnership programmes (short, medium and long term), technology transfer (from lab work to pilot line to commercial sales) as well as consultancy.

These technologies are multidisciplinary, of significant relevance and complementary to existing activities in the country and are expected to have considerable impact in many industrial sectors including precision engineering.

In addition to the beneficial services the centre provides for industry, it strives to establish industry-academic collaborations that will have the knock on effect of raising the research and development profile of the region.

Industry Application

According to Dr Ramesh Raghavendra, Manager, SEAM, it is the combination



Members of the SEAM Industrial Steering Group

of academic research and industry application that makes centres like SEAM particularly valuable, as there is the opportunity to apply research in 'live' settings. "Collaboration brings best results and as well as our industry partners we will also work with other applied research enhancement centres and higher education institutions in Ireland and overseas to advance a common agenda. It is this mix of academic research and industry application that makes centres like SEAM particularly valuable as there is the opportunity to apply research in 'live' settings."

SEAM has highly qualified and experienced technical staff and also intends to make use of the skills of staff from the Engineering and Science faculties within WIT. Significant expertise exists within these faculties to carry out research for various industrial applications. Key research interests are design optimisation and analysis of medical devices, development of novel implant materials for orthopaedic joints as well as finite element ana-

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lysis of composites and joints. It also looks at microwave processing of materials.

The facility is working to develop a critical mass of research capability to serve primarily medical device and pharmaceutical sectors in the areas of design, processing and characterisation. According to the centre, innovation occurs most frequently in collaboration and collaboration brings best results.

Research Partnerships

Establishing research partnerships with industries, it also works with other applied research enhancement centres and higher education institutions in Ireland and overseas to advance a common agenda. The research centre, which has received over €1.2 million in funding through Enterprise Ireland's applied research enhancement centre programme, is has been hailed as a valuable resource for the southeast region but also the wider Irish economy.

Dr Willie Donnelly, Head of Research & Innovation

at Waterford Institute of Technology said the existence of SEAM marks a milestone in the Institute's growth as an important research hub. "The South Eastern Applied Materials Research Centre draws on the Institute's Schools of Science and Engineering and adds to our already strong research infrastructure in Waterford. It is through building and maximising the use of research, development and innovation infrastructure that the southeast can lay sound foundations for sustainable future economic growth. Given this, the Institute continues to strategically invest along with partners such as Enterprise Ireland in centres that serve our own learning community of postgraduate students and academic researchers but also benefit our regional, national and international partners," said Dr Donnelly.

Dr Jennifer Melia, Science and Technology Programme Manager at Enterprise Ireland urged companies to use the SEAM research centre to their advantage. "Enterprise Ireland funding is all about applied research that will benefit companies and SEAM will be an industry-focused applied research centre providing access to materials specialists and innovative solutions for companies in the southeast region and beyond," she said.

SEAM is one of three Enterprise Ireland-sponsored applied research enhancement centres along with 3CS (Centre for Converged IP Communications Services) and the recently-approved PMBRC (Pharmaceutical & Molecular Biotechnology Research Centre) at Waterford Institute of Technology.