

A college of the future: STEM initiatives flourishing at South West College

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South West College in Northern Ireland has just revalidated its STEM Assured status with the STEM Foundation. Deputy CEO Michael McAlister explains how the college is working with industry partners to strengthen the local economy.

“Our journey started with the merger of three colleges in 2007. This gave us critical mass and enabled us to sharpen our focus on science, technology, engineering and mathematics (STEM) subjects and helped us put significant resources into these areas. Our full time FE and HE courses have grown substantially, almost 50 per cent of our higher education now maps to STEM” McAlister says.

With a total student enrolment of 27,000, South West College has innovation centres at its four main campuses of Enniskillen, Omagh, Dungannon and Cookstown, and is working closely with industry partners to maximise the benefits of each centre to the regional economy. It is also pioneering the study of new and emerging disciplines including virtual and augmented reality, drone technology, building information modelling and gamification of learning, and is supporting business and industry with R&D services.

“We help small and medium sized companies develop products, refine processes and break into new markets. We’re engaging with around 1,500 businesses each year, through a dedicated team of around 20 engineers, scientists and designers, many qualified to PhD level,” McAlister adds.

The college’s dedicated STEM centre at Dungannon is the only one of its type in Northern Ireland and has won several international awards including two AoC Beacon Awards: the AQA Award for College/School Partnerships and the Create Award for College Engagement with Employers.

“Our focus is ensuring that we have a pipeline of young people coming to the college to engage in STEM courses, so we use this centre as part of our outreach activity,” McAlister adds.

So far, 13,000 students from schools across Northern Ireland have visited the centre, learning about new technologies such as the CSI forensic science programme, Directors Cut using stop-motion animation or Prepare for Launch, analysing the use of robots in space exploration.

The Enniskillen campus hosts a CREST centre, specialising in sustainable energy and renewable technology. A leader in teaching and researching low carbon technologies and techniques such as biomass manufacturing, biogas optimisation and airtightness methods, it has sophisticated laboratory facilities for industry-standard testing. The centre is using 3 million GB pounds sterling of European funding to bring leading edge research and knowledge to the region. It is also providing training at designer and trade level in Passivhaus techniques for energy efficient housing.

At Enniskillen’s Image Centre, students have access to a range of cutting edge equipment used in the gaming and virtual reality sectors including motion-capture- technology. Students are also encouraged to take part in coding clubs on Saturdays and through summer schools.

Meanwhile, the Idea centre at the Omagh campus supports product development and rapid prototyping, including a range of 3D printers and lasers for different materials.

“Local companies use the centre to develop parts of machines and modules, but we also encourage students to use the centre. We run a MakerSpace activity for students and the general public, which is based around the concept of a social community of people that can share their skills and knowledge to design, create and manufacture products as well,” McAlister says.

As well as embracing new technologies, South West College is experimenting with different methods of teaching and learning. The college has been developing its online and distance learning capability, not only for the growing international student base, but also for local students.

“We’re trying to get to the point where 10 per cent of the curriculum in all subject areas is delivered online. The benefit of this development is flexibility. We’re in a rural location, spread across two counties, and some students have to travel long distances to work and study. Our online offering ensures that they won’t miss out during severe weather events. It can also support them whilst they’re travelling to work placements elsewhere in Northern Ireland, across the UK or internationally,” McAlister explains.

South West College started working with the STEM Foundation around four years ago.

“It has been a useful relationship, because it confirmed to us that our strategy was going in the right direction. The STEM Foundation gave us lots of encouragement and helped us to clarify our thinking. Through its extensive network of industry contacts, we were able to visit a number of companies in different parts of the UK and build a strong understanding of their STEM needs,” McAlister explains, adding:

“Our STEM Assured status has also been an important factor in helping us secure national and regional funding for projects over the past three years.”

The Education and Training Inspectorate described South West College’s quality of education and training as “outstanding” in its inspection report of April 2014, praising the college’s

“innovative” and “future-proofed” curriculum offer as well as its economic engagement:

“There is a very clear strategic vision and rationale for economic engagement at regional, national, European and wider international levels.....the curriculum is well-aligned to Government priorities, particularly in developing the STEM provision; this is done strategically and sensitively without negating the quality of provision in other professional and technical areas.....a number of course teams have radically changed their course delivery with a focus on project-based learning that provides learners with excellent opportunities to develop a wide range of independence, employability and enterprise skills through their work.”

Having renewed its STEM Assured status until 2019, South West College is continuing to review and strengthen its processes. This autumn it will be undergoing Investor in Innovations assessment with the STEM Foundation.

“This should take us to the next level,” McAlister says. “While STEM Assured is focused on curriculum, Investor in Innovations is about embedding an innovative mind-set throughout the

organisation; it's the next logical step for us to take.”

Professor Sa'ad Medhat, Chief Executive of the STEM Foundation says:

“On renewing STEM Assured status, South West College has once again proved that it is setting the benchmark for excellence in STEM education. Its innovative and evolving curriculum is keeping pace with the needs of employers, as well as providing a stimulating and varied learning environment for students.

“South West College is making a strong contribution to the local economy through its industry partnerships and consultancy services. Its outreach programme with local schools is also exemplary. Our validation panel looks forward to tracking and supporting the college's new initiatives over the next three years.”

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