

## Advanced Engineering and Manufacturing, including Food Manufacturing and related Industrial Chemistry



### Delivering Continued Sector Success

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**Over the last two years**, WYLLN's AEMFC sector (Advanced Engineering and Manufacturing including Food Manufacturing and related Industrial Chemistry) has made enormous progress in expanding learning opportunities for individuals and employers within these traditional industries.

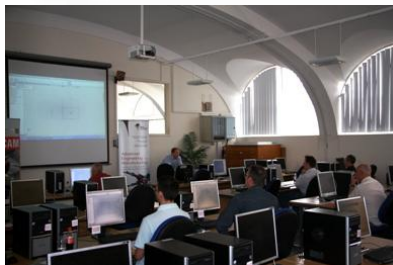
Despite the decline of engineering and manufacturing in the 1960s and 70s, such industries still play a major role in the region's economy. In the West Yorkshire region alone, this sector comprises over 7,500 enterprises employing around 150,000 people.

Yet in today's global marketplace, engineering and manufacturing industries are facing extreme challenges. To remain competitive and drive global growth, they must reduce production expenditure and improve performance through new and innovative ways of working. They must also deal with the looming threat of a potential skills shortage as fewer undergraduate students opt for industry-focussed degree courses.

#### ***Working with Industry***

To help address these challenges, the AEMFC Sector Group, based at the University of Huddersfield and comprised of a wide range of regional academic partners, is working closely with local industry through a range of targeted and effective activities.

"Our main aims are to develop new foundation degrees and bespoke courses that genuinely meet industry skill requirements, make it easier for individuals to progress their education and finally to offer easy to access information, advice and guidance (IAG) about work-based learning," said sector officer, Dr Paul Denton.



The Sector Group has surpassed all targets originally set for the project. In summary, achievements include developing eight new curriculums, organising 13 industry-focussed events, collaborating with over 400 industrialists, promoting STEM (science, technology, engineering and mathematics) to over 7,500 learners and delivering IAG to around 500 individuals.

Key to the Sector Group's success has been its determination to encourage partnership working between industry and academia. Paul and his team have forged excellent relationships with local business leaders and industry bodies including the Virtual College, the Institution of Engineering and Technology (IET), the Institute of Cast Metal Engineers (ICME), and the Institution of Materials, Minerals and Mining (IOM3).

“Encouraging industry leaders and managers of engineering and manufacturing organisations to become involved with the project was vital. Their input was crucial to ensure that we create courses that will equip learners with industry-relevant skills,” said Paul.

“Many of the courses are aimed at people already working in industry – providing them with learning opportunities that will enable them to progress further in their career. It was therefore important to work with industry leaders to develop flexible learning methods, such as e-learning, part-time study and CPD (continued professional development) courses that can be accommodated alongside work,” he added.

### ***Building Partnerships***

Yet building relationships with industry has been only half the story. The challenge was also to encourage the region’s higher education facilities to participate. To achieve this it was necessary to demonstrate demand for the courses and address the practical considerations associated with flexible learning.

Currently eight West Yorkshire academic institutions offer courses related to the AEMFC Sector Group, including Bradford College, Kirklees College, Leeds City College, Wakefield College, Leeds Metropolitan University, University of Huddersfield, University of Leeds and University of Bradford.

Of the eight courses currently being advanced by the Sector Group, three new Foundation Degrees (FD) developments are complete: Casting Technology; Engineering Technology; and Electrical and Electronic Engineering. Meanwhile, three more FDs: Applied Science; Packaging; and Powders; are due for completion before the year end, together with MSc courses in Mechanical Engineering Design and Engineering Management.

### ***Developing Best Practice***

The Casting Technology Foundation Degree is an excellent example of how best practice is being developed to create industry-relevant educational courses.

Rather than second guessing industry needs, the Sector Group began by talking to the ICME and several organisations, including Newby Foundries Ltd, Goodwin Steel Castings Ltd and Chamberlin plc. A gap in the curriculum was identified and the Sector Group set out to gather evidence to support developing a Foundation Degree to plug the gap.



Having accurately determined the costs required and established an industrial support group and team to access funding, the Sector Group opened the course to potential students. Importantly the curriculum was designed with input from industry.

The entire process took less than one year from start to finish. What makes this project particularly remarkable is that the qualification is totally unique in the UK and financially supported for the first year by the Tor Lodge and Applecross Charitable Trust.

One independent course approval member commented: “This is one of the best examples of employer engagement I have seen in 17 years as an academic... wouldn’t it be great if we could bottle the team’s enthusiasm.”

### ***More Accessible Learning***

Foundation Degrees are not the only learning opportunities offered by the Sector Group. To support partner organisations, especially through the recession, the Sector Group has developed a number of shorter, more accessible programmes.



“Our work is about providing practical learning solutions for individuals and organisations. By offering bite-sized courses, we can arm people with the skills they need to help them respond to the current economical challenges, without the long-term commitment demanded by Foundation Degrees,” explained Paul.

‘Open Innovation in Global Manufacturing Supply Chains’ was an event held by the University of Huddersfield. Attracting over 40 delegates, the one day seminar illustrated how continued innovation and investment in services, products and people could hold the key to business survival in the current global recession.

In partnership with Solid Solutions Management, a specialist Computer-Aided Design (CAD) organisation, the University of Huddersfield also held a hands-on awareness session of the SolidWorks design software. The practical and interactive session illustrated how the sophisticated 3D modelling software can offer cost saving benefits to a range of companies.

### ***Engaging with Learners***

Another vital aspect of the Sector Group’s work has been raising the profile and generating interest in engineering and manufacturing among potential students.

A number of events have been held, with interactive exhibition stands at student fairs and industry events including Yorkshire’s biggest skills and careers event - Skills Yorkshire and the Humber.

“Our aim was to get across how studying engineering and manufacturing can lead to a world of opportunities, by focussing on high profile, exciting careers,” said Paul.

Top American Astronaut, Major-General Charles Bolden Jnr gave an inspiring and exciting presentation at the STEM event at the University of Bradford. Meanwhile, the Formula Student event that encourages students to design, build and race a single-seater racing car, gained significant media coverage.



The AEMFC Sector Group has made considerable advances and aims to build on this promising foundation over the coming year. Any organisations or individuals wishing to become involved should contact Dr Paul Denton, Sector Group Officer, University of Huddersfield, 01484 473 672 or email [p.d.denton@hud.ac.uk](mailto:p.d.denton@hud.ac.uk).