

As things begin to settle down a little more after the election the news regarding engineering is getting better. The coalition government have made clear their intention to re-balance the UK economy with less reliance on banking and more reliance on engineering and manufacturing. Engineering and other diplomas will continue but without the entitlement for all. All of the good work done so far will need to sell itself by the quality of the experience for the learners and the regard that engineering employers have for the diploma experience.

And more good news is? Dyson to up engineer numbers by 350

Manufacturing News, Source: British Industry periodical published 26 April 2010

Vacuum cleaner pioneer Dyson has announced plans to expand its engineering head count by 350 at its Malmesbury, Wiltshire headquarters.



The recruitment drive will double the number of engineers and bring the total staff at the site to over 1,600 engineers. Dyson says many of the new recruits will come straight from university and will fill positions including graduate design engineers, mechanical engineers and acoustic engineers.

The company, founded by Sir James Dyson who gave it his name, predominately makes the bagless cyclone vacuum cleaner technology which became the market leader soon after its mass release in the 1990s. In recent years it has branched out and now offers hand dryers – trademarked as the ‘Airblade’, washing machines and desk fans, all of which it claims are more efficient alternatives to the current respective market norms. Sir James pointed to the company’s focus on innovation as a key strength that will place it in good stead to take advantage of a new economy lead by advanced manufacturing post-recession.



“We have actually had a very good recession [and] will continue to invest in research and development,” he said. “We are the second-largest filer of patents in the UK after Rolls-Royce. It is a good time generally and we are developing a wide range of new products using microbiology, acoustics and aerodynamics. We have always been big recruiters, and now we are looking for a range of graduates with the specialist skills to work on new products as well as further development of existing products such as the Airblade. I am extremely proud of the new technology developed by our engineers in Malmesbury. It is vital that Dyson – and the UK – continues to invest in the nation’s engineering talent if we are to stay ahead”.

“With excellent young aspiring scientists and engineers in our schools it falls to companies such as Dyson to encourage this future generation. As our need for good design and technology increases so does the need for creative and adventurous designers, engineers and scientists.”

Dyson offer a range of education resources which are available through the Dyson Foundation website

<http://www.jamesdysonfoundation.com/education/default.asp>

'Pendolino pit stop': Network meeting 2 Alstom Transport, Oxley, Wolverhampton

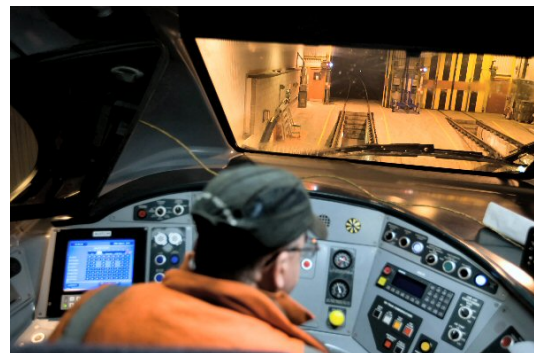


Meeting two for the Engineering network took place on the 4th of March at the Alstom Traincare Centre in Wolverhampton. The meeting had been arranged to also include modules of the Inside The Workplace training. Simon Groom from Alstom had done an excellent job in arranging the venue for us. Alstom Traincare has been looking after the Pendolino fleet of trains since they were first put into service. The centre at Oxley looks after communication to all of the on board engineering diagnostic and monitoring that operates while the trains are in service. Part of the

fleet is also serviced each night in the service sheds and in the yard. Wireless communication flags up any service issues communicating directly with the engineers who can if necessary then talk to the train driver. This allows engineers to schedule servicing with trains that need more work coming into the yard first.

As the meeting was also an ITW event Tony started things off by discussing the future skills needs of industry and how this affects young people. To add context to this Will Smith an apprentice at the site joined the meeting to give his perspective on how well school had prepared him for his current position. He gave a clear impression of the weaknesses of education from when he was at school; the clear message was that very little preparation for working life had been given. From Will's comments about his preferred style of learning it was clear that studying the engineering diploma would have been ideal for him.

Before we could go on a tour of the facility we had to wear PPE that included some novel hard hats designed to resemble baseball caps! The scale of both the trains and the facility are very impressive. Routine servicing often consists of the same sort of things that affect cars that travel high mileages. These include maintenance items such as changing brake pads, oil and wiper blades. Travelling at up to 125 mph one of the key things is that the driver can see clearly so wiper mechanisms are very important. We were able to see test rigs with Pendolino wiper mechanisms on extended durability test.



Back in the meeting delegates were asked to consider how some of the procedures we had seen on the tour could be used in diploma delivery. The use of bicycles was suggested as a way of getting across concepts such as safety critical maintenance, and preventative maintenance. St Peter's Wolverhampton is already doing this and agreed to share this work with the network for the next meeting.

Tina Roach from the VIBE project demonstrated the interactive resource that has been produced to support the engineering diploma. There are a large number of applied learning activities that can be accessed from a

web based platform that uses a virtual reality landscape that learners can explore. More information at <http://ssatvibe.com/about>

Tony then took the meeting through materials Staffs STEM Centre has developed with network extra funding on engineering maintenance. Hard copies were given out consisting of an overview of different maintenance planning and a vocabulary of terms. The materials also included an example of a test report on braking from

JCB and Halfords bike maintenance sheets on brakes and gears. The maintenance materials have been taken further since the visit to include a case study of maintenance at Alstom Traincare. These materials will be available as a download from the www.diploma-support.org website.

Malcolm then discussed what practitioners wanted in the network newsletter and asked for any articles/ contributions that could be included as examples of best practice or to avoid less experienced practitioners going down the same blind alleys. The meeting finished with the distribution of memory sticks that have a comprehensive range of engineering diploma documents and resources on.

Innovative Engineering at the cutting edge of technology

The next Engineering network meeting; meeting 3 will also be an Inside The Workplace training at:



Hadley Group
Gaitskell Way
Dartmouth Road
Smethwick
B66 1BF

The venue is very close to the M5 (easy access) and will be really useful to practitioners as it includes a visit to see the innovative 'Ultrasteel' manufacturing process. Staff from the company will also explain some of the technical details around developing and protecting innovative products for unit 8 and unit 2 engineering design of the higher diploma. The meeting will begin at 1.30 on **20th July 2010** with a buffet lunch and informal discussions/ networking. The meeting is scheduled to finish at 4.30.

One of Hadley group's new products is a metal stake that replaces the wooden stakes traditionally used by wine growers around the world. As you can imagine a British company selling an innovative product to French wine growers was not an easy task. However the advantages were clear, so much so that the stake is now selling well in all of the major wine growing regions around the world.

Please book on to the event using <http://www.diploma-support.org/communities/networkmeeting>

Genie brings magic



Genie is a free piece of software for use in systems and control work using PIC (programmable integrated circuit) chips. Users of the latest Circuit Wizard software from New Wave Concepts already have software that can be used to programme the Genie (PIC) project boards. If you are thinking about PICs from the past then think again! The software and the hardware have really moved on using the latest technology. The Science Learning Centre as part of its CPD for teachers programme is running a series of workshops for teachers to get 'Hands On' experience for themselves. The first course runs on July the 2nd. Genie courses are also offered by the DATA digital hubs. Including embedded computing in learner projects and coursework has never been so easy. Check out our website for further information.

Getting the right VIBE



The VIBE is a suite of educational resources that offers learners a range of practical activities and experiences in a series of virtual worlds. The VIBE can be tailored to the needs of individual learners or groups of learners immersing them in the industry or real world setting they are studying. Their work can be stored so that over time they build up a personalised electronic portfolio.

The VIBE resources are accompanied by an editor – a program that allows practitioners to upload tasks, resources and content into each of the VIBE environments. Your learners will explore technological innovation, gain an insight into environmental sustainability and learn how to work towards a prosperous and more equitable society. They will be transported to a modern virtual world and learn about hundreds of different career paths, the skills needed to work in the industry and watch video interviews with engineering professionals.

Visit to Wolverhampton University is a ‘real eye opener’ for Technology teachers

Curriculum Innovation and Development (CID) supports a number of subject group forums between the University and schools and colleges. At a recent Engineering and Manufacturing focus group teachers highlighted not being up to date Design and Technology software. There was also a need to identify packages for use with new diploma qualifications in Engineering. In response CID and the Architecture and Product Design (APD) department developed an, after school, programme to introduce relevant software used at the University. The session highlighted free to use software that is available. Kevin Garner, Head of Department for Architecture and Product Design stated “we are always looking for opportunities to share our expertise, facilities and research findings with the local educational community through staff CPD events and student workshops”.

Invitations went out through subject networks and the Making Choices Partnership. The event began with demonstrations of Solid Works (a 3D Mechanical CAD Package) and then a hands-on session testing stresses on a modelled wing rib design. The group then moved onto the Virtual Design Enterprise Centre (ViDEC), for demonstrations of Google Sketchup (free to use 3D model creator), AutoCAD and Kerkythea (a photo realistic renderer).

Feedback was extremely positive with one attendee saying the event was ‘a real eye opener’ and another that it was ‘really useful to see packages in action’. At the end of the event the majority remained in order to see further examples and explore staff development opportunities. Interest was expressed in bringing in groups of staff and pupils for follow up sessions on specific packages.

For further information please contact Bryan Fryer, Curriculum Innovation and Development Officer, on email b.s.fryer@wlv.ac.uk or telephone 01902 322225.

Web links

University of Wolverhampton www.wlv.ac.uk

Architecture and Product Design www.wlv.ac.uk/apd

Google Sketchup http://sketchup.google.com/intl/en_uk/product/gsu.html

Kerkythea <http://www.kerkythea.net/joomla/>

Solid Works <http://www.solidworks.com/>

AutoCAD <http://www.autodesk.co.uk/adsk/servlet/index?siteID=452932&id=12306568>

Women engineering students



There are a very low number of women taking university courses in science, technology and engineering, despite efforts to encourage more women into these fields. The engineering profession remains a male preserve in particular and a recent US survey reveals that out of the combined workforce within the engineering professions, women make up less than 11%. There are many reasons for this. Some women are just not attracted to working in these areas and do not understand that there are opportunities open to them in what has always been perceived as male professions.

Most girls are not encouraged at school so know little about what the work entails or what options to take. Others are discouraged by the image of working in technology and engineering and with a shortage of women role models, the perceived negative associations of these professions is further reinforced. Within the small number of women actually taking courses in engineering and technology, it has been found that many students come from families with an engineering or technology background. Even in these cases, although the

students may have received parental approval and support at home, the overriding experience seems to have been a distinct lack of encouragement from school. Although efforts are being made to encourage women into science, engineering and technology courses, it seems that there is a long way to go before women make up even a sizeable minority.

Of the 5.5 million people working in the science, technology and engineering industries, only about 12 percent of them are women. Why so low? After all, the percentage of woman in the workplace has been on the rise for the past four decades. At present, the employment rate for women is only 8 percentage points lower than for men — 70 percent for women, 78 percent for men. However these figures do not make clear that in three industries the figures for women are far lower. Commentators say that this is more than peer pressures. They claim that many young girls who have a talent for maths or science are urged in other directions by their parents and teachers because they buy into stereotypes. They honestly believe that women cannot compete with their male counterparts. www.setwomenresource.org.uk

What are you doing to try to address this issue?

Over to you!

If you have an article or manufacturing link you would like to share with network members please contact the STEM Centre office Stempoint@staffs.ac.uk It is always helpful to share good practice and learn from each others.