



**SKILLED UP  
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# **CAREER PATHWAYS**

**ADVANCE MATERIALS & MANUFACTURING SECTOR :  
NORTH WALES**

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# CAREER PATHWAYS

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## OVERVIEW: TRENDS

This sector spans industries such as aerospace and automotive manufacturing. Research and Development (R&D) in new processes, materials and products, and the manufacture of these products, is core to this sector.

Construction is also a key part of this sector. Readers with interests in the Advance Materials and Manufacturing sector are advised to access the **Pathways Plus** and other LMI resources for the Energy & Environment and Life Sciences sectors; as there is significant crossover between these sectors.

North East Wales has some core hotspots of manufacturing excellence, particularly in the aerospace and defence industry. The car industry is another important aspect of the regions' manufacturing base. There is also significant capacity and potential growth in other areas of high-tech manufacturing; for example North Wales is a major centre for the opto-electronics sector. More information about regional trends in this sector are to be found in the **Meet the Ambassadors: Advance Materials and Manufacturing factsheet** available on the Shaping the Future website.

**TABLE 1:****SECTOR-WIDE OVERVIEW OF NECESSARY QUALIFICATIONS AND SKILLS**

Key example: Maintenance Engineer

<b>Experience</b>	<b>5 years</b>	<b>5 to 10 years</b>	<b>15 years+</b>
Essential qualifications	HND/ BTEC L3 Mechanical or electrical engineering	HND/ BTEC L3 Mechanical or electrical engineering	HND/ BTEC L3 Mechanical or electrical engineering
Desirable qualifications	BEng: Mechanical or electrical engineering  NEBOSH Diploma in Safety, health and environment for the process industries  Further sector- specific specialisms if required (see table 2)	BEng : Mechanical or electrical engineering  NEBOSH Diploma in Safety, health and environment for the process industries  L2 ILM Certificate in Team leading (QCF)  Further sector-specific specialisms if required (see table 2)	BEng: Mechanical or electrical engineering  NEBOSH Diploma in Safety, health and environment for the process industries  MEng (Masters Engineering)  L2 ILM Certificate in Team leading (QCF)  Further sector- specific specialisms if required (see table 2)
Key competencies/ skills	Responsible  Problem solving and logistics skills  Innovative and Adaptable  Teamwork skills  STEM skills and qualifications	As for 5 years, plus:  Some team leadership and/or project management experience	As for 5 years, plus:  Leadership and management experience  Project management experience
Budget responsibilities	Some budget responsibility	Some budget responsibility	Experience of project budget management
Staffing responsibilities	Evidence of good teamwork	Some experience of team leadership/ management	Significant experience of staff management and team leadership
Experience / milestones / highlights that are expected to support each level of experience. i.e., What evidence should be on the CV?	Qualifications evidence  Evidence of continuing professional development (e.g. accredited courses)	Evidence of continuing professional development (e.g. accredited courses)  Evidence of experience in relevant industry roles  Membership of relevant professional body	Evidence of continuing professional development (e.g. accredited courses)  Track record of key role played in successful project delivery; management and team leadership examples  Membership of relevant professional body

**TABLE 2:****INDUSTRY SUB-SECTOR SPECIFIC SPECIALIST TRAINING**

	<b>Aerospace/ defence</b>	<b>Automotive</b>	<b>Polymers/ plastics/ composites</b>	<b>Electronics</b>	<b>Chemicals</b>	<b>Construction</b>
Licence to practice	HND/ BTEC L3 Engineering	HND/ BTEC L3 Engineering	HND/ BTEC L3 Engineering	HND/ BTEC L3 Electrical/ electronic engineering	HND/ BTEC L3 Engineering	HND/ BTEC L3 Engineering
Gold standard	NEBOSH Diploma BTEC L3 aerospace or aeronautical engineering BEng	NEBOSH Diploma BEng	PAA/VQSET L3 Diploma in Polymer/Polymer composite operations QCF City & Guilds L3 Diploma in Process technology QCF NEBOSH Diploma BEng	NEBOSH Diploma BEng Electronic engineering	PAA/VQSET L3 Diploma in Operations and technical support in the process industries QCF City & Guilds L3 Diploma in Process Technology QCF NEBOSH Diploma BEng	BTEC L5 Construction & the built environment NEBOSH Diploma BEng
Examples of further specialist qualifications and courses	Aerospace engineering degree	City & Guilds Advanced Diploma, Motor vehicle engineering Automotive Training Accreditation ATA	BTEC L4 HNC Diploma in Applied Chemistry BTEC L5 HND Diploma in Applied Chemistry BTEC L5 HND in Chemical science for industry BTEC L5 HND Diploma in biological sciences for industry Foundation Degree in Pharmaceutical and chemical sciences FdSc	Photovoltaic qualifications (e.g.BTEC L3/ City & Guilds/ degree)	BTEC L4 HNC Diploma in Applied chemistry BTEC L5 HND Diploma in Applied Chemistry BTEC L5 HND in Chemical science for industry BTEC L5 HND Diploma in Biological sciences for industry Foundation Degree in Pharmaceutical and chemical sciences FdSc	NVQ L4 in Construction site management MSc sustainable construction project management

Further examples of required skills, qualifications, training and competencies related to selected job roles in this sector can be found in the **Career Pathways** briefings on the Shaping the Future website, and on the National Careers Service website.

<http://tinyurl.com/NCS-direct>

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## REGIONAL SKILLS AND QUALIFICATIONS GAPS

According to one of the key Skills Councils for the sector, SEMTA, *nearly 25% of engineering and manufacturing employers report skills gaps which are driving up operating costs and making it hard to maintain quality standards, adopt advanced technologies and introduce new working practices.*

A recent report **Skills Provision for the Construction Industry in Wales** (2011) identifies skills in low carbon technologies, and associated specialist skills, as key areas where there are currently skills gaps in Wales.

A number of reports also identify skills gaps in Wales in STEM (Science, Technology, Engineering and Maths) subjects. The Manufacturing in Wales report (2008) notes that *It is increasingly clear that the future employee will be expected to demonstrate combinations of 'leadership, management, supervision and operator'... Individuals will need these layers of multifunctional skills.*

Further information about specific skills gaps in Wales - the Sector Skills Councils Working in Wales Thematic Report - can be found on the LMI page of the Shaping the Future Website: <http://tinyurl.com/STF-LMI>

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## REGIONAL TRAINING PROVISION

A wide range of BTEC, under and post graduate degree level courses are available in the North Wales region, including **gold standard** engineering and NEBOSH courses and sector-specific specialist provision.

Key providers are Bangor University, Grwp Menai Llandrillo (Menai and Llandrillo colleges), and Glyndwr university; an example of specialist training and qualification provision is Glyndwr University's Advanced Composite Training and Development Centre.

Further information about regional training provision is available in the **Meet the Ambassadors: Advance Materials and Manufacturing** available on the Shaping the Future website, and on key Sector Skills websites; these are listed at the end of this briefing.

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## RELEVANCE OF JOBS IN SECTOR TO EXISTING MAGNOX JOB ROLES

Jobs in this sector, many of which relate to engineering and technician roles, are an excellent match for many Magnox jobs; Magnox employees are likely to have skills, experience and qualifications which are highly transferrable for this sector and give them a competitive advantage. With additional, carefully chosen, qualifications and training, Magnox employees are in a strong position to take advantage of opportunities in this sector.

## KEY WEBSITES

For a wide range of further information including job roles, skills, qualifications and training courses across this broad sector, see

<http://tinyurl.com/NCS-direct>

<http://www.cogent-ssc.com/>

<http://www.semta.org.uk/>

<http://www.ukces.org.uk/>

For the latest reports on UK and Wales-specific skills trends in this sector see

<http://tinyurl.com/UKCES-skills>

<http://tinyurl.com/COGENT-skills>

<http://tinyurl.com/EEF-skills>

<http://tinyurl.com/CSKILLS-skills>

For more Wales-specific skills gaps and shortages in this sector see the Sector Skills Wales Thematic Report at

<http://tinyurl.com/STF-LMI>

For further relevant LMI resources in Wales relating to skills and training see

<http://www.learningobservatory.com/>

For access to relevant Shaping the Future LMI resources, including Meet the Ambassador and Career Pathways briefings, see <http://tinyurl.com/STF-LMI>



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