apprenticeship FRAMEWORK

Engineering and Advanced Manufacturing Degree Apprenticeship (Wales)

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Engineering and Advanced Manufacturing Degree Apprenticeship (Wales)

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Framework summary

Engineering and Advanced Manufacturing Degree Apprenticeship

Engineering and Advanced Manufacturing Degree Apprenticeship

Pathways for this framework at level 6 include:

Pathway 1: Mechanical Engineering Degree Apprenticeship

Competence qualifications available to this pathway: N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

- B1 BEng (Hons) Mechanical Engineering
- B2 BSc (Hons) Mechanical Engineering

This pathway also contains information on:

Essential skills

Pathway 2: Electrical / Electronic Engineering Degree Apprenticeship

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

- B1 BEng (Hons) Electrical and Electronic Engineering
- B2 BSc (Hons) Electrical and Electronic Engineering

This pathway also contains information on:

• Essential skills

Pathway 3: Advanced Manufacturing Engineering Degree Apprenticeship

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

B1 - BEng (Hons) Advanced Manufacturing Operations

This pathway also contains information on:

Essential skills

Pathway 4: Chemical Engineering Degree Apprenticeship

Competence qualifications available to this pathway:

N/A

Knowledge qualifications available to this pathway:

N/A

Combined qualifications available to this pathway:

- B1 BSc (Hons) Ordnance, Munitions & Explosives (Technical Research & Development)
- B2 BEng (Hons) Ordnance, Munitions & Explosives (Safety)
- B3 BEng (Hons) Ordnance, Munitions & Explosives (Manufacturing & Processing)
- B4 BEng (Hons) Ordnance, Munitions & Explosives (Breakdown & Disposal)
- B5 BEng (Hons) Ordnance, Munitions & Explosives (Test & Evaluation)

This pathway also contains information on:

• Essential skills

Framework information

Information on the Publishing Authority for this framework:

SEMTA

The Apprenticeship sector for occupations in science, engineering and manufacturing technologies.

Issue number: 1	This framework includes:		
Framework ID: FR04429	Level 6		
Date this framework is to be reviewed			
by: 31/07/2024	This framework is for use in: Wales		

Short description

This Degree Apprenticeship programme at level 6 has been designed to provide the Engineering and Advanced Manufacturing sector in Wales with high quality Engineering and Advanced Manufacturing professionals.

The Engineering and Advanced Manufacturing Degree Apprentices will develop higher level applied practical skills, knowledge and competence combined within an applied honours degree programme in one of five areas of Engineering and Advanced Manufacturing discipline, including:

- Mechanical Engineering
- Electrical / Electronic Engineering
- Advanced Manufacturing Engineering
- Chemical Engineering
- Power Engineering

Roles in this framework are likely to fit into Standard Occupational Code (SOC): 21

Contact information

Proposer of this framework

Semta has worked closely with its employers to define National Occupational Standards (NOS) for Engineering and Advanced manufacturing.

Degree qualification specifications of learning and skills outcomes have been developed that are suitable for use within this degree apprenticeship framework.

This Engineering and Advanced Manufacturing Degree Apprenticeship (Wales) framework and the degree apprenticeship learning and skills outcomes has been developed in response to industry needs. The need for an Engineering and Advanced manufacturing degree apprenticeship framework was identified through employer consultation and five priority pathway themes were identified for the Engineering and Advanced Manufacturing Degree Apprenticeship for Wales. The applied degree qualification learning and skills outcomes specifications underpinning the degree apprenticeship framework have been developed through collaboration with employers in Wales between September 2018 and March 2019, and are informed by the relevant NOS.

Since then the framework has been reviewed by a large employer group together with their supply chains, including Tata Steel, Airbus, Kellogg's, Sony, Renishaw, Control Techniques, Calsonic Kansei, Kasai, Hayakawa International (UK) Ltd, BAe Systems, Spectrum Technologies Ltd, Dawson Shanahan Wales Ltd, GTS Flexible Materials Ltd, Wall Colmonoy, Celsa Manufacturing, Newport Wafer Fab Ltd., e-cube aero and Toyota.

The framework has also been consulted with and informed by the network of delivery colleges and universities in Wales.

This Engineering and Advanced Manufacturing Degree Apprenticeship framework will ensure that apprentices are given the appropriate skills, knowledge and understanding required in the workplace to support the wide range of roles that apprentices might be undertaking.

Developer of this framework			
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Purpose of this framework

Summary of the purpose of the framework

This Degree Apprenticeship framework has been designed to provide up-skilling, progression and re-skilling routes for those seeking to become Engineering and Advanced Manufacturing Professionals.

Engineering and Advanced Manufacturing Degree Apprentices can work in the following broad areas:

Mechanical Engineering Electrical / Electronic Engineering Advanced Manufacturing Chemical Engineering Power Engineering

What is included in this Apprenticeship?

The apprenticeship is made up of a range of applied degree qualifications and learning that will provide apprentices with the skills and knowledge required to become competent in their chosen job role within Engineering and Advanced Manufacturing.

The framework includes the appropriate balance of technical, business and interpersonal knowledge and skills designed to ensure apprentices have an appropriate set of skills to operate in today's engineering and advanced manufacturing job roles.

Engineering and Advanced Manufacturing is a key sector for Wales. It spans a wide range of types of industry, including:

Metals, plastics and non-mineral products Food and beverages Shipbuilding ICT / precision instruments Automotive Aerospace Machinery Equipment Electrical / electronic products, semiconductors, chips, PCBs etc. Chemicals Food and beverages Pharmaceuticals High explosives

Electrical power generation

Nuclear electrical power generation

Renewables electrical power generation

Improvements to productivity and competitiveness across the Engineering and Advanced Manufacturing sector continue to present new technology skills investment paradigms.

The Engineering and Advanced Manufacturing sector includes both mature and "leading-edge" types of industry:

The "leading-edge" types include:

- Aerospace
- Automotive
- Electronics
- Marine (ship, boat and yacht building, maintenance and repair)

The "mature engineering" types include:

- Electrical
- Metal goods
- Mechanical
- Other Transport Equipment

Sector employment and establishments

Advanced Materials and Manufacturing is an exciting sector in Wales. The combined Advanced Manufacturing and Engineering (AME) sub-sectors in Wales employ over 150,000 people. An estimated 66,000

people are employed in technical roles such as professional engineers, scientists and technologists. This sector adds more value to the economy than most other sectors (Annual Business Survey ONS, 2015).

Many jobs in Advanced Materials and Manufacturing are highly skilled such as managers, professionals and engineers. The industry needs Science, Technology, Engineering and Maths graduates and employers are looking for higher skill levels requiring a degree qualification.

Key AME sub-sectors in Wales include metals (27% of AME employment), consultancy, testing and analysis (16%), electronics (15%), aerospace (14%) and automotive (10%). AME employment in Wales is concentrated in Flintshire (15%), Cardiff (9%), Neath Port Talbot (8%) and Bridgend (6%).

Micro-sized establishments (less than 10 employees) account for 82% of total AME establishments, Small and Medium-sized Enterprises (SMEs (10 to 249 employees)) represent 17% of establishments and less than 1% of AME establishments in Wales are large (250 employees plus) – just 495 of approx. 120,480.

Demographics of the technical workforce in the AME sectors in Wales

Working status - 95% of the AME technical workforce is a company employee and 95% of the technical workforce is employed on a full-time basis.

Gender - only 9% of the technical workforce is female.

Age – only 6% of the technical workforce is aged 16-24 years old, with 9% aged 60 years and over.

Disability - only 8% of the technical workforce has some sort of disability. Ethnicity - only 5% of the technical workforce is from an ethnic minority. Occupations

In terms of technical occupations, approximately 12,500 people are employed as technicians, 19,670 people are employed in craft level occupations and 17,345 in operator level occupations. These three technical occupations account for 75% of total employment in technical occupations within the AME sectors in Wales.

Employment trends

The AME sectors in Wales have experienced a period of major restructuring. Between 2010 to 2014, there was a net gain of nearly 17,000 jobs (+21%), compared with an increase in employment of 3% across all sectors in Wales. In 2015, there were 433 postings for technical engineering jobs in Wales.

Employment projections

Taking into account retirements, for operator, craft and technician technical roles, there is expected to be a net requirement across the AME sectors in Wales for 4,000 new recruits (800 per annum) in these occupations between 2016-2020.

Vacancies

Employers in the AME sectors in Wales show a substantial demand for new recruits. In 2015, it is estimated that 18% of AME establishments in Wales had vacancies compared to 14% of establishments across all sectors. In total, there were 1,400 vacancies across the AME sectors in Wales.

Over three-quarters of all AME vacancies in Wales were from SMEs (50-249 employees). It is estimated that 10% of AME employers in Wales had hard-to-fill vacancies with a total of 660 hard-to-fill vacancies reported. Two-thirds of all hard-to-fill vacancies were in craft, technician and operator occupations. Skill shortages in applicants were the main reason for these hard-to-fill vacancies. Employers in Wales have increased their provision of off-the-job training from 47% in 2013 to 49% in 2015, reflecting an increased awareness of the need to tackle the problem themselves.

Drivers of skills change

The engineering sectors felt that the main drivers of future skills requirements would be new legislative or regulatory requirements, introduction of new technologies or equipment, development of new products and services, introduction of new working practices and increased competitive pressure. Large and medium-sized employers were most likely to expect a change in their skills needs from the key drivers identified.

Skill needs and gaps

26% of AME establishments in Wales reported skills gaps. The incidence of skills gaps increases by size of establishment, ranging from 20% of micro-sized establishments to 46% of large establishments.

It is estimated that 7% of the AME workforce in Wales have skills gaps. The main reason for skills gaps in the AME sectors is a lack of experience/being recently recruited. The main skills cited as lacking in employees were technical, practical or job specific skills (approximately three quarters of establishments reporting skills gaps). Employers were most likely to have technical skills gaps with craft, operator and technician occupations. The other main skills gaps highlighted include problem solving, team working, oral communications and management skills.

The main action taken to overcome skills gaps by AME employers was to increase higher qualification level recruitment and invest in training activity/spend or increase/expand trainee programmes.

The Degree Apprenticeship suite in this Engineering and Advanced Manufacturing framework has been developed to address critical skills gaps and shortages as detailed above and contains five pathways:

Pathway 1 Mechanical Engineering Pathway 2 Electrical / Electronic Engineering Pathway 3 Advanced Manufacturing Pathway 4 Chemical Engineering Pathway 5 Power Engineering

These have been identified as priorities to addressing the skills needs and gaps highlighted. The framework format will allow greater tailoring of qualifications to meet employers skills needs, so

higher take-up levels are anticipated.

Aims and objectives of this framework (Wales)

A major barrier to Engineering and Advanced Manufacturing that can improve productivity and enhance products and services is a lack of higher level professional skills in the marketplace.

A shortage of candidates with fluency in technical engineering combined with the business, leadership, digital and project knowledge and competencies is a serious skills gap for Engineering and Advanced Manufacturing employers in Wales. This requires changes to the nature of graduate level higher education to reflect the more holistic and applied focus required by employers through further and higher education institutes in combination with employers.

The aim of this degree apprenticeship framework is to provide apprentices with the skills, underpinning knowledge and transferable skills required to operate in each of the engineering and advanced manufacturing sub-sectors, through providing an integrated degree level programme aimed at supporting a wide variety of defined skilled roles through the pathways described. By incorporating these pathways through a degree programme then this should help to meet current and future skills needs through contextualised learning, that will support retention, motivation and performance.

Further objectives are to:

- provide a structured and flexible training programme environment to upskill new entrants to degree level in engineering and advanced manufacturing
- develop more focused higher level skills through apprenticeships
- attract new people into the Welsh engineering/advanced manufacturing sector from a diverse range

of backgrounds to replace those who naturally leave the sector and those 9% who are 60+ who will retire sometime in the next 5 years

- provide apprentices with the relevant knowledge and skills required by Welsh engineering and advanced manufacturing employers
- ensure apprentices can undertake engineering and manufacturing operations safely and effectively
- provide a range of pathways that meet engineering and manufacturing employers' needs
- improve overall operational performance through improving skills
- help improve recruitment and retention rates within the industry by offering appropriate career progression from a graduate level stepping point
- improve productivity rates and thus profitability (GVA per employee)
- help to tackle the diversity issue within the sector, especially under representation of women (only 20% of the workforce is female, compared to 50% for all sectors in Wales).
- increase the overall level of participation in apprenticeship training from its current 9% and contribute to the target of 100,000 apprenticeship starts over 5 years in Wales

Entry conditions for this framework

The Engineering and Advanced Manufacturing Degree Apprenticeship framework at Level 6 is primarily suitable for applicants who have either completed A levels appropriate for university entrance, or who may have already completed a related apprenticeship at Levels 3, 4 or 5.

Please note: Applicants for this apprenticeship framework are likely to be 19+ years.

Initial Assessment

It is likely that applicants may be asked to undertake a variety of tests which will include English, maths and problem solving, supported by an employer interview. These are not meant as a barrier to entry, but more to gauge the ability of the applicant to achieve the programme outcomes and to tailor the individual learning plan to meet their needs and those of the employer.

Rules to avoid repeating qualifications

Processes exist to make sure that applicants with relevant prior knowledge, qualifications and/or experience are not disadvantaged by having to repeat learning. Colleges and universities will be able to advise on the current rules for accrediting prior learning and recognising prior experience.

Essential Skills Wales Key skills are accepted as alternatives to Essential Skills Wales qualifications, provided the Key Skills Certificate(s) attained are at the same level(s) as those specified for Essential Skills Wales qualifications. However, Key Skills can not be completed as part of this framework.

It is a requirement that entrants should have completed the Essential Skills in Communication, Application of Number and IT at Level 3 on entry to programmes that are listed in the framework. These could be achieved either through completing Essential/Key Skills at Level 3, or GCSEs / O levels grade C or above.

Level 6

Title for this framework at level 6

Engineering and Advanced Manufacturing Degree Apprenticeship

Pathways for this framework at level 6

- Pathway 1: Mechanical Engineering Degree Apprenticeship
- Pathway 2: Electrical / Electronic Engineering Degree Apprenticeship
- Pathway 3: Advanced Manufacturing Engineering Degree Apprenticeship
- Pathway 4: Chemical Engineering Degree Apprenticeship

Level 6, Pathway 1: Mechanical Engineering Degree Apprenticeship

Description of this pathway

Pathway duration approximately 36 months

The requirements for the Mechanical Engineering pathway are:

- Competence and knowledge applied degree qualification = 360 credits
- Essential Skills Wales (where not already satisfied) 3 x 6 credits =18 credits

Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions.

Job title(s)	Job role(s)
Mechanical Engineer	Mechanical engineers undertake research and produce specifications for the installation, operation and maintenance of mechanical components or systems. This includes; engines, machines, aircraft, vehicle and ships' structures, building services and other mechanical items.
Mechanical Design Engineer	Mechanical design engineers are responsible for the process of designing new mechanical components and products, receiving and developing requirement specifications. They research and develop ideas and processes for new products, and improve the performance and design of existing products.

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 ·	B1 - BEng (Hons) Mechanical Engineering					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	Total qualification time	
B1a	nil	University of South Wales	360	3600	n/a	
B2 ·	B2 - BSc (Hons) Mechanical Engineering					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	Total qualification time	
B2a	nil	University of South Wales	360	3600	n/a	
B2b	nil	University of Wales Trinity Saint David	360	3600	n/a	

Relationship between competence and knowledge qualifications

This is a combined degree qualification that delivers both the knowledge and competence requirements with minimum of 360 credits as set out in the Engineering and Advanced Manufacturing degree apprenticeship learning and skills framework outcomes specification, March 2019.

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	2
Application of numbers	2
ICT/Digital literacy	2

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current <u>SASW</u>.

Progression routes into and from this pathway

Progression routes into this pathway include those who:

- have completed the Higher Apprenticeship at Level 4 or 5 and have undertaken a relevant Foundation Degree linked to the Honours degrees listed in this framework
- have completed a relevant HNC/HND that links to the Honours degrees listed in this framework.

Progression from this pathway for those who have completed a degree apprenticeship in Mechanical Engineering (Level 6):

- employment as a Mechanical Engineer in the job roles (or similar) as stated in this framework
- Masters Degrees in the relevant specialism.

UCAS points for this pathway:

Employee rights and responsibilities

Additional employer requirements

Level 6, Pathway 2: Electrical / Electronic Engineering Degree Apprenticeship

Description of this pathway

The requirements for the Electrical / Electronic Engineering pathway are:

- Competence and knowledge applied degree qualification = 360 credits
- Essential Skills Wales (where not already satisfied) 3 x 6 credits =18 credits

Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions.

Job title(s)	Job role(s)
Electrical Engineer	Electrical engineers undertake research, direct installation and construction and manage the operation and maintenance of electrical equipment, power stations, building control systems and other electrical products and systems.
Electronic Engineer	Electronics engineers install and maintain electronic components, software, products, or systems for commercial, industrial, medical, military, or scientific applications.
Electrical / Electronic Design Engineer	Electrical / electronic design engineers are responsible for developing system specifications and layouts and the process of designing new electrical and electronic systems for various applications. They research systems ideas and develop system designs using specialised design software.

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 ·	B1 - BEng (Hons) Electrical and Electronic Engineering					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	Total qualification time	
B1a	nil	University of South Wales	360	3600	n/a	
B2 -	B2 - BSc (Hons) Electrical and Electronic Engineering					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	Total qualification time	
B2a	nil	University of South Wales	360	3600	n/a	
B2b	nil	University of Wales Trinity Saint David	360	3600	n/a	

Relationship between competence and knowledge qualifications

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level
Communication	2
Application of numbers	2
ICT/Digital literacy	2

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current <u>SASW</u>.

Progression routes into and from this pathway

Progression routes into this pathway include those who:

have completed a relevant Higher Apprenticeship at Level 4 or 5 or have undertaken a Foundation Degree linked to the Honours degrees listed in this framework.

have completed a relevant HNC/HND that links to the Honours degrees listed in this framework.

Progression from this pathway for those who have completed a degree apprenticeship in Electrical / Electronic Engineering (Level 6):

- employment as an Electrical / Electronic Engineer in the job roles (or similar) as stated in this framework
- Masters degrees in the relevant specialism.

UCAS points for this pathway:

Employee rights and responsibilities

Additional employer requirements

Level 6, Pathway 3: Advanced Manufacturing Engineering Degree Apprenticeship

Description of this pathway

Pathway duration approximately 36 months

The requirements for the Advanced Manufacturing Engineering pathway are:

- Competence and knowledge applied degree qualification = 360 credits
- Essential Skills Wales (where not already satisfied) 3 x 6 credits =18 credits

Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions.

Job title(s)

Manufacturing Engineer

Job role(s)

Manufacturing Engineers design manufacturing systems, develop, evaluate and improve manufacturing processes by applying knowledge of product design, fabrication, assembly, tooling, materials and by studying product and manufacturing methods.

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 ·	B1 - BEng (Hons) Advanced Manufacturing Operations					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	Total qualification time	
B1a	nil	University of Wales Trinity Saint David	360	3600	n/a	

Relationship between competence and knowledge qualifications

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level		
Communication	2		
Application of numbers	2		
ICT/Digital literacy	2		

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current <u>SASW</u>.

Progression routes into and from this pathway

Progression routes into this pathway include those who:

have completed a relevant Higher Apprenticeship at Level 4 or 5 or have undertaken a Foundation Degree linked to the Honours degrees listed in this framework.

have completed a relevant HNC/HND that links to the Honours degrees listed in this framework.

Progression from this pathway for those who have completed a degree apprenticeship in Advanced Manufacturing Engineering (Level 6):

employment as a Manufacturing Engineer in the job roles (or similar) as stated in this framework

Masters degrees in the relevant specialism.

UCAS points for this pathway:

Employee rights and responsibilities

Additional employer requirements

Level 6, Pathway 4: Chemical Engineering Degree Apprenticeship

Description of this pathway

Pathway duration approximately 36 months

The requirements for the Chemical Engineering pathway are:

- Competence and knowledge applied degree qualification = 360 credits
- Essential Skills Wales (where not already satisfied) 3 x 6 credits =18 credits

Entry requirements for this pathway in addition to the framework entry requirements

There are no additional requirements other than the general entry conditions.

Chomi	
Chemical Engineer mathe chemi and ec	cal engineers apply the principles of chemistry, biology, physics, and matics to solve problems that involve the production or use of cals, fuel, drugs, food, and other products. They design new processes quipment for manufacturing and maintain and optimise existing plant.
Ordnance, Munitions & Explosives (OME) Engineer	ngineers design, test and coordinate development of chemical based sive ordnance material to meet specifications. They carry out a range of ical, engineering and scientific activities which includes laboratory based igations, energetic studies and scientific experimentation.

Qualifications

Competence qualifications available to this pathway

N/A

Knowledge qualifications available to this pathway

N/A

Combined qualifications available to this pathway

B1 - BSc (Hons) Ordnance, Munitions & Explosives (Technical Research & Development) Guided Total Credit qualification Ref no. Awarding organisation No. learning value hours time B1a nil University of Wales Trinity Saint David 360 3600 n/a

B2 - BEng (Hons) Ordnance, Munitions & Explosives (Safety) Guided Total Credit Ref no. Awarding organisation learning qualification No. value time hours B2a University of Wales Trinity Saint David 360 3600 nil n/a

B3 - BEng (Hons) Ordnance, Munitions & Explosives (Manufacturing & Processing) Guided Total Credit Ref no. Awarding organisation learning qualification No. value hours time University of Wales Trinity Saint David 360 3600 B3a nil n/a

Combined qualifications available to this pathway (cont.)

B4 - BEng (Hons) Ordnance, Munitions & Explosives (Breakdown & Disposal)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	Total qualification time
B4a	nil	University of Wales Trinity Saint David	360	3600	n/a
B5 - BEng (Hons) Ordnance, Munitions & Explosives (Test & Evaluation)					
No.	Ref no.	Awarding organisation	Credit value	Guided learning hours	Total qualification time

360

3600

n/a

Relationship between competence and knowledge qualifications

University of Wales Trinity Saint David

(No requirement specified)

B5a nil

Transferable skills (Wales)

Essential skills (Wales)

Subject	Minimum Level		
Communication	2		
Application of numbers	2		
ICT/Digital literacy	2		

For a full list of available proxies for starts on or after 14th October 2016 please see section 35 of the current <u>SASW</u>.

Progression routes into and from this pathway

Progression routes into this pathway include those who:

have completed a relevant Higher Apprenticeship at Level 4 or 5 or have undertaken a Foundation Degree linked to the Honours degrees listed in this framework.

have completed a relevant HNC/HND that links to the Honours degrees listed in this framework.

Progression from this pathway for those who have completed a degree apprenticeship in Chemical Engineering (Level 6):

employment as a Chemical Engineer in the job roles (or similar) as stated in this framework Masters degrees in the relevant specialism.

UCAS points for this pathway:

Employee rights and responsibilities

Additional employer requirements

The remaining sections apply to all levels and pathways within this framework.

How equality and diversity will be met

Semta recognises the training and business benefits of having apprentices from a wide variety of diverse backgrounds. We are committed to ensuring equality and diversity drives all aspects of apprentice selection and recruitment. Equal opportunity and diversity refers to the active elimination of unlawful or unfair discrimination against any person or group on the grounds of gender, race, colour, nationality, ethnic origin, religion, age, sexual orientation, marriage and civil partnership, pregnancy and maternity, political belief, disability and where appropriate, prison/offender background where this is deemed irrelevant.

Despite the encouraging numbers of both female participants and ethnic minorities on the 14 to 19 Engineering and Manufacturing Diplomas and Young Apprenticeship programmes, the Engineering sector still has a significant way to go to encourage women into engineering and manufacturing careers.

Semta wishes to make a Gender Equality Commitment. Semta has signed the United Kingdom Resource Centre (UKRC) CEO's charter in a bid to step up female recruitment in its key sectors and programmes. Due to impending skills gaps it is estimated that 187,000 people will be required to be recruited and trained between 2010-2016 within Semta's sectors of aerospace, automotive, composites, electrical, electronics, maintenance, marine, mathematics, metals and engineered metal products, renewables and science.

The UKRC is the Government's leading body for advanced gender equality in science, engineering and technology (SET) and the CEO's charter is a formal commitment to the UKRC's agenda to challenge the under-representation of women in SET. Women make up 50% of the labour market, yet they make up less than 20% of the labour market in science, engineering and technology.

The UKRC believes that only a concerted effort by the SET industry will break down the gender barriers that exist in traditionally male-dominated environments and we want to be part of a new consensus which will create an inclusive working environment for women. The manufacturing industries in which this framework operates are traditionally dominated by a white, male workforce. However, faced with an aging workforce and the probability of skill shortages we must look to attract new entrants from a much more diverse recruitment pool. This means that all young people and adults considering engineering and manufacturing as a career are welcome.

Providers of apprenticeship training, including employers, must be able to demonstrate there are no overt or covert discriminatory practices in the selection and employment of apprentices.

This can be demonstrated by implementing a Single Equality Scheme (SES). The new Equality Duty (part of the Single Equality Bill) introduced to the public sector requires all public sector bodies to produce a SES combining their current race, disability and gender schemes and should be recognised by all providers of apprenticeship training. The implementation of a SES demonstrates the organisation's commitment to equality and diversity by identifying new and improved ways of working to ensure the organisation is more efficient and effective in meeting the diverse needs of both staff and customers.

All those who recruit apprentices, be they colleges, training providers or employers, must comply with the Equality act of 2010 and apply the Equality and Diversity legislation taking full account of the following:

- The Sex Discrimination Act 1975 and Code of Practice
- The Race Relations Act 1976 and Code of Practice
- The Disability Discrimination Act 1995 and Code of Practice
- Employment Equality (Religion or Belief) Regulations 2003
- Employment Equality (Sexual Orientation) Regulations 2003
- Employment Equality (Age) Regulations 2006
- The Equality Act 2010

Providers of apprenticeship training and employers must also actively monitor equality of opportunity and diversity procedures and take positive action where necessary to ensure equal access and treatment for all. Apprenticeships must be seen as a vital route to encourage and facilitate long term change in the equality and diversity of the engineering industry, therefore entry conditions into this framework are extremely flexible. All effort should be made to increase the diversity of our apprentice population.

Download the guidance on the Equality Act here: www.equalityhumanrights.com/advice-and-guidance/new-equality-act-guidance/

On and off the job training (Wales)

Summary of on- and off-the-job training

Total on and off the job training for all pathways

At Level 6, degree apprentices will only be required to undertake the further compet ence and knowledge training as specified in the qualifications section of the relevant pathway. The knowledge and skills requirement is met throug h the achievement of an Honours degree in the relevant pathway that aligns with appropriate degree learning and skills specification – unspecified hours.

Duration of training is measured in years and semesters and delivery of honours degrees will typically vary between three and four years. All the degrees specified within the pathways within this framework are part time.

On and off the job training hours mus t be planned, reviewed and evaluated jointly between the apprentice, university tutor and employer, mentor or manager.

Education and training support via a tutor, teache r, mentor or manager may be delivered through one or more of the following methods :

individual and group teaching

- e-learning
- distance learning
- coaching
- mentoring
- feedback and assessment
- collaborative/networked learning.

Off-the-job training

All degree apprentices must achieve the Honours degree in the relevant pathway, including Essential Skills Wales, or Wider Key Skills requir ements.

The off-the-job training are those learning activities undertaken away from normal work duties. The minimum required is 900 hours. This is made up of: Degree qualification: 720 hours (80%)

Essential Skills Wales for apprentices without the required levels: 180 hours (20%).

How this requirement will be met

Off-the job learning will be required for the appren tice to achieve the designated module credits of the combined degree qualification. This may involve a combination of day release, block release, web based learning, mentoring and coaching.

Achievement of the designated module credits and Essential Skills (if required) will be the evidence of completion of the required number of off the job Guided Learning Hours (GLH).

On-the-job training

An apprentice must receive a minimum of 500 hours on the job training for each pathway. Note: The total number of hours required will be determined by the actual modules, their directed study and assessment requirements.

How this requirement will be met

A degree apprenticeship programme is fundamenta lly designed to be a work-based programme, whereby HE delivered learning can be immediately applied by apprentices in a real work context.

The degree qualifications contained in the framework reflect the overall design of a degree apprenticeship, containing modules which are designed to be delivered partly within the HE and in the workplace through their directed study and assessment requirements.

Wherever possible, the assessment is undertaken using project based methods with real world workplace examples, ensuring that any knowledge element s in the modules are learned in the work and organisational context.

Off-the-job training needs to achieve the learning outcomes and skills contained in the relevant degree specification.

This will be planned, reviewed and evaluat ed jointly between the apprentice, university lecturers, employer, mentor/manager through:

- directed study
- projects
- feedback and assessment
- collaborative/networking learning.

Essential employability skills (Wales)

Essential employability skills

apprenticeship FRAMEWORKS ONLINE

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