



## ***Employers' Views of the Jobs and Skills Required for the UK Automotive Industry***

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# Contents

Foreword from Nick Boles MP, Minister of State for Skills	3
Foreword from Nigel Stein, Industry Chairman of the Automotive Council	4
Executive Summary	5
1. About this Report	7
2. Industry Background	9
3. Methodology	11
4. National Recruitment Results and Outlook	13
5. National Skills Results and Outlook	22
6. References	31
7. Acknowledgements	32
Appendices	33
Appendix 1 – The Automotive Industry Job Framework	34
Appendix 2 – The Automotive Industry Job Framework	36
Appendix 3 – Engineering Job Family	38
Appendix 4 – Engineering Job Family	39
Appendix 5 – Purchasing Job Family	40
Appendix 6 – Purchasing Job Family	41
Appendix 7 – Materials Planning and Logistics Job Family	42
Appendix 8 – Materials Planning and Logistics Job Family	43
Appendix 9 – Quality Job Family	44
Appendix 10 – Quality Job Family	45
Appendix 11 – Manufacturing Job Family	46
Appendix 12 – Manufacturing Job Family	47
Appendix 13 – Design Engineer Job Description	48
Appendix 14 – Production Engineer Job Description	51
Appendix 15 – Buyer, Procurement Job Description	54
Appendix 16 – Senior Engineer, Design Job Description	56
Appendix 17 – Technician, Maintenance Job Description	59
Appendix 18 – Programme Manager Job Description	62
Appendix 19 – Quality Engineer, Operations Job Description	66
Appendix 20 – Manufacturing Team Leader Job Description	69
Appendix 21 – Project Engineer Job Description	72
Appendix 22 – Quality Technician Job Description	75
Appendix 23 – Senior Operator, Manufacturing Job Description	78
Appendix 24 – Tool Maker, Job Description	81
Appendix 25 – Senior Technician Maintenance, Job Description	84
Appendix 26 – Supplier Quality Engineer, Job Description	87
Appendix 27 – Technician, Development, Job Description	90
Appendix 28 – The North West, Job and Skill Requirements	93
Appendix 29 – The North East, Job and Skill Requirements	96
Appendix 30 – The West Midlands, Job and Skill Requirements	100
Appendix 31 – The East Midlands, Job and Skill Requirements	104
Appendix 32 – The South, Job and Skill Requirements	108
Appendix 33 – Welsh, Job and Skill Requirements	112
Glossary of Terms	116



# Foreword from the Minister of State for Skills

**Skills are a major contributor to productivity, and as a nation we are not doing well enough. We must raise our game, in areas ranging from basic skills to high level technical and engineering capability. Employers have a central role to play in this.**

The UK automotive sector is already an exemplar, leading the way as the most productive of all major European automotive producers. Investment in skills by our leading manufacturers has been a key enabler for this. But as this report shows, in a sector that is growing and transforming there are real challenges, in both the immediate and longer term, in developing the skilled workforce needed to maintain this lead.

The report provides valuable information on the industry's skills needs to underpin work on solutions. I welcome that leading employers have come together so effectively to progress this, and am delighted that government has been able to help.

Looking to the future, I hope in particular that employers across the automotive sector will seize the opportunities provided by apprenticeships to build a workforce for the long term.

A handwritten signature in black ink, appearing to read 'Nick Boles'.

**Nick Boles MP**  
Minister of State for Skills



# Foreword from the Industry Chairman of the Automotive Council

The automotive industry is at the forefront of the UK economy's recovery. In 2015 we built over 1.6 million vehicles and 2.4 million engines, exporting almost 80% of our production<sup>1</sup>. The UK is the second largest producer of premium cars in the world, with over 40 companies making vehicles here, at some of the most productive car plants in the world. Output is rising, productivity is rising, employment is rising, and UK vehicle output is well on the way to reaching two million annually.

However, through the recession over 100,000 people left the industry through retirement, voluntary severance and redundancy, and as the industry has recovered, few of these people have chosen to return.

As the work of the Automotive Council has identified growth opportunities across the sector, so it has become apparent that this brings both opportunities and challenges for the people working in the industry. For the first time, this report offers an analysis of short- and long-term skills needs, and recommendations as to how a co-ordinated programme of training schemes and apprenticeships can help fill the gaps. This report also introduces a newly defined Automotive Industry Job Framework to help bring uniformity of job descriptions across the industry. In the short term we need 2,500 people to fill immediate vacancies, and by 2020 we may need as many as 50,000 more people than currently work in the industry. Such is the scale of the challenge, but through the continuing work of the Automotive Council, taking forward the recommendations in this report, the UK automotive industry will be able to offer increasing levels of high quality, productive employment across a range of skills and disciplines.

For more information on the work of the Council, the opportunities presented by the UK automotive industry, and the various offers of support and advice that we offer, you are invited to visit our website at [www.automotivecouncil.co.uk](http://www.automotivecouncil.co.uk).

I would like to thank all the businesses who gave their time to complete the surveys, and to all those Council members and others who have contributed to this work, without whom this report would not have been possible.

A handwritten signature in black ink that reads "Nigel Stein". The signature is written in a cursive, slightly slanted style.

**Nigel Stein**  
Chief Executive of GKN Plc  
and Industry Chairman of the Automotive Council

# Executive Summary

## Objectives

The work of the Automotive Council has made much progress in identifying opportunities to grow the supply chain, and has put strategies in place to meet the opportunities offered by future technologies. As this has translated into increased vehicle output, compounded by an increasing share of supply chain work being won by UK suppliers, so the need to address the consequential skills and employment opportunities has come into sharp focus.

This report sets out to identify skills needs both to fill current vacancies, and to meet the needs of a growing industry. It offers proposals to meet these needs through training, apprenticeships, and also by promoting the industry as one that offers secure, rewarding employment opportunities.

The research was conducted between May and September 2015. Qualitative and quantitative information was gathered through structured interviews with leading vehicle makers and a sample of Tier-1 to Tier-n supply chain businesses. This was supplemented by an internet based survey sample of the contributing businesses. In total 61 automotive companies, (OEM to Tier-n businesses), employing just over 83,200 people within the UK, participated in the Skills Survey.

## Key Findings

Just over 2,500 vacancies were highlighted by the employers surveyed as being 'difficult to fill' or 'challenging' jobs and these were categorised into 57 different types of role that sit within the newly created Automotive Industry Job Framework (see Appendix 1). A quarter of those jobs were classed as 'critical' meaning they have been open for a period of three months or more and were impacting on business productivity and output. The top 10 current and future priority jobs shown in this report make up 70% of the 2,500 vacancies in the survey. Perhaps unsurprisingly, the majority of vacancies within the top 10 are engineering positions with a particular concentration around design and production engineering, with these disciplines accounting for 40% of immediate vacancies.

The top reasons for unfilled vacancies were cited as business growth, lack of availability of skills in the job market, and competition for scarce resources.

Employers stated that in order to fill urgent vacancies they are broadening their search campaigns abroad and using contractors. This in turn has cost and visa issue implications. Some employers advised that they are taking a longer term approach, hiring graduates and apprentices as well as developing specifically tailored training programmes with local universities, colleges or training providers to meet their future need. However, this doesn't address the urgent requirement now.

The primary reasons for needing to train up the current workforce were cited as business growth, optimising business efficiency and technology advances. In total, 71 different types of learning are required for over 20,000 people, 15% of whom have an immediate learning need. Lean manufacturing is the top priority over the next five years with survey respondents keen to optimise efficiency to aid their business output, growth and productivity. Linked to this are other skills that will ultimately drive higher standards of output and optimisation, such as advanced problem solving and quality core tools training. Another key need is leadership development across a multitude of multi-disciplinary supervisory and managerial roles to manage current and expanding workforces.

### ***Recommendations***

#### **The key recommendations to address the issues identified in this report include:**

- Ensuring a pipeline of young talent comes into the industry through a co-ordinated approach to STEM subjects at schools, colleges and universities, as well as engaging in such schemes as the Art of Manufacturing, Industrial Cadets and work experience opportunities.
- Across the industry, businesses should be looking at how they can benefit and maximise the opportunities offered by government's latest approach to apprenticeships and fully support the recently launched Automotive Apprenticeship Matching Service.
- Creating and promoting a single communication portal publicising the different job, career opportunities and skills information for the industry.
- Providing industry accredited training schemes with the content and competence outcomes driven by employers with a rigorous approach to governing the quality standards on a national basis.
- Companies engaging with their suppliers by offering training and work experience across the industry, and when staff are temporarily surplus, offering their people on loan to strengthen their supply chain.
- Companies taking further steps to manage the longevity of their current workforce as they move into their later years of life, particularly around working patterns and practices.
- Developing home grown talent but continuing to be able to search for resources globally and explore a more diverse workforce.
- Continuing to survey the industry to understand the current, ongoing and relevant skills challenges required to ensure that any future focus and funding is directed towards the highest priority needs of the sector.

# 1 About This Report

**In order to understand the competitive status of the UK automotive industry, the New Automotive Innovation and Growth Team (NAIGT) commissioned a study, conducted primarily by Dr Matthias Holweg with support from SMMT and the Department for Business, Innovation and Skills (BIS), and this work was published in 2009<sup>ii</sup>.**

The report found that the UK automotive industry had transformed itself from a sector with turbulent labour relations and a poor reputation for quality and productivity to one that was fully competitive. The UK automotive workforce was one of the most productive in Europe, and the UK was home to some of the most recognisable global brands. However, a drive to 'low cost' sourcing caused an increasing trend towards purchasing parts from overseas, citing availability of UK suppliers, skills and quality as primary reasons for selecting overseas suppliers.

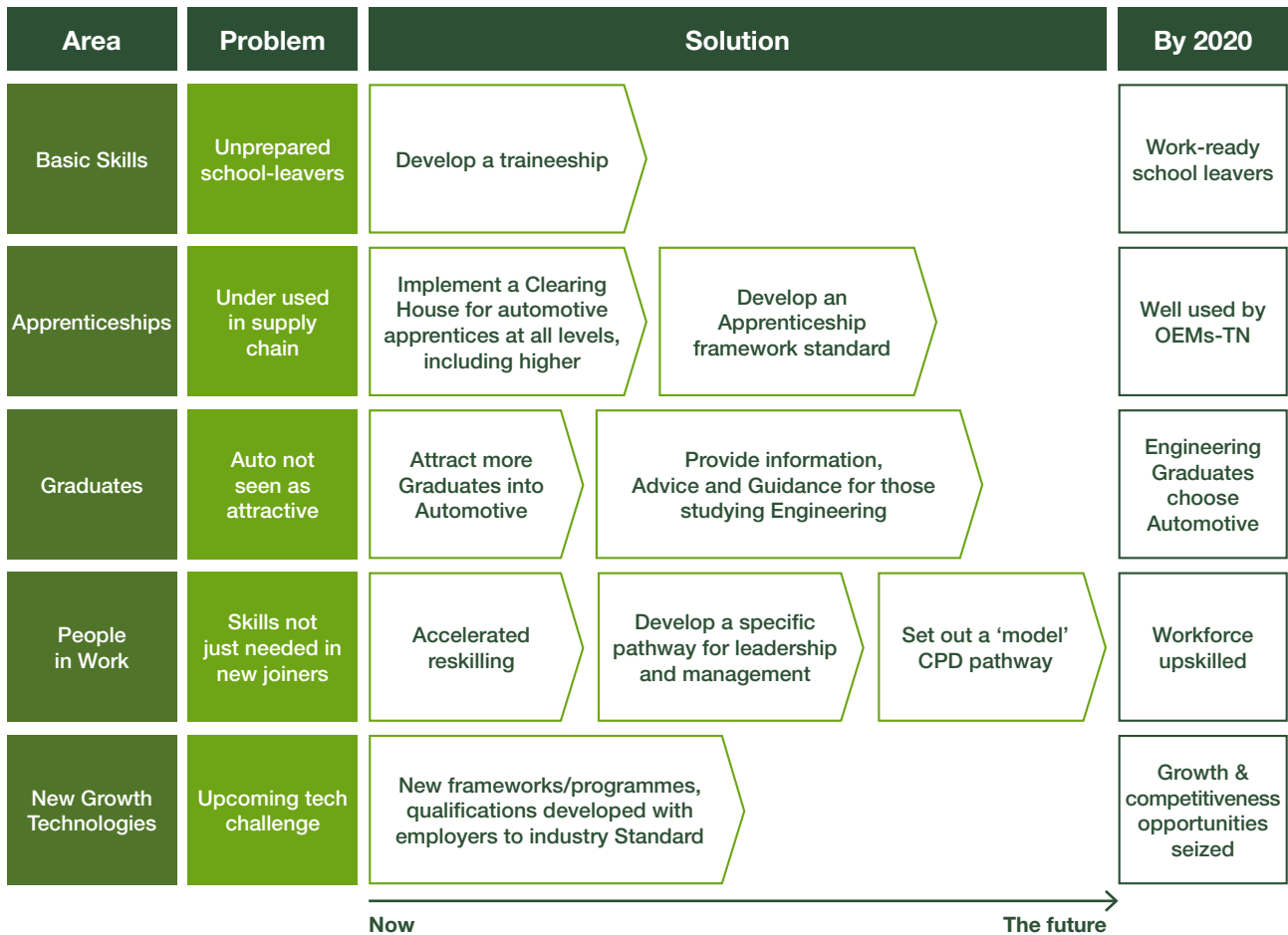
This led to the creation of the Automotive Council, a joint government/industry body, full details of which can be found on the Council's website<sup>iii</sup>.

Since 2009, when UK vehicle output bottomed out at just over one million vehicles, the sector has experienced a strong post-recession recovery. New models have come to the market, and through the work of the Automotive Council, significant progress has been made towards re-shoring the supply chain, with UK content rising from 36% in 2011 to 41% in 2015. In 2015, more than 1.6 million vehicles were made<sup>i</sup>, with increased employment at vehicle makers and suppliers despite strong productivity gains.

As the work of the Automotive Council has made progress in identifying opportunities to grow the supply chain, and put strategies in place to meet the opportunities offered by future technologies, so the need to address the consequential skills and employment opportunities has increased. In the course of reviewing the potential challenges that this might generate, it became apparent that even in an industry which has made great strides in standardising materials, products and processes, more was needed in the areas of standardising training schemes, and indeed in standardising job descriptions. Across the industry, jobs that are basically the same have a wide variety of job titles. Among other things, this acts as an inhibitor to people moving around the industry to develop careers.

In response to the need to understand future skills needs, in March 2015 the Automotive Industrial Partnership was launched as a joint government/industry initiative to *"take responsibility for, and to transform, the end-to-end skills system for the sector, enabling automotive employers to attract and develop the current and future skilled workforce that is needed to compete globally."*

The Automotive Council's Driving Success Strategy deliverables are:



As part of achieving the above deliverables, an understanding of what current and future jobs and skills would be required in the industry was undertaken. The findings and recommendations from this report aim to give an indication of what the industry priorities are and the challenges they face in addressing the future skills needs.



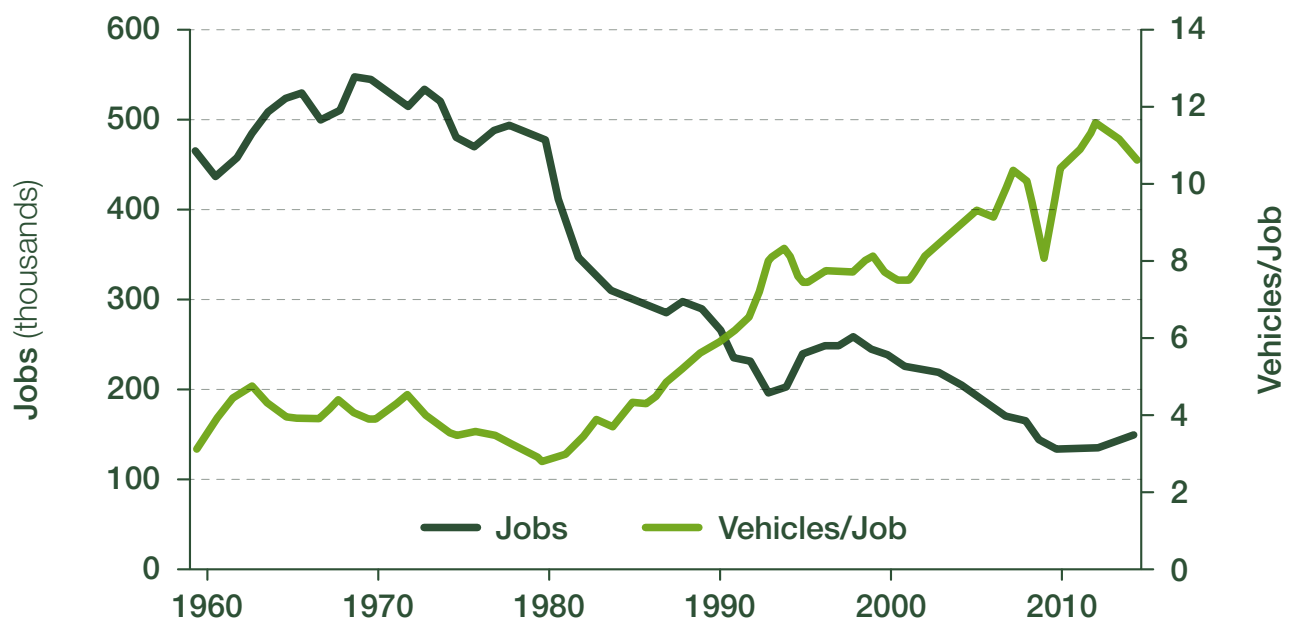
## 2 Industry background

The automotive industry is at the forefront of the UK economy's recovery. In 2015 we built more than 1.6 million vehicles and almost 2.4 million engines, exporting almost 80% of our production<sup>1</sup>. The UK is the second largest producer of premium cars in the world, with over 40 companies making vehicles here at some of the most productive car plants in the world. Output is rising, productivity is rising, employment is rising, and there is a realistic expectation that annual UK vehicle output will reach two million vehicles over the coming years.

However, the recession saw the industry go through a period of falling output and this, coupled with strong productivity growth, has seen over 100,000 jobs lost from the industry over the last 15 years. Many skilled people have left the industry either through retirement, voluntary severance or business closures, and the image of an industry offering secure employment has been tarnished. Former employees are reluctant to return given the perceived risks of repeated redundancy, draining the talent pool in the industry.

The financial challenges generated by the recession have reduced training budgets across UK manufacturing, and it has become increasingly difficult for businesses to recruit suitably qualified people as the business has started to turn back up.

### Employment, Productivity



Source: ONS Annual Business Survey, BIS analyst estimate

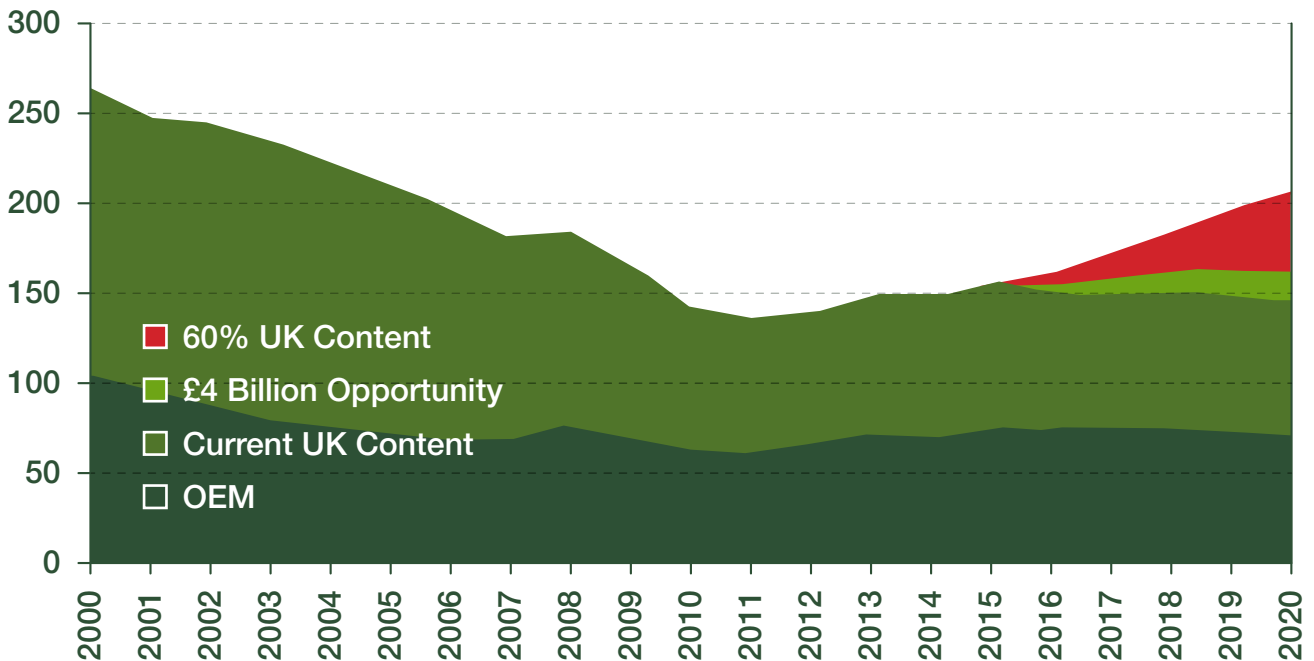
In the coming years UK vehicle output is expected to grow to around two million vehicles per annum, while a recent report<sup>iv</sup> has established that the work of the Automotive Council's supply chain group is bearing fruit, with UK-sourced content rising from 36% in 2011 to 41% in 2015. This growth is already increasing employment in the sector, though over time the employment benefits will be dissipated as productivity continues to improve.

The chart below gives an indication of how employment in the automotive supply chain might evolve in three scenarios:

- Vehicle output grows but UK content remains stable
- UK content increases by £4 billion per annum: an opportunity identified in past Automotive Council studies<sup>v</sup>
- UK content increases to 60%, a level believed to be achieved by the most successful of our European peers

### UK Auto Sector Indicative Employment

assumes 5% productivity gains per annum



The analysis suggests that achievement of the £4 billion opportunity will require, as a bare minimum, that all retirees will need to be replaced, and that in the event of further growth in UK content, the industry might need as many as 60,000 more people in the supply chain alone. Meanwhile OEM employment will, at a minimum, need to remain at current levels despite ongoing productivity improvements, requiring continual replacement of retirees and other industry leavers.

This indicates the scale of the challenge, hence the need for a properly structured recruitment and training regime across the industry in order that the future business opportunity for UK manufacturing can be captured.

### 3 Methodology

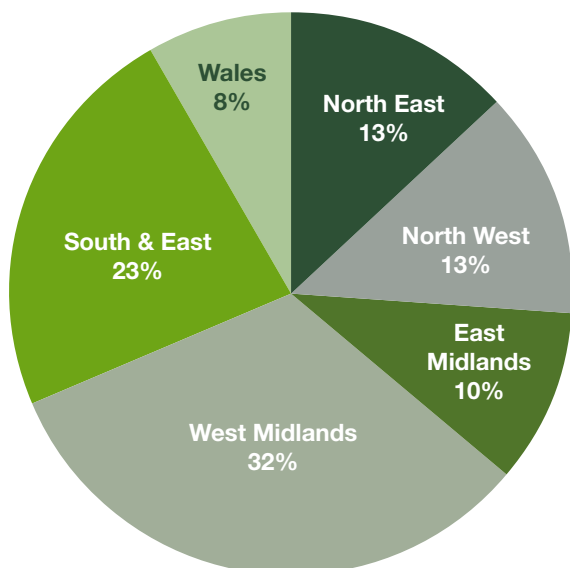
The primary means to gather information was by structured interview of the leading vehicle makers and a sample of Tier-1 to Tier-n supply chain businesses, and this was supplemented by an internet based survey sample of the contributing businesses. The information gathered was both qualitative and quantitative, in order to develop a rounded view of the scale and nature of skills shortages, and potential impacts on the businesses participating in the survey.

In total 61 automotive companies, (OEM to Tier-n businesses), employing just over 83,200 people within the UK, participated in the Skills Survey. This represents just over 50% of direct UK automotive manufacturing employment. In order to determine the degree to which the survey is representative of the industry, the employment of the participants has been compared both to the total employment in the industry<sup>vi</sup> and also to the regional breakdown of sector employment<sup>vii</sup>.

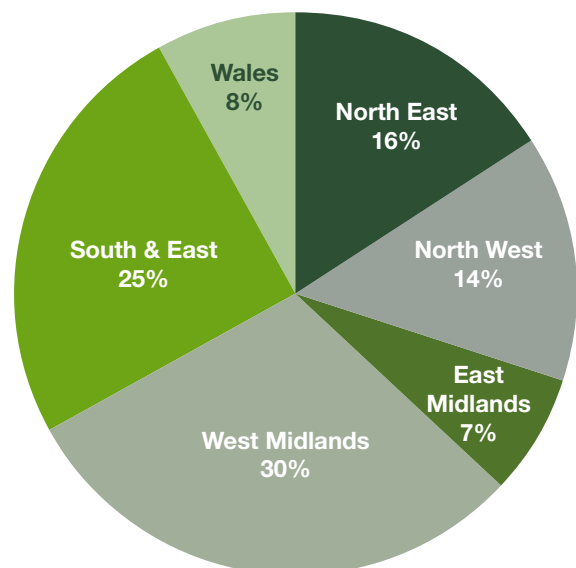
With regard to national analysis, total employment from participating OEMs represented 94% of the UK automotive industry<sup>vii</sup>. Total employment of supply chain participants represented 31% of the industry<sup>ix</sup>, therefore a multiplier of three has been used to proportionately reflect the recruitment and learning requirements.

The companies that were interviewed or participated online for this study were located around the UK, as shown in Table 1 below.

**Skills Analysis Company Participation**



**UK Automotive Industry Employment**



From the charts above it can readily be seen that the geographical split of the survey participants closely matches the regional breakdown of the automotive industry in England and Wales. This gives confidence that the sample of participants fairly represents the spread of the industry, and that no one region is unfairly represented in the results relative to any other.

Where three or more company requests have been made for a specific vacancy, or two or more for a specific skill, the data has been used to determine the top 10 national requirements.

Where only one company request has been made for a specific requirement, these results have been excluded from the national result to avoid any risk of disclosure.

Regional results are shown using the raw data sample. Where there is more than one request for a particular vacancy or skill this has been used as the top ranking demand for that region, although this has not always been possible due to the sample size.

Certain skills were combined together, for example lean manufacturing was consolidated with six sigma and value stream mapping, while Computer Aided Engineering and Computer Aided Design were likewise consolidated.

The OEMs surveyed were all car manufacturers. However, the supply chain companies sell to the broader automotive industry including motorsport, motorcycles, trucks and off-road equipment.

Many of the automotive companies who participated in the survey are global organisations, and for the avoidance of doubt their responses relate solely to their UK operations.

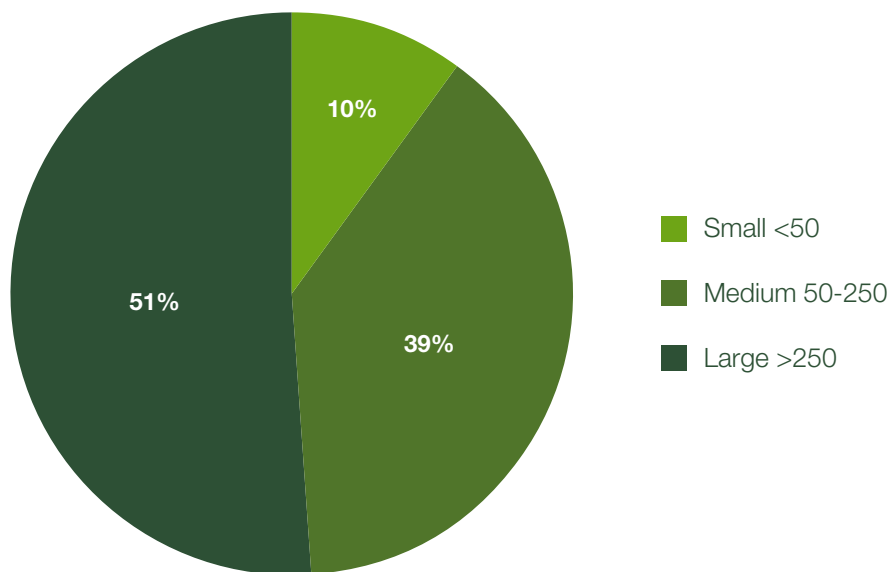
'Other' companies categorised in the Tier-1 to Tier-n section are R&D companies or businesses manufacturing components for the production line of an OEM/Tier-1 or carrying out testing on their behalf.

To avoid disclosure and generate meaningful results, the 'South' region reported here has amalgamated East, South East, London and South West regions. No data was gathered from Northern Ireland or Scotland.

## 4 National Recruitment Results and Outlook

The survey was undertaken in the summer of 2015 through one-to-one structured interviews and online participation. 61 companies took part, of which, eight were OEMs and 23 were supply chain companies (Tier-1 to Tier-n) employing around 83,200 people in the UK. Participants were of varying size, as outlined in Graph 1 below. Some participants provided data for their whole company based in the UK, others for multiple or a single manufacturing plants in the UK. Some concentrated on specific functional areas, eg engineering or purchasing.

### *Headcount Size of Participating Companies*



Graph 1

Just over 2,500 vacancies were highlighted as being 'difficult to fill' or 'challenging' at this time and these were categorised into 57 different types of job that sat within the newly created Automotive Industry Job Framework (see Appendices 1-12). The framework was created to provide a common language for the jobs and structure within the automotive industry across the engineering, purchasing, materials planning and logistics, quality and manufacturing functions.

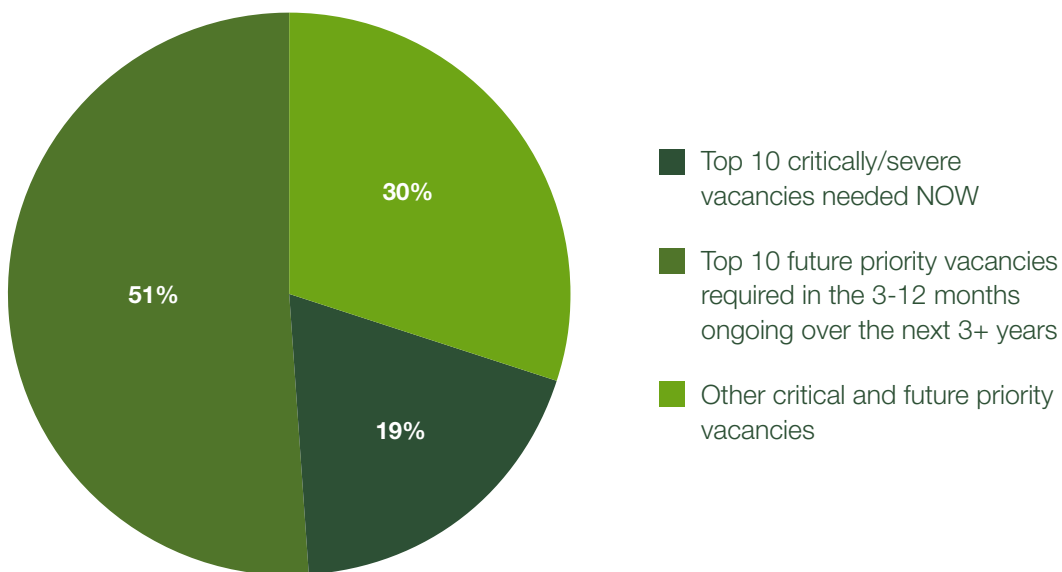
**The purpose of creating such a framework was:**

- To ensure that employers were talking about like-for-like roles when discussing skills and vacancy issues. It had become apparent that with every employer having its own unique job titles, organisational structure and language they could be talking at cross purposes.
- To have a clear career route map highlighting what development opportunities are available for those wanting to come into the industry or for those already within it.

Each job family has a clear definition of what it does and how it contributes to the production of vehicles or components. Underneath each job family sits sub families and definitions outlining what those areas contribute. There are career levels from 'Apprentice/Trainee' to 'Head Of' with 119 generic job descriptions sitting behind each role advising of the recommended skills, attributes and qualifications needed. The framework and job descriptions have been developed and approved by the industry for the industry along with input from organisations such as the Institution of Mechanical Engineers and the Chartered Institute of Procurement and Supply.

The top 10 current and future priority vacancies make up 70% of the 2,500 vacancies in this survey (see Graph 2 below). 19% of these were classed as 'critical' vacancies that had been open for a period of three months or more. Survey respondents explained that these 'critical' vacancies were impacting business productivity now and were requiring other employees or contractors to cover the roles. 51% were seen as ongoing 'future priority' vacancies that would need to be filled within the next three to 12 months and then continually recruited for in an ongoing basis over the next three years plus. Participants of the survey advised that these types of vacancies within engineering, manufacturing, quality and purchasing would continue to be a challenge for the foreseeable future, although it was difficult to predict exact numbers required as growth plans and financial planning was typically reviewed annually.

***Critical and Future Priority Job Requirements in the Automotive Industry***



Graph 2

In terms of the actual top 10 vacancies required now and in the future, perhaps unsurprisingly, the results highlight that the majority of roles are for engineers (see Table 1 below).

Critical Now Impacting business output/Vacancy open 3+ months		Future Ongoing Starting to impact the business in the next 3-12 months/Ongoing future recruitment need	
Rank		Rank	
1	Design Engineer	1	Design Engineer
2	Production Engineer	2	Production Engineer
3	Buyer	3	Maintenance Technician
4	Senior Design Engineer/Lead	4	Manufacturing Technician/Senior Op
5	Maintenance Technician	5	Tool Maker
6	Programme Manager	6	Manufacturing Team Leader
7	Quality Operations Engineer	7	Maintenance Engineer
8	Manufacturing Team Leader	8	Supplier Quality Engineer
9	Programme Engineer	9	Design and Development Technician
10	Quality Operations Technician	10	Buyer

Table 1 (The Job Descriptions for the above roles are outlined in Appendices 13-27)  
Job vacancies shown in red are the differences between the Critical Now and Future Ongoing

These engineering vacancies are across a multitude of disciplines such as design, production, programmes and quality and require differing levels of skill, experience and expertise. Design Engineers are the number one requirement and this doubles in the future category growing from 27% to 61%.

Reasons for the recruitment difficulty/challenge:
<ul style="list-style-type: none"> <li>Business growth</li> <li>Technological advancement</li> <li>Lack of experience, skill and expertise available</li> <li>Competition in the UK labour market</li> <li>Not enough young people taking STEM subjects</li> <li>Age demographic</li> </ul>

Table 2

Actions being taken by respondents:
<ul style="list-style-type: none"> <li>Employees and contractors are covering roles</li> <li>Broadening recruitment search abroad</li> <li>Taking on more graduates and apprentices</li> <li>Developing locally tailored educational/training programmes</li> <li>OEM and supply chain companies exchanging employees</li> <li>OEMs offering supply chain companies trainees placements on their apprenticeship programmes</li> <li>Retirees coming back to help out/train others</li> </ul>

Table 3

The main reasons for these job challenges can be summarised in Table 2. The UK economic recovery and growth, upturn in productivity and employment has had a positive impact on the automotive industry's own business growth. There are currently more than 1.6 million vehicles produced annually in the UK now and this is set to increase to two million by 2020. In addition to this, there is a further potential to grow the supply chain business by another £4 billion in the UK in the coming years.

Technology advancements also factor heavily in the future of the automotive industry with more sophisticated software and electrical/electronic systems, hybrid and multi-fuel vehicles being developed to gain better efficiency and environmental conditions. Driverless vehicles are being piloted now and will become part of the landscape in the long term. All these changes impact on the type of resource required for the industry.

Survey respondents advised that there is fierce competition for resource, not just within the automotive industry, (OEM against OEM, or OEM sourcing talent from the supply chain) but also across other UK sectors, such as aerospace, rail, IT and finance, particularly for design engineers. The majority of participating companies in this survey, including OEMs and supply chain businesses, advised that they are struggling to compete on salary and benefits for these types of roles.

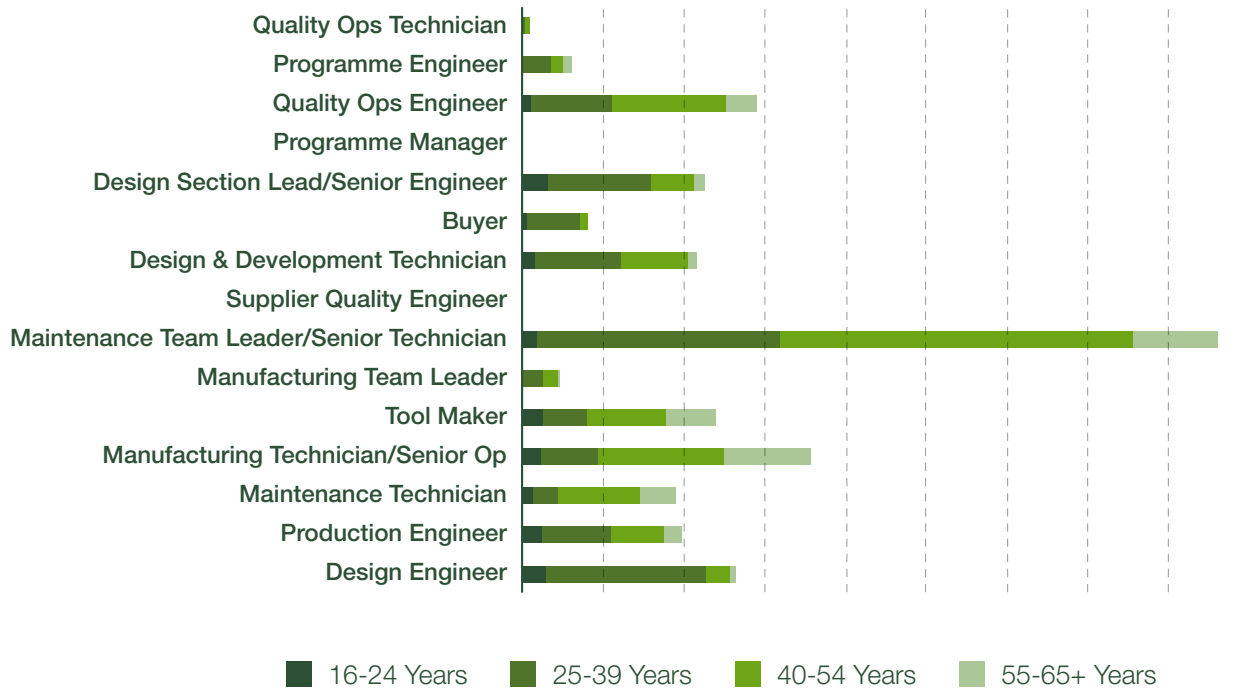
Production engineers, (also known as manufacturing engineers, process or industrial engineers) are also highlighted in the survey as a constant recruitment need both now and in the future for the industry, as were quality engineers and technicians. Survey feedback indicated that recruiting into quality has an added complication in that engineers do not inherently choose this as a natural career option and the career progression route for this particular function is not as clear as other disciplines or marketed and publicised as much.

There is an ongoing need for maintenance technicians and again, there is a lack of fully indentured/skilled candidates available now, specifically those who are multi-skilled in all three areas of mechanical, electrical and electronics. There is stiff competition for this resource within the automotive sector as businesses grow and technological advances progress, particularly on the electrical side. Training programmes have been created to try to address this. The Maintenance Upskilling programme has been developed by the industry in conjunction with a third party learning provider. This 13-week conversion programme takes existing maintenance technicians within the industry, domestic electricians, or those from other sectors such as the MoD, and trains individuals in all three skills to the required standard needed to work in the automotive sector. In addition to this, a Trailblazer apprenticeship training programme has been developed in mechatronics for future recruitment into this field. Certain OEMs, as part of this survey, advised that they offer placements on their own internal apprenticeship programmes to their supply chain. When discussing this with some of the supply chain respondents it was not widely known that OEMs offer this and perhaps further marketing of these initiatives should be encouraged across the industry. Certainly respondents felt this would be positive in ensuring the quality of learning from an already established and proven source, specifically as some indicated getting the quality of apprenticeship training from some local colleges using the latest technology and techniques required could prove challenging in certain regions.

Tool makers also featured heavily as a future priority requirement for the industry. As with the maintenance technician vacancies, there appears to be a lack of fully indentured/skilled resource available now. There is fierce competition for this type of highly skilled person across the UK and across many industries not just within automotive. Survey respondents indicated that they have to fill these roles with contractors, which is costly, and it was widely recognised by participants in the survey that there is a need to take on more apprentices to replenish an ageing workforce in this particular field. This is corroborated somewhat by the survey findings in Graph 3 below, where a substantial proportion of tool makers are over 40 years old. A specific Trailblazer tool making apprenticeship scheme has been developed to encourage recruitment in this type of skilled work.



## Age Demographic Indicator by Job Title in the UK Automotive Industry



Graph 3

In addition to the introduction of these Trailblazer apprenticeships and the conversion/top-up programme, the Automotive Industrial Partnership is introducing an Automotive Apprenticeship Matching Service which will offer rigorously assessed, high quality candidates from the OEMs or other large automotive businesses for the whole industry. The aim is to retain new entrants who qualify for a place on an apprenticeship training programme but are unable to join due to insufficient places being available. Initial reactions from the supply chain respondents is positive, as they advised that it is not always possible to have the time or resource for such stringent recruitment testing and they felt confident that they would receive high calibre candidates if their customers have already assessed them.

While the Trailblazer apprenticeship schemes and conversion programmes ensure the quality of the training received is fit for purpose for the sector, it was suggested that perhaps there should be an industry-wide apprenticeship scheme with standardised salaries where OEMs and the supply chain share the apprentices through a rotational four year programme. The aim of this is to encourage more employers to take up apprenticeships across the industry and to assure that the standards of the scheme are maintained to a high level throughout, as well as giving the apprentices more depth and breadth of learning. It was also mentioned that this may help with retention too.

The survey showed that the need for manufacturing team leaders, technicians and senior operators is also increasing. While the majority of participants are trying to fill these roles internally by creating developmental/promotional opportunities, it is still a challenge to encourage the current workforce to step up into these roles and to train them up to the required standards. A mixture of upskilling newly promoted individuals and recruiting experienced team leaders, technicians and senior operators is required to ensure the right balance of quality

productivity output levels. Respondents indicated that there is a lack of candidates available and competition is tough. Salary demands for recruiting those with skills such as painting, pressing, moulding, injection moulding, 5 axis setting, testing, gauging and machining are particularly difficult. A number of contractors are currently filling these roles. For team leaders, employers are looking for a combination of skills, technical and leadership abilities and this was proving challenging. Again, there appeared to be a lack of experienced candidates available now in the labour market and competition from within and outside the industry to recruit these types of individuals is a challenge. Respondents advised that many internally promoted team leaders had been moved up due to their technical capability and this is corroborated in the Skills section of this report, which indicates leadership development is widely required.

Of particular note is the manufacturing technician/senior operator age demographic, as shown in Graph 3. There appears to be a more mature workforce in this field of work. Respondents advised that it can be difficult to attract people, especially youngsters into these types of roles in some locations as they have a much broader choice of career options for the same type of pay in more attractive and stimulating environments. It has long been reported that generation Z, (those born in the mid to late 1990s) are not as keen to work in such traditional, rigid and hierarchical cultures.<sup>x</sup>

The survey does indicate a healthier age range demographically among the engineering workforce. However, with the projected business growth forecasting continual ongoing recruitment of engineers, as there is already a shortage, attracting more people into this field of expertise is critical.

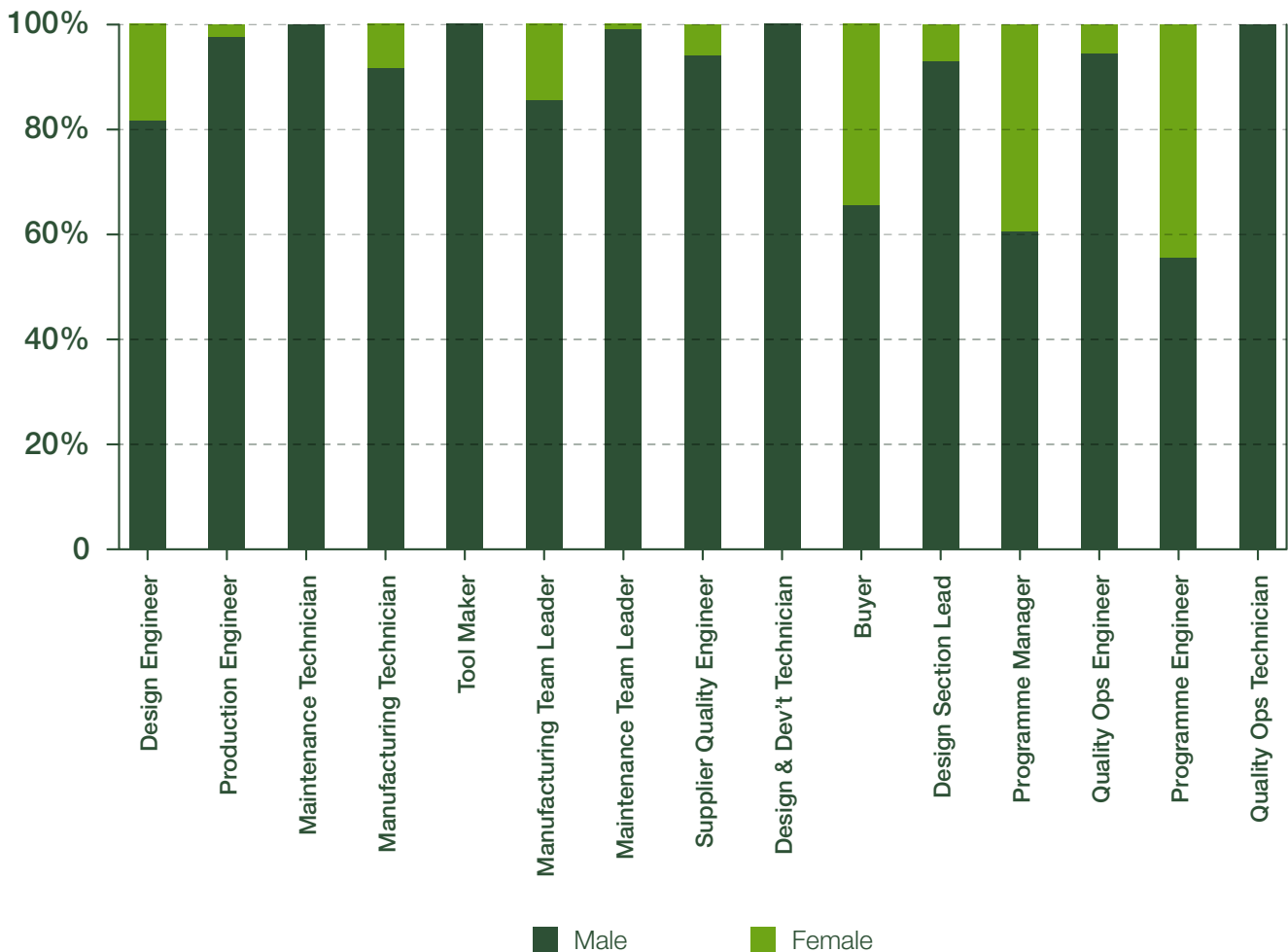
Industry is engaged with a number of initiatives for young people. As part of the Automotive Industrial Partnership work, Nissan is running pilot programmes called the Art of Manufacturing and Industrial Cadets to educate and entice primary (8-9 year old) and secondary school (13 year old) students into the automotive industry. These one and four-day programmes also look to educate teachers and parents, giving an understanding and insight into industry. There is also a 15-day 'Route to Work' programme that Nissan is running, which offers 19+ year olds and the unemployed vocational training and simulated work activities.

Over 5,000 primary school children have attended the Art of Manufacturing one-day training programme largely in the North East (although this year the course has been extended out to the Midlands). Nearly 1,000 secondary school students have gone through the Industrial Cadets four-day course in 2014/15 to date. Both programmes are being considered currently by other OEMs to use across the UK. Survey respondents showed great interest in these initiatives and it is recommended that the format for the programmes continues to be shared with other automotive employers to use in their local area. Some respondents indicated they already go into schools to educate children and teachers about manufacturing and engineering, although few mentioned having work experience opportunities for school children available.

Fortuitously with the default retirement age being abolished, people are deciding to work longer for financial, health and social reasons. However, employers may need to think how best to use their mature workforce in the future in order to maintain their health and wellbeing, specifically in the more physically demanding jobs such as maintenance, tool making and within manufacturing. With the prediction of more jobs being available than available young labour in the UK<sup>xi</sup>, retaining and maintaining the existing workforce for as long as possible is critical. Certain survey respondents indicated they were already starting to analyse their current and future workforce planning and focus on job design, reward and engagement mechanisms<sup>xii</sup>. Some respondents also advised that they had brought some individuals back from their retirement, part-time, to help with immediate job gaps and to train others in specialist skills.

While the Nissan schools programmes will hopefully be rolled out across the industry and attract more young people into the automotive industry and companies are starting to look at mechanisms to retain their existing workforce for as long as possible, the survey found that the sector continues to be heavily male dominated (see Graph 4 below). This is particularly prevalent in areas such as maintenance, tool making, quality and engineering technician and manufacturing roles. There is a clear case for the industry as a whole to look at how it can encourage the female labour pool into these areas. In particular, businesses may need to review their family friendly policies and flexibility around shift patterns to tap into the female market, as well as ensuring an inclusive environment appealing to women. Furthermore, there may be an option to recruit females who have now raised their children and are looking to resume or pursue a new career.

### Gender Demographic by Job Title in the UK Automotive Industry



Graph 4

Buyers (also known as purchasing specialists) are also in demand and again there is a current lack of qualified and experienced buyers in the market place with the specific technical expertise required. Competition is tight for this resource within the automotive industry and respondents advised that there is an ongoing recruitment campaign underway to hire more people into these roles, as well as promoting and upskilling their existing staff. Graduates are being taken on and trained up in a higher apprenticeship programme specifically for the purchasing function which will help address the longer term need but as with other vacancies mentioned, it doesn't address the immediate requirement now.

Overall, respondents stated that there is a general lack of candidates available who have the skills and experience they are looking for right now. They are broadening their search campaigns abroad while using existing employees and/or contractors to fill the immediate gaps. This in turn, has cost and visa issue implications. Government's desire to minimise immigration and provide work visas only for a few specific roles is not helping with the current resourcing situation. It will be essential to recruit globally to meet the future growth of the automotive sector as there will not be enough home grown talent.<sup>xiii</sup>

Many respondents in the survey are taking a longer term approach in growing and developing their own staff and hiring more graduates and apprentices. They are liaising with local providers, colleges and universities to develop specifically tailored training to meet the future business demands. However, with a lack of young people taking STEM subjects at school<sup>xiv</sup>, few emerging labour markets which are restricted by immigration laws and a mature workforce in some roles (see Graph 3); so it is inevitable that resourcing issues will continue in the industry for the foreseeable future.

Continuation and expansion of graduate and apprenticeship programmes across the whole of the UK automotive industry is essential if it is to meet the envisaged growth of business and technological developments.

Particularly for engineering, more industrial placements and sponsorship of students will also be necessary. Some employers indicated that they do provide industrial placements and sponsorship (and one particular supply chain survey respondent explained that they already pay the student's university fees in return for them working during their Easter and summer breaks at the company and for one year's work post-graduation). They went on to explain that during their post-graduation year they then offered an option to pay for the individual's Master's Degree and/or PhD as a retention mechanism. This type of sponsorship programme appears to be common practice in several industries and paying the students, university and associated fees (so that they are debt free upon graduation) in return for industrial placements throughout their learning and possibly two-three year post graduate employment, seems to be popular. This may well be a lucrative marketing opportunity for the industry, enticing more graduates to view automotive as a serious and valid career choice. As with the suggestion of an industry-wide standardised apprenticeship scheme, perhaps some type of collective graduate trainee scheme should run across the sector. OEMs and supply chain businesses could share these trainees in some type of rotational scheme providing depth and breadth of development and aiming to minimise turnover. Furthermore, perhaps the Partnership should consider a Graduate Matching Service along the lines of the soon to be launched Automotive Apprenticeship Matching Service initiative.

As part of the Partnership's continued activities, a central portal jobs board for all vacancies across the industry could be set up as the 'go to' hub for all recruitment for the industry. This could be maintained and sustained on an ongoing basis by employers paying a minimal fee to advertise their roles on this website.

In terms of employers retaining and developing the existing workforce, the exchanging or loaning of staff across companies, although currently not so commonplace will become a necessity. There are already examples of this being carried out within the industry. A specific example was mentioned by one particular OEM respondent.

They have and will continue to loan out their engineers and other staff when they have spare capacity in between product development cycles to fill any urgent resourcing needs for their supplier chain. In this particular case, the supplier paid the market rate for the individuals on loan, whilst the OEM made up the shortfall salary and benefits to ensure that the employees did not lose out financially. The OEM believed that it was better to retain these talented individuals within the company and industry than lose them altogether. The OEM also mentioned that this initiative has given individuals a broader and different learning experience. Equally the suppliers advised that this had not only helped them out temporarily from a resourcing perspective but helped build a true customer/supplier business partnership. Furthermore, the expertise of the resource they were given was invaluable and they advised that those who had been seconded into their businesses enjoyed the experience, while learning new skills in a different environment.

One supplier advised that their personnel had also been seconded to the OEM and this had given a development opportunity, building niche expertise in a specific area that they would not have been able to offer internally because of their size and resourcing restrictions. The suppliers who took part in this initiative advised that their staff found this secondment a positive developmental experience and a good retention mechanism.

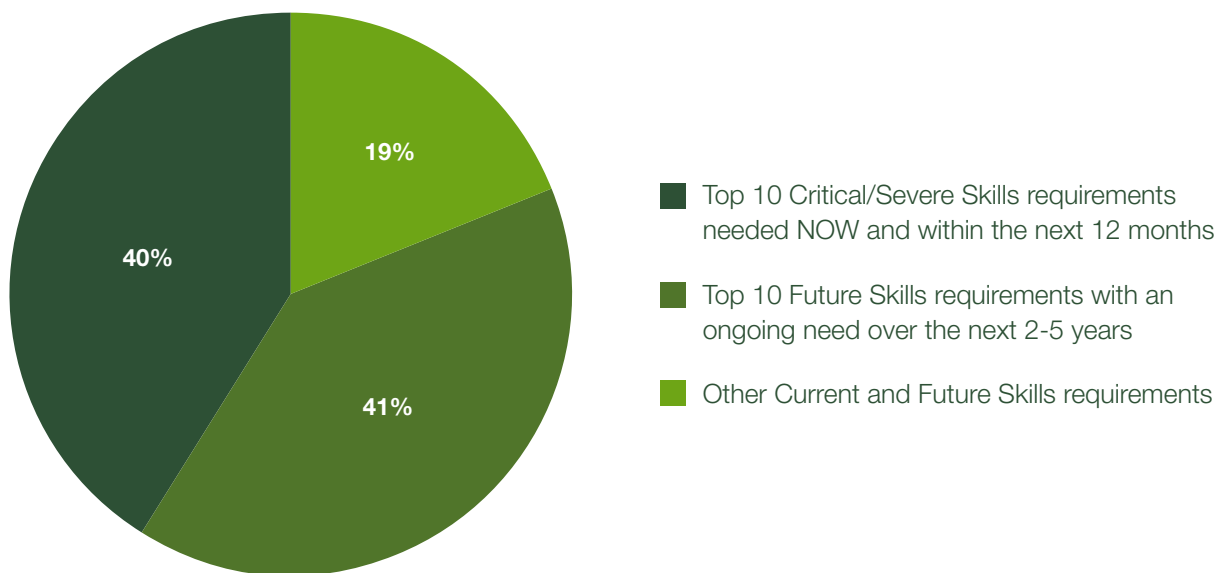
Specific focus on attracting qualified talent from other industries, countries and retaining the current workforce is paramount to the automotive industry's future. The loaning or exchange of resource across and within the industry should be explored further, not only to fill any immediate recruitment gaps but also to provide depth and breadth of career development opportunities from an engagement and retention perspective. Employers within the industry will really need to consider and revisit their work methods and culture to investigate all possible engagement mechanisms if they are to hang onto their staff in this period of growth and change and attract others into the sector. The different examples of collaboration outlined throughout this report, through the Industrial Partnership and OEMs with their supply chain, really need to continue if the sector wants to address its current and future skills challenges.

The Automotive Industrial Partnership will continue with its work, developing initiatives to help address the skills challenge for the sector and providing information and resources via a central portal for the whole industry. The Partnership will keep its brand and identity post-March 2016 and the joint collaboration with government will continue as part of the Automotive Council's Skills Working Group.

# 5 National Skills Results and Outlook

The Survey findings indicated that there were 71 different types of learning and development required for just over 21,500 employees within the UK automotive industry. Of these 21,500 employees requiring learning, 80% of the skill requirements could be categorised into a top 10 as outlined in Graph 5 and Table 4 as follows.

## *Current and Future Skills Requirements for the UK Automotive Industry*



Graph 5

The following table, in essence depicts virtually the same needs for both the current and the future but with a slight difference of priority order and the exception being two of the current short term skill requirements, (Mechatronics and Programme Management) are replaced by Basic Engineering and Welding skills.

**Table 4** (The Regional Current and Future Skills requirements are shown in Appendices 28-33)

Critical Now Impacting business output/skill need to be addressed in the next 6-12 months		Future Ongoing Start to impact business in the next 1-2 years/ foreseeable ongoing need 2-5+ years	
Rank		Rank	
1	Lean Manufacturing	1	Lean Manufacturing
2	Computer Aided Engineering	2	Manufacturing Process Knowledge
3	Quality Core Tools Training	3	Leadership Training
4	Mechatronics	4	Basic Engineering
5	Leadership Training	5	Advanced Problem Solving
6	Programmable Logic Control (PLC)	6	Quality Core Tools Training
7	Advanced Problem Solving	7	Programme Logic Control (PLC)
8	Manufacturing Process Knowledge	8	Robotics
9	Robotics	9	Welding
10	Programme Management	10	Computer Aided Engineering

Lean manufacturing is the top priority over the next five years with survey respondents keen to optimise efficiency to aid their business output and growth. Other skills are also clearly linked to driving higher quality standards of output and optimisation, such as the need for advanced problem solving and quality core tools training. Leadership development is also a major requirement across a multitude of multi-disciplinary supervisory and managerial roles to manage current and expanding workforces.

There are also a number of specialist skills required due to technological advancements in areas such as engineering, mechatronics, robotics, programmable logic control, etc. This need is also borne out of the lack of currently qualified and experienced resource available in the market place to carry out these roles, which is corroborated in the recruitment section of this report. Therefore, the focus on upskilling and developing the existing workforce now to address this gap, combined with the creation of more graduate and apprenticeship training programmes to continue to meet the longer term and ongoing need, is very necessary.

Table 5

Reasons for development of existing staff:
Business growth Technological advancement Lack of experience, skill and expertise available Competition in the UK labour market Age demographic

Table 6

Actions being taken by respondents:
Upskilling staff or will be upskilling staff soon Taking on more graduates and apprentices Developing locally tailored educational/training programmes OEMs offering supply chain companies places on their training courses OEMs offering supply chain companies placements on their apprenticeship programmes

Some respondents are already liaising with local colleges, universities and training providers to create specific tailored programmes where necessary to meet this need. A few respondents mentioned the lack of good, local, quality providers. Several survey respondents had successfully applied to the government for Employer Ownership funding to help with their upskilling training costs for their existing workforce, although they found the process quite complex to go through. Furthermore, some indicated that upskilling their existing workforce for certain roles was a risk as there is a large base of contracting resource carrying out these positions in areas such as Design and Quality. There was concern that with the upturn in the economy and labour market their employees may choose the contracting route to take advantage of the enhanced salary packages available, or move to better remunerated companies and industries.

More detailed information was collected from the respondents on the specific elements of training required and more importantly, for which roles (see Tables 7-18 below). In these tables, certain skills have been clustered together under one common subject heading. This information has been collected to help understand the more exacting requirements needed when looking for national and regional providers. Regional skill requirements vary and are outlined in Appendices 28-33.

Table 7 – Lean Manufacturing

(includes six sigma and value stream mapping requirements)

What	Who
<ul style="list-style-type: none"> <li>• Visual management and communication boards</li> <li>• In-depth application of LEAN</li> <li>• Continuous Improvement</li> <li>• 5S</li> <li>• Standardisation</li> <li>• Embedding of behaviour and culture</li> <li>• Kaizen</li> <li>• Optimising efficiency</li> <li>• Lean topics</li> </ul>	Manufacturing Operators, Technicians and Team Leaders Cost Estimating Engineers Supplier Quality Engineers Production Engineers Quality Operations Engineers Senior Design Engineers and Section Leads Programme Managers
<ul style="list-style-type: none"> <li>• Value stream mapping all materials and processes coming into and out of production</li> </ul>	Production Engineers



**Table 8 – Computer Aided Engineering**

(includes Computer Aided Design requirements)

What	Who
<ul style="list-style-type: none"> <li>• FEA testing</li> <li>• Structural FEA, NVH, AERO CFD, MATLAB Simulink</li> <li>• Software engineering real time software development</li> <li>• Real Time Control</li> <li>• CATIA V5</li> <li>• Auto CAD</li> <li>• Clamps and exhaust design</li> </ul>	<p><b>Design Engineers</b>  <b>Senior Design Engineers and Section Leads</b></p>

**Table 9 – Quality Core Tools Training**

(includes failure mode effective analysis (FMEA), production parts approval process (PPAP), design of experiment (DoE), advanced product quality planning (APQP), calibration, statistical process control (SPC), metrology and data analysis requirements)

What	Who
<ul style="list-style-type: none"> <li>• <b>FMEA</b> – root cause analysis/construct analysis usage/measure mitigation/line balancing and control planning</li> </ul>	<p><b>Senior Programme Engineers and Section Leads</b>  <b>Quality Operations Engineers</b>  <b>Manufacturing Senior Technicians and Senior Ops</b></p>
<ul style="list-style-type: none"> <li>• <b>Quality core tools</b> – supplier development tools/quality assurance failure mode avoidance/managing the quality of products produced in line with the quality management system and customer/industry expectations</li> </ul>	<p><b>Quality Operations Engineers</b>  <b>Supplier Quality Engineers</b>  <b>Maintenance Team Leaders</b>  <b>Manufacturing Supervisors</b>  <b>Production Engineers</b></p>
<ul style="list-style-type: none"> <li>• <b>Data analysis</b> – maths to analyse and interpret data</li> </ul>	<p><b>Manufacturing Team Leaders</b></p>
<ul style="list-style-type: none"> <li>• <b>Metrology</b> – use of measuring equipment and gauges to understand tolerances/CMM technology/measuring techniques</li> </ul>	<p><b>Quality Operations Technicians</b>  <b>Quality Operations Engineers</b></p>
<ul style="list-style-type: none"> <li>• <b>Calibration</b> – validating and refining engine performance/Universal Balance Machine operation, parameters, calibration and tooling ensuring no rattles and humming noises</li> </ul>	<p><b>Design Engineers</b>  <b>Production Engineers</b></p>
<ul style="list-style-type: none"> <li>• <b>Statistical process control</b> – knowledge and understanding of interpreting data/capability study in process moving range charts</li> </ul>	<p><b>Production Engineers</b>  <b>Quality Operations Engineers</b>  <b>Manufacturing Team Leaders</b></p>
<ul style="list-style-type: none"> <li>• <b>APQP</b></li> </ul>	<p><b>Senior Production Engineers and Section Leads</b>  <b>Quality Operations Engineers</b></p>
<ul style="list-style-type: none"> <li>• <b>Design of experiment</b> – knowledge and application</li> </ul>	<p><b>Production Engineers</b></p>
<ul style="list-style-type: none"> <li>• <b>PPAP</b> – new product introduction</li> </ul>	<p><b>Senior Programme Engineers and Section Leads</b>  <b>Quality Operations Engineers</b></p>

**Table 10 – Mechatronics**

(includes sensor technology, electrical skill and mechanical skill requirements)

What	Who
<ul style="list-style-type: none"> <li>• <b>Mechatronics</b> – multi-skilled learning to NVQ Level 3/ hydraulics, pneumatics and conveyor systems/fault finding and diagnosis</li> <li>• <b>Electrical skills</b> – manipulation of formulae carrying out complex calculations/diagnostic problem resolution</li> <li>• <b>Mechanical skills</b> – precision steel progression compound tools (pierce, form, blank operations)/hand held tools experience grinding, stoning, polishing, operation of manual milling machines, lathes, drilling and surface grinding/TIG, MIG and ARC welding measuring equipment/press tooling/hydraulics and pneumatics</li> <li>• <b>Sensor technology</b></li> </ul>	<p><b>Maintenance Technicians and Apprentices</b></p>

**Table 11 – Leadership**

(includes people management training, coaching and mentoring and cultural diversity requirements)

What	Who
<ul style="list-style-type: none"> <li>• People management</li> <li>• Disciplinary and grievance</li> <li>• Absence management</li> <li>• Performance management</li> <li>• Communications</li> <li>• Motivating others</li> <li>• Financial and budget management</li> <li>• Change management</li> <li>• Team building</li> <li>• Cultural diversity</li> <li>• Coaching and mentoring</li> <li>• ILM 2 &amp; 3</li> </ul>	<p><b>Manufacturing Team Leaders, Supervisors and Senior Management</b>  <b>Maintenance Team Leaders</b>  <b>Sections Leads and Management in Engineering, Purchasing and Materials Planning and Logistics</b>  <b>Graduate Trainees</b></p>

**Table 12 – Programmable Logic Control (PLC)**

What	Who
<ul style="list-style-type: none"> <li>• Knowledge and interrogation of software</li> <li>• Allen-Bradley</li> <li>• Siemens 6</li> <li>• Fault finding and maintenance on ABB/Siemens</li> <li>• ABB Robotics</li> <li>• TRUMPF lasers</li> </ul>	<b>Maintenance Technicians, Senior Technicians and Team Leaders</b> <b>Manufacturing Team Leaders</b>
<ul style="list-style-type: none"> <li>• LabVIEW based software</li> </ul>	<b>Design Engineers</b>

**Table 13 – Advanced Problem Solving**

What	Who
<ul style="list-style-type: none"> <li>• Practical problem solving techniques</li> <li>• Business improving techniques</li> <li>• Quick problem solving and best decision making</li> <li>• Root cause analysis</li> <li>• 8D</li> <li>• Culturally embedding practices, tools and techniques so used as part of everyday working</li> </ul>	<b>Manufacturing Team Leaders, Supervisors and Managers</b> <b>Production Engineers</b> <b>Senior Programme Engineers and Section Leads</b> <b>Quality Operations Engineers</b> <b>Logistics Senior Planners and Team Leaders</b> <b>Maintenance Technicians</b>

**Table 14 – Manufacturing Process Knowledge**

What	Who
<ul style="list-style-type: none"> <li>• Manufacturing process knowledge and costing</li> </ul>	<b>Cost estimating engineers</b>
<ul style="list-style-type: none"> <li>• Standardisation of production operations across the plants</li> <li>• Standard operating procedures</li> </ul>	<b>Manufacturing Operators and Technicians</b>

**Table 15 – Robotics**

What	Who
<ul style="list-style-type: none"> <li>• Programming</li> <li>• FANUC</li> <li>• ABB</li> <li>• Electronics</li> <li>• Maintenance, repair and upkeep</li> <li>• Preventative maintenance</li> <li>• Diagnostics</li> </ul>	<b>Maintenance Technicians, Senior Technicians and Team Leaders</b>
<ul style="list-style-type: none"> <li>• In-depth knowledge of how robots work including new versions and automation of them</li> </ul>	<b>Production engineers</b>

Table 16 – Programme Management

What	Who
<ul style="list-style-type: none"> <li>Methodologies and application of robust techniques and tools</li> <li>Global programme management application</li> <li>Managing multiple vehicle/component launch</li> </ul>	<b>Programme Engineers, Section Leads and Managers</b> <b>Design Managers</b> <b>Buyers</b>

Table 17 – Basic Engineering

What	Who
<ul style="list-style-type: none"> <li>Mechanical skills</li> <li>Electrical skills</li> <li>Manufacturing</li> <li>Electronics</li> <li>Level 4 HNC</li> </ul>	<b>Production Engineers and Graduate Trainees</b>
<ul style="list-style-type: none"> <li>Read drawings</li> <li>Understand materials</li> </ul>	<b>Manufacturing Technicians, Senior Operators and Team Leaders</b>

Table 18 – Welding

What	Who
<ul style="list-style-type: none"> <li>Automated welding – machine controlled friction and Magarc welding on KUKA machines</li> <li>Basic ABB robotics and TRUMPF laser welding training</li> </ul>	<b>Maintenance Technicians, Senior Technicians and Team Leaders</b> <b>Tool Makers</b> <b>Production Engineers</b>

The Automotive Industrial Partnership is already helping to develop the right standards of apprenticeship training for the industry through Trailblazer schemes and the development of the Maintenance Upskilling Programme.

In addition to this, OEMs within the Partnership have been working collaboratively to develop pilot training programmes that specifically address some of the national skills requirements outlined in this report, for example leadership and advanced problem solving. It is recommended that once these programmes have been validated and fully approved to ensure they meet industry standards they should be made available to the whole industry.

One of these examples is ProLead, which is a comprehensive learning programme tailored to provide first line leadership positions in manufacturing management with in-depth relevant management and technical knowledge. This programme has been developed by BMW and Jaguar Land Rover for the industry. The programme comprises of a number of elements which can be completed in various combinations depending on the individual's previous education, training and experience. Various levels of qualifications can be obtained from participation that link to ILM, HNC and NVQ certification. So far, more than 100 people have embarked on this training programme. There has been very positive feedback from participants about the programme and options for it to become accredited and more widely available are being investigated.

Another pilot example is the Advanced Problem Solving programme which has been developed by Toyota, Jaguar Land Rover and a third party provider. The course applies learning to real work based projects which deliver real business benefits. Each project delivers significant quality and efficiency savings. 31 of the 32 companies that have taken part in the pilots to date have been supply chain employers and as a direct result of the training, it is estimated the 277 completers of the training programme will deliver more than £10 million in quality improvement cost savings for their businesses. The intention is that this programme will become an automotive industry standard and will be made available across the whole sector.

It is recommended that other skill requirements outlined in this report continue to be addressed by identifying national and regional providers who are able to deliver the quality standards, certifications and/or qualifications required by the industry. Potentially a list of providers could be developed that deliver the learning and development solutions and the Partnership could govern the quality of delivery on a national basis. As part of maintaining the governance, an industry standard learning and development framework has been produced.

This report also provides an understanding of the numbers of people and types of roles requiring development, along with the specifics of the training needed nationally and regionally. This granularity of detail will help ensure the right type of learning is provided, by the most suited providers and the volume of requirement may help leverage a better deal cost-wise if co-ordinated centrally.

Some survey respondents advised that they have been offered places on OEMs' training and development programmes and where possible, depending on their own work demands and cost they have sent their staff. Respondents recommended that more of this type of offering from OEMs should be publicised and made available as the programmes are of good quality and are already validated as fit for purpose for the industry. Publication of the OEMs' offerings of placements on their development programmes via the Automotive Industrial Partnership's central portal would benefit the sector in ensuring the right standards and quality of training is received and it is recommended that this approach is considered.

## Conclusion

In summary then, there is a lack of skilled candidates available in the market place and competition for this resource is fierce across many industries in the UK. The reason for this current challenge can be attributed to the upturns in the UK's economy and employment, as well as the productivity growth and technical advancement being experienced in the automotive industry.

Employers are addressing the immediate need by either having their existing workforce or contractors covering these roles, which is costly (both from a monetary perspective and potentially from a work pressure standpoint) if covering extra workload for a prolonged period. They are also trying to upskill their employees to fill these gaps. Whilst employers are recruiting more graduates and apprentices to address the longer term needs, there is still a concern that there won't be enough resource available for the industry.

Specific focus around attracting qualified talent from other industries, countries and retaining the current workforce is paramount to the automotive industry's future. It is recommended that loaning or exchange of resource across and within the industry should be explored further, not only to fill any immediate recruitment gaps, but also to provide depth and breadth of development opportunities for the future from an engagement and retention perspective. Employers within the industry may need to revisit their work methods, culture and investigate all possible engagement mechanisms if they are to hang onto their staff in this period of growth and change. It is also recommended that they continue to work collectively to address the skill challenges ahead.

Developing some of the initiatives suggested by respondents in this report, such as sharing resources and introducing collective industry-wide training programmes, may go some way to help address the skills challenge the sector faces along with the continuation and expansion of the Partnership's activities.

In order to continue to focus on the latest jobs and skills for the sector and encourage further collaboration through industry-wide initiatives, it is recommended that this type of survey and reporting should continue on a regular basis via the Automotive Industrial Partnership.

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The North East Automotive Alliance

Chartered Institute of Procurement and Supply

The Institution of Mechanical Engineers



# Appendices

# Appendix 1

## The Automotive Industry Job Framework

Job Family	Qualifications	Engineering (ENG)				Materials Planning & Logistics (MPL)			
Sub Family		Research (RES)	Design & Development (DES)	Programmes (PRG)	Production Engineering (PRE)	Capacity Planning (CP)	Materials Planning (MP)	Logistics (LOG)	Warehouse (WAR)
Career Level 6 (Executive)	Degree - Preferred Masters, NVQ Level 7, Institute Fellow	Head of Engineering (E006) Head of Programmes (EPRG006) Head of Styling (ESTY006)				Head of Materials Planning & Logistics (MPL006)			
Career Level 5 (Senior Management)	Degree Preferred, HND, BTec Professional Level 5, NVQ Level 6, Chartered Status	Chief Engineer (ERES006E) Research Manager (ERES005)	Chief Engineer (EDES005) Design & Development Manager (EDESDEV005) Chief Stylist (EDESSTY005)	Programme Manager (EPRG005)	Production Engineering Manager (EPRE005)	Capacity Planning Manager (MPLCP005)	Materials Planning Manager (MPLMP005)	Logistics Manager (MPLLOG005)	Warehouse Manager (MPLWAR005)
Career Level 4 (Professional/Management)	Degree preferred, HNC, City & Guilds Licentiate, BTec Higher Professional Diploma, NVQ level 4	Principal Engineer (ERES004.2) Technical Expert Research Engineering (ERES004)	Principal Design Engineer (EDES004.2) Principal Development Engineer (EDESDEV04.2) Principal Technical Specialist Engineer (EDES004) Principal Stylist (EDESSTY004.2)		Principal Engineer (EPRE004.2) Technical Specialist Production Engineer (EPRE004)				Warehouse Shift Manager (MPLWAR004)
Career Level 3 (Technical)	Degree Preferred, A Levels, ONC, City & Guilds Level 3, BTec National Diploma Level 3, IVQ Technician Diploma, NVQ level 3	Senior Research Engineer (ERES003)	Senior Design Engineer (EDES003.1) Senior Development Engineer (EDESDEV003.1) Senior Technical Specialist Engineer (EDES003.1) Senior Stylist (EDESSTY003.1) Senior Modeller (EDESSTY003.0)	Senior Project Engineer (EPRG003.1)	Senior Production Engineer (EPRE003)	Senior Capacity Planner (MPLCP003.1)	Senior Materials Planner (MPLMP003.1)	Logistics Analyst (MPLOG003)	Warehouse Supervisor (MPLWAR003)
		Research Engineer (ERES003)	Design Engineer (EDES003) Development Engineer (EDESDEV003) Technical Specialist Engineer (EDES003) Stylist (EDESSTY003)	Project Engineer (EPRG003)	Production Engineer (EPRE003)				
		Higher Apprenticeship Product Design & Development Engineer Trailblazer (Level 6) (EDES003.0)		Graduate Engineer (Placement) (EPRG003.0)	Higher Apprenticeship Manufacturing Engineer Trailblazer (Level 6)(EPRE003.0)	Graduate Capacity Planner (Placement) (MPLCP003.0)**	Graduate Material Planner (Placement) (MPLMP003.0)		
Career Level 2 (Hourly/Senior Admin)	GCSEs Level A-C, NVQ Level 2, IVQ Technician Certificate, BTec First Certificate	Technician - Development (ERES002)	Modeller (EDESSTY002) Technician (EDESDEV002)		Technician (EPRE002)	Capacity Planner (MPLCP002)	Materials Planner (MPLMP002)**	Logistics Co-ordinator (MPLLOG002)	Warehouse Team Leader (MPLWAR002)
Career Level 1 (Hourly/Admin)	GCSEs Level D-G, Key Skills Level 1, NVQ Level 2								Warehouse Operator (MPLWAR001)
Career Level 0	GCSEs Level A-C, Key Skills Level 2, NVQ Level 3	Apprentice Product Design & Development Technician Trailblazer (Level 3) (EDES00) Apprentice Clay Modeller Level 3 (EDESSTY00)							

Purchasing (PU)		Quality (Q)				Manufacturing (MFG)				
Procurement (PR)	Cost Estimating (CE)	Management Systems (MS)	Supplier Quality (SQ)	Quality Assurance (QA)	Operations (OPS)	Manufacturing (MAN)	Assembly (ASS)	Tool Making (TOO)	Maintenance (MAI)	Lean Manufacturing (LEA)
Head of Purchasing (PU006)		Head of Quality (Q006)				Head of Manufacturing (MFG006)				
Procurement Manager (PUPR005)	Cost Estimating Manager (PUCE005)	Quality Systems Manager (QMS005)	Supplier Quality Manager (QSQ005)	Quality Manager (QOPS005)		Manufacturing Manager (MFG005)				Lean Manufacturing Manager (MFGLEA005)
Senior Buyer (PUPR004.2)x Senior Technical Procurement Buyer (PUPR004.1)	Senior Engineer (PUCE004)		Senior Supplier Quality Engineer (QSQ004.1)	Warranty Engineer (QQA004.1)	Senior Quality Engineer (QOPS004.1)	Production Shift Manager (MFGMAN004)	Assembly Shift Manager (MFGASS004)	Tool Room Manager (MFGTOO004)	Maintenance Manager (MFGMAI004)	Lean Master Practitioner (MFGLEA004)
Buyer (PUPR003.2) Technical Production Buyer (PUPR003) Supplier Development Engineer (PUPR003E)	Cost Estimating Engineer (PUCE003)	Quality Engineer (QMS003)	Supplier Quality Engineer (QSQ003)	Resident Customer Support Engineer (QQA003)	Quality Engineer (QOPS003)	Production Supervisor (MFGMAN003)	Assembly Supervisor (MFGASS003)	Senior Tool Maker (MFGTOO003)	Maintenance Team Leader (MFGMAI003.2) Senior Technician (MFGMAI003.1) Control Engineer (MFGMAI003)	Senior Lean Practitioner (MFGLEA003)
Graduate Buyer (Placement) (PUPR003.0)	Graduate CE Engineer (Placement) (PUCE003.0)				Graduate Engineer (Placement) (QOPS003.0)	Higher Apprenticeship Manufacturing Engineer Trailblazer (Level 6) (MFGMAN003.0)			Higher Apprenticeships Control/Technical Support Engineer (MFGMAI003.0) Electrical/Electronic Technical Support Engineer (MFGMAI003.00) 2 Trailblazers (Level 6)	
Assistant Buyer (PUPR002)				Warranty Technician (QQA002)	Quality Technician (QOPS002)	Team Leader (MFGMAN002.2) Senior Operator (MFGMAN002.1)	Team Leader (MFGASS002.2) Senior Operator (MFGASS002.1)	Tool Maker (MFGTOO002)	Maintenance Technician (MFGMAI002)	Lean Practitioner (MFGLEA002)
						Operator (MFGMAN001)	Operator (MFGASS001)			
						Apprentice Machinist - Advanced Manufacturing Engineering (Level 3) (MFGMAN00)	Apprentice Engineering Manufacture (Operator & Semi-Skilled) Level 3 (MFGASS00)	Apprentice Toolmaking, Tool & Die Maintenance Trailblazer (Level 3) (MFGTOO00)	Apprentice Mechatronics Maintenance Technician (MFGMAI00) Trailblazer (Level 3) Apprentice Electrotechnical (Level 3) (MFGMAI00.0)	

# Appendix 2

## The Automotive Industry Job Framework

**Job Families:**

**Definition:**

**Family Members:**  
(Functions/Departments)

**National Qualifications**

	Engineering (E)	Manufacturing (MFG)
<b>Definition:</b>	Invents, researches, develops, designs, stimulates, controls, builds, tests, improves, validates, maintains and project manages: structures; machines; devices; systems; vehicles; components; materials; algorithms; and processes to required standards of quality, cost, timing, delivery and safety.	Uses various processes and methods to transform raw materials, components and parts into finished goods/ vehicles for customers to required standards of quality, cost, delivery and safety.
<b>Family Members:</b> (Functions/Departments)	Research (RES) / Design & Development (DES) / Programme Management (PRG) / Production Engineering (PRE)	Manufacturing (MAN)/ Assembly (ASS) / Tool Making (TOO) / Maintenance (MAI) / Lean Manufacturing (LEA)
	Levels	
Degree -Prefer Masters NVQ Level 7 Institute Fellow	Head Of/Technical Expert (E6)	Head Of (MFG6)
Degree Preferred, HND BTec Professional Level 5, NVQ Level 5	Manager/Principle Engineer (E5)	Manager (MFG5)
Degree Preferred, HNC BTec Professional Level 4, NVQ Level 4	Section Lead/ Senior Engineer (E4)	Team Leader/Senior Technician/ Senior Tool Maker/ Master Practitioner (MFG4)
Degree Preferred, A Levels , ONC, BTec Diploma Level 3, NVQ Level3	Engineer (E3)	Technician/Senior Operator/ Tool Maker/ Senior Practitioner (MFG3)
Degree for Graduate Placement, GCSEs Level A-C, NVQ Level 2	Technician (E2)	Operator/ Practitioner (MFG2)
GCSEs Level D-G, Key Skills Level 1, NVQ Level 2	Trainee (E1)	Trainee (MFG1)

Materials Planning & Logistics (MPL)	Purchasing (PU)	Quality (Q)
<p>Determines how much and what type of materials and products to hold where in the supply chain which include: managing inventory control, warehouse, distribution and replenishment plans.</p>	<p>Sources suppliers and develops relationships to negotiate and buy goods, materials and services to meet the Company's operational requirements. This includes: supplier selection, tendering and cost estimating.</p>	<p>Guarantees the continual compliance of quality standards for products and processes to ensure component/vehicle reliability, consistency and safety.</p>
<p>Materials Planning (MP) / Capacity Planning (CP) / Logistics (LOG) / Warehouse (WAR)</p>	<p>Procurement (PR) / Cost Estimating (CE)</p>	<p>Management Systems (QMS) / Quality Assurance (QQA) / Supplier Quality (QSQ) / Operations (QOPS)</p>
Levels		
<p>Head Of (MPL6)</p>	<p>Head Of (PU6)</p>	<p>Head Of (Q6)</p>
<p>Manager/Senior Planner (MPL5)</p>	<p>Manager (PU5)</p>	<p>Manager (Q5)</p>
<p>Section Lead / Planner (MPL4)</p>	<p>Section Lead / Senior Buyer or Engineer (PU4)</p>	<p>Senior Quality Engineer (Q4)</p>
<p>Analyst (MPL3)</p>	<p>Buyer / Engineer (PU3)</p>	<p>Quality Engineer (Q3)</p>
<p>Operator (MPL2)</p>		<p>Quality Technician (Q2)</p>
<p>Trainee (MPL1)</p>	<p>Trainee (PU1)</p>	<p>Trainee (Q1)</p>

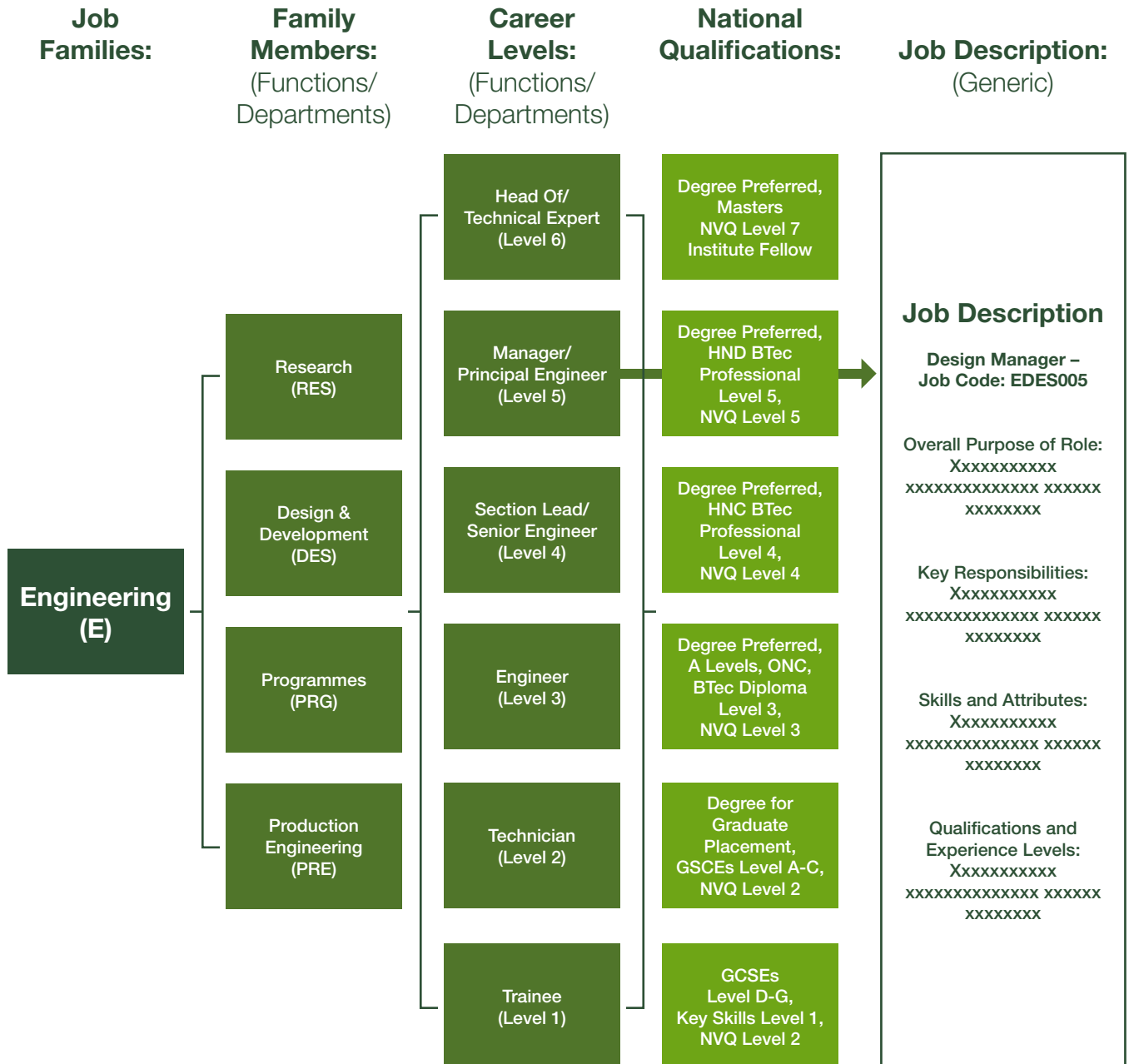
# Appendix 3

## The Automotive Industry Job Framework - Engineering

<b>Job Families:</b>	<b>Engineering (E)</b>	
<b>Definition:</b>	Invents, researches, develops, designs, stimulates, controls, builds, tests, improves, validates, maintains and project manages: structures; machines; devices; systems; vehicles; components; materials; algorithms; and processes to required standards of quality, cost, timing, delivery and safety.	
<b>Family Members:</b> (Functions/ Departments)	<b>Research (RES)</b>	Blue sky thinking and research into new technology (10 years before development phase). Systems and methodologies that will improve the vehicle either for the customer and meet future legislation, recognising as well future needs and developments in other areas. For example, integration of new technology which has been developed outside of the automotive industry such as I-phone technology or looking into future hybridisation strategies, lowering emissions, etc.
	<b>Design &amp; Development (DES)</b>	Designing systems, processes, methodologies as well as component and vehicle designs to enhance the overall vehicle performance for the customer and environment. Transforming concepts into prototypes for testing, validating and improvement for ultimately mass volume production. This includes designing to meet costs, timing and quality requirements.
	<b>Programmes (PRG)</b>	Co-ordinating and controlling projects from concept to post production launch of new and modified components and vehicles ensuring delivery to timing deadlines, cost and quality.
	<b>Production Engineering (PRE)</b>	Defines and works out how the product will be assembled on the production line including the design packaging enabling the right quantity of components/product are delivered to support the speed of the production line . Review efficiencies and eliminate waste within the manufacturing process. Deliver high quality products/ components to clearly defined standards.

# Appendix 4

## The Automotive Industry Job Framework - Engineering



# Appendix 5

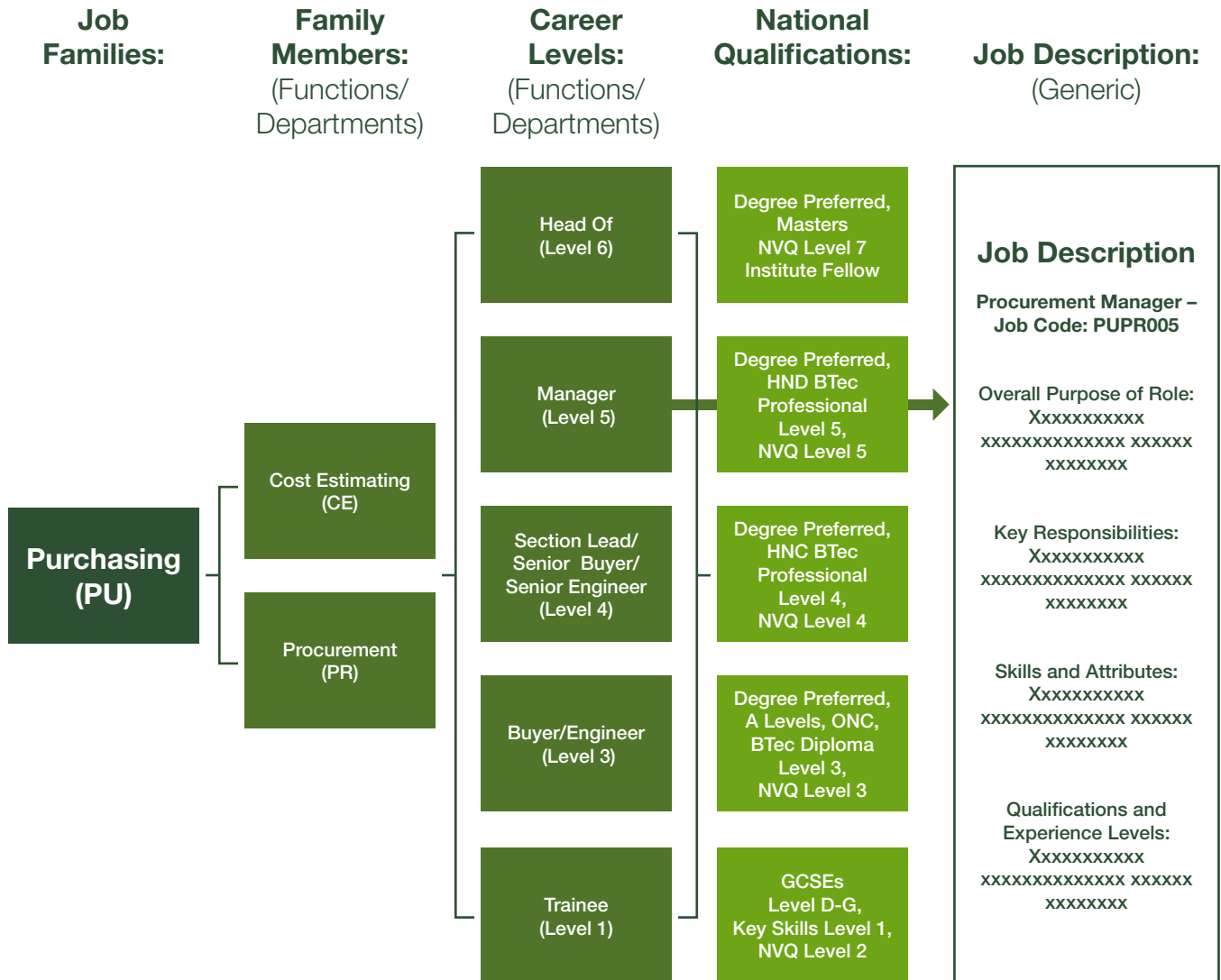
## The Automotive Industry Job Framework - Purchasing

<b>Job Families:</b>	<b>Purchasing (PU)</b>	
<b>Definition:</b>	Sources suppliers and develops relationships to negotiate and buy goods, materials and services to meet the Company's operational requirements. This includes: supplier selection, tendering and cost estimating.	
<b>Family Members:</b> (Functions/ Departments)	<b>Procurement (PR)</b>	Sourcing, negotiating and buying of goods, materials and services to meet the Company's operational requirements.
	<b>Cost Estimating (CE)</b>	Provides cost estimates/comparison costs for the value of goods that are provided by the supply chain



# Appendix 6

## The Automotive Industry Job Framework - Purchasing



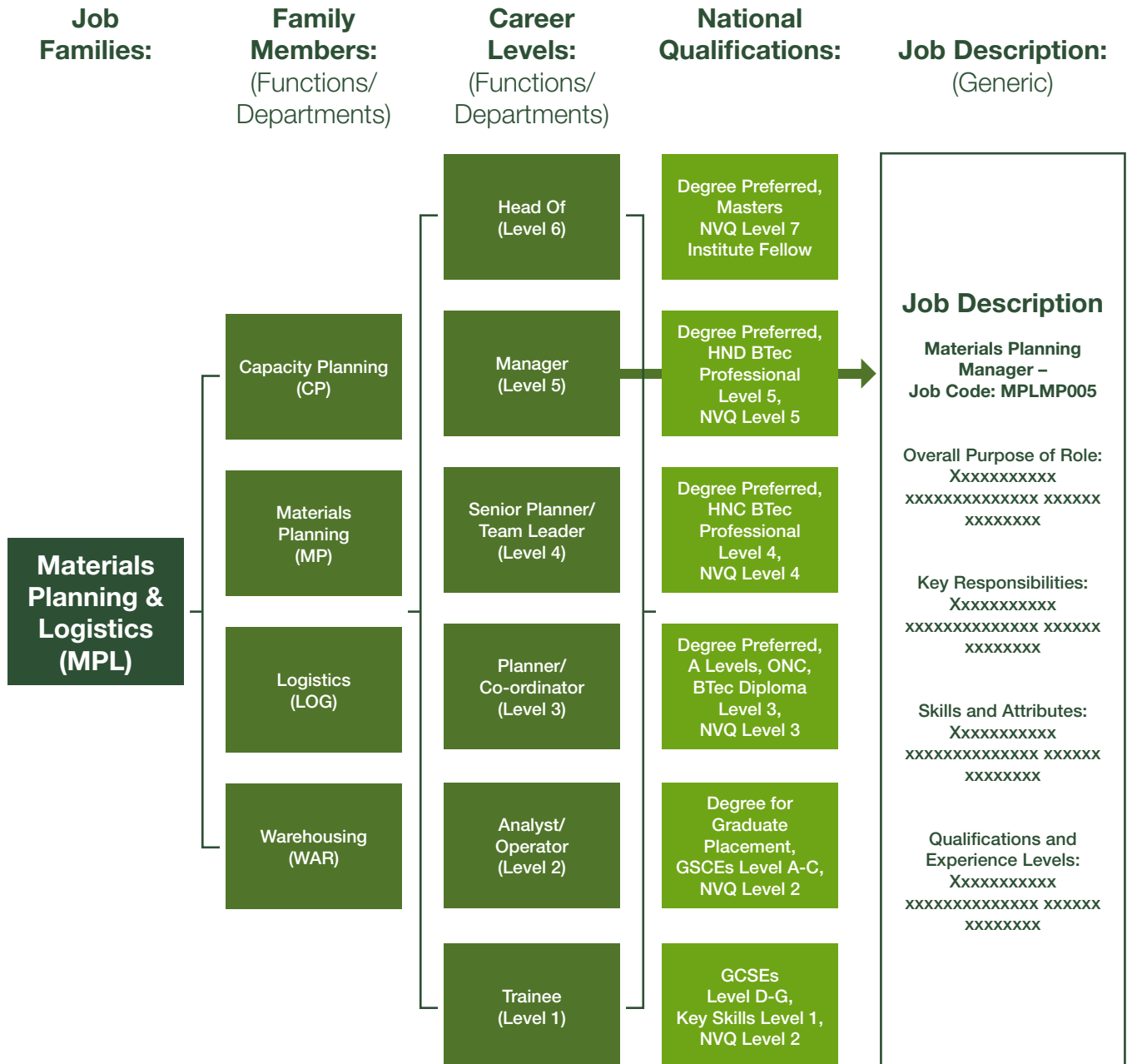
# Appendix 7

## The Automotive Industry Job Framework - Materials Planning and Logistics

<b>Job Families:</b>	<b>Materials Planning &amp; Logistics (MPL)</b>	
<b>Definition:</b>	Determines how much and what type of materials and products to hold where in the supply chain this includes: managing inventory control, warehouse, distribution, replenishment plans and ongoing supplier relationship partnership.	
<b>Family Members:</b> (Functions/ Departments)	<b>Capacity Planning (CP)</b>	Ensures that the right resource is available internally when required to meet the customer volume demands.
	<b>Materials Planning (MP)</b>	Schedules and forecasts the right volumes of materials, goods and products inbound to the business from its supply chain companies.
	<b>Logistics (LOG)</b>	Move materials, goods and products around (including importing/exporting) to ensure that they are in the right place to meet customer demand.
	<b>Warehouse (WAR)</b>	Stores the right amount of materials, goods and products in the right location to feed the business's operational and customer demand.

# Appendix 8

## The Automotive Industry Job Framework - Materials Planning and Logistics



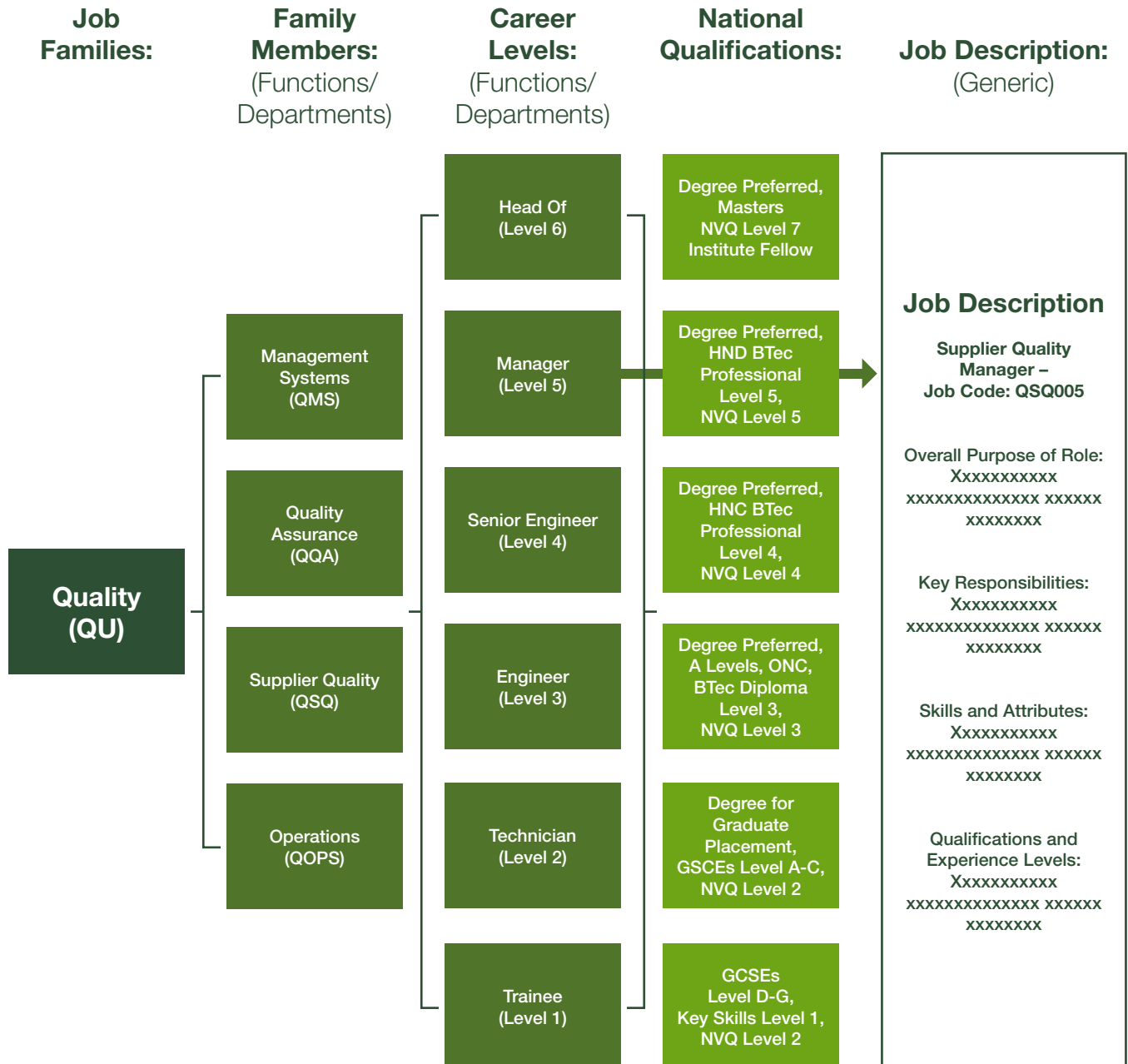
# Appendix 9

## The Automotive Industry Job Framework - Quality

<b>Job Families:</b>	<b>Quality (Q)</b>	
<b>Definition:</b>	Assure the continual compliance of quality standards for products and processes to ensure component/vehicle reliability, consistency and safety.	
<b>Family Members:</b> (Functions/ Departments)	<b>Management Systems (MS)</b>	Development of the Quality strategy, policies, processes, standards and systems for the Company and its supply chain to operate within. This may include auditing to ensure compliance although this may be carried by a third party accredited body.
	<b>Quality Assurance (QA)</b>	Focuses on parts or product safety and warranty for the customer. Carries out root cause analysis and resolution to customer issues.
	<b>Supplier Quality (SQ)</b>	Supports supply chain companies in the development of their parts and materials to meet the quality standards and systems required. This includes on-site supply chain company inspection.
	<b>Operations (OPS)</b>	Inspection of incoming parts from supply chain companies and internally produced components/vehicles to meet the quality standards and systems required.

# Appendix 10

## The Automotive Industry Job Framework - Quality



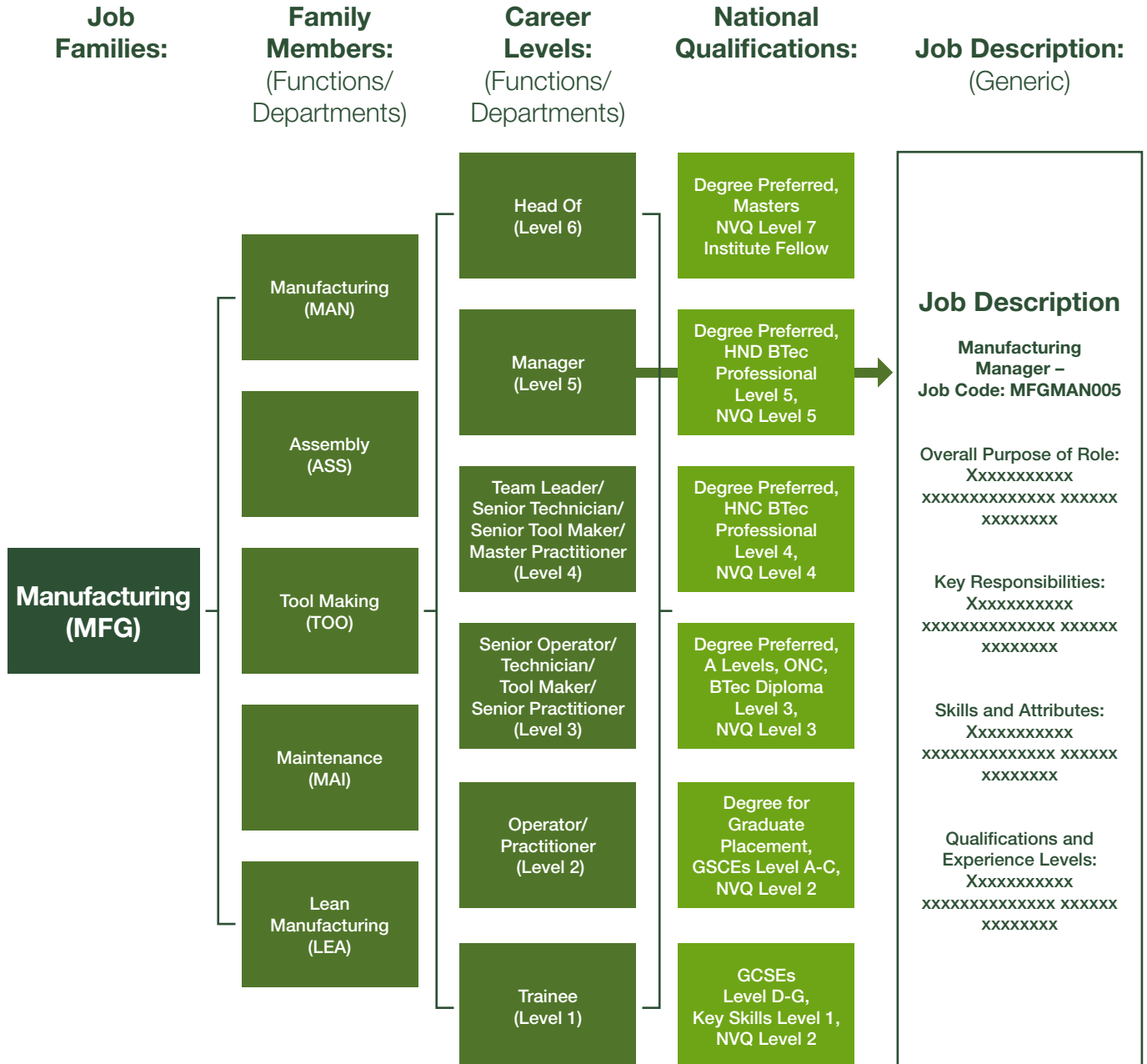
# Appendix 11

## The Automotive Industry Job Framework - Manufacturing

<b>Job Families:</b>	<b>Manufacturing (MFG)</b>	
<b>Definition:</b>	Uses various processes and methods to transform raw materials, components and parts into finished goods/ vehicles for customers to required standards of quality, cost, delivery and safety.	
<b>Family Members:</b> (Functions/ Departments)	<b>Manufacturing (MAN)</b>	Produces goods and parts from raw materials using such processes as welding; sewing; pressing; machining and painting. This may include some setting up of machinery and basic programming.
	<b>Assembly (ASS)</b>	Puts together various goods and parts to make/create a part or vehicle.
	<b>Tool Making (TOO)</b>	Making or improving different types of tools to enable the production processes to be as efficient as possible such as improving jigs, fixtures, clamps or moulds to obtain a more robust consistently produced part that meets the specification of the customer.
	<b>Maintenance (MAI)</b>	Ensures that the facilities, layout and machinery used to produce new and existing materials and goods run to their maximum efficiency and output. This includes total preventative maintenance, managing breakdowns of mechanical, electrical and robotic equipment (including software programming).
	<b>Lean Manufacturing (LEA)</b>	Continually looks to make improvements and efficiencies to the Company's products, systems, operations and processes.

# Appendix 12

## The Automotive Industry Job Framework - Manufacturing



# Appendix 13

## Design Engineer – Job Description

(Job Code and Level: EDES003)

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### Definition:

Design is defined as: Designing systems, processes, methodologies as well as component and vehicle designs to enhance the overall vehicle performance for the customer and environment. Transforming concepts into prototypes for testing, validating and improvement for ultimately mass volume production. This includes designing to meet costs, timing and quality requirements.

Each level of Engineer builds on the level below as experience and learning enables more complexity and responsibility within the role.

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### Overall Purpose of the Role:

Research and develop ideas for new products, technologies, components, processes and the systems used to make them. Work to improve the performance and efficiency of existing products. Provide support to the new-business and vehicle-launch team and work to ensure that all aspects of CAD design are created to fully meet the high specifications set. Responsible for ensuring the success of the design from inception through to delivery into manufacture, using innovative engineering skills to ensure seamless integration. Very hands on position, demanding high levels of creativity and flexibility. Work on many phases or sub-tasks of large projects working under instruction of technical specialist engineer or entire projects of moderate complexity. Works under general supervision, reviewed at project milestones and on completion. Plans projects or subtasks so they may be tracked and presented. Results impact project/programme completion.

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### Key Responsibilities:

#### General and Task Management

- Ability to capture and specify the design requirements
- Research concept ideas using mathematical modelling to work out whether new developments and innovations would work and be cost effective
- Analyse the Engineering and Project input in order to interrogate it, reach an agreement and integrate it formally in a Design solution
- Produce design ideas, based on research, into technical plans for prototypes using computer-aided design (CAD) and computer-assisted engineering (CAE) software
- Analyses the design proposals and the technical information in order to identify the issues arising during product development, defining and implementing adequate solutions in order to reach a feasible proposal with a high form and aesthetic quality
- Attend design reviews to present design ideas and to discuss and critique alternative design solutions



- Cost proposals
- Carry out simulations of products for new and prototype projects using in-house software for the customer and provide support and feedback on design
- Analyse and manage multiple design related issues to identify root cause
- Modify designs based on the analysis to re-test and analyse until design meets specification requirements
- Make design changes on existing products
- Track design changes
- Control of Bill of Materials (BoM), CAD Models and Engineering Drawings
- Keep up with current and developing engineering trends
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support process improvement activities
- Support technical staff and/or junior engineers
- Write reports and present progress at project meetings and to clients
- Achieve goals within budget
- Conduct benchmarking studies to determine best practices/designs and future trends
- Attend various meetings and action/communicate instructions
- Make presentations
- Undertake continuous training and development
- Independently determine approach and assigned tasks

### **People Management**

- Lead and/or support technicians and trainee engineers
- Train people within own work group

### **Relationship Management**

- Liaise and communicate with other departments, customers, suppliers and other service providers
- Be an effective team member, working with supervisor and colleagues to ensure smooth workflow with maximum output

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Assertive, optimistic, resilient and welcomes change
- Engages interest and participation of others and has a collaborative approach to working with others
- Proactively contributes to the team
- Is self aware
- Shows moral courage, openness and honesty in all dealings
- Good team-working skills
- Self-motivated, flexible, proactive and committed

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**Skills and Attributes:**

- Independently determines approach to assigned tasks
- Strong analytical and numeracy skills
- Strong problem-solving skills with high attention to detail
- A creative, logical approach for generating new ideas and solutions, with the ability to transition through to part development
- A sound knowledge of computer aided design (CAD) software, technical drawings and 3D modelling
- An excellent grasp of engineering and design principles
- A knowledge of the qualities of metals and other materials
- Excellent communication and negotiation skills
- An understanding of manufacturing processes and construction methods
- Ability to plan and organise through several project stages
- An appreciation of wider business demands
- An awareness of the environmental impact of design ideas
- Strong PC skills, including Microsoft Project
- Able to effectively train his/her work group and effectively support work teams within the work group.
- Able to give effective presentations to general audiences and write convincing proposals and reports with all necessary backup material for department consumption
- Knowledgeable in some technical areas of the group's scope, or having demonstrated ability to achieve a high level of proficiency in a short period of time
- Involved in projects involving multiple people
- Ability to support group to achieve goals within budget
- Demonstrated fiscal responsibility
- Ability to work well with others in a team environment, providing input and feedback in a helpful manner
- Ability to effectively communicate organisational goals to team
- Able to interact well with vendors
- Able to exercises some latitude and technical judgement in deciding work methods

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**Qualifications and Experience Levels:**

- Relevant manufacturing/engineering degree preferred, or ONC, A Levels, BTec Diploma Level 3 or equivalent NVQ level 3 qualification
- Membership of an industry related Professional Body would be advantageous
- Experience of using Auto CAD, Pro Engineer, CATIA V5, Unigraphics NX
- Experience in BOM structures
- Understanding of legislation and standards
- An understanding of Lean Manufacturing
- Experienced with a number of systems. Becoming a subject matter expert in at least one area or system
- Working knowledge of a number of other areas of specialisation

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**Example roles this job description may cover:**

- Product Designer

# Appendix 14

## Production Engineer – Job Description

(Job Code and Level: EPRE003)

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### Definition:

Production Engineering defines and works out how the product will be manufactured and/or assembled on the production line including design of packaging, ensuring the right quantity of components/products are delivered and aligned to support the speed of the production line. Review efficiencies and eliminate waste within the manufacturing process to deliver high quality products/components to clearly defined standards.

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### Overall Purpose of the Role:

Responsible for implementation of production processes and procedures, leading productivity improvements with project based activities, including new product introduction and manufacturing cell design to reduce waste, improve quality and safety, and reduce operating costs. Manage KPIs and ensure preventative actions are taken to maximise success. Work on many phases or sub-tasks of projects or entire projects of moderate complexity, with results impacting on project completion. Work under general supervision, reviewed at project milestones and/or on completion by Senior Management.

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### Key Responsibilities:

#### General and Task Management

- Identify manufacturing needs for new products in development
- Design new systems and processes and provide facilities & methods to ensure the cost effective integration of new products or for the improvement of existing ones into manufacturing operations
- Ensure all product and system requirements are taken into account from the initial product conception to the finished result
- Assist with shop floor layout and cell designs
- Design fixtures and tooling for assembly tasks
- Generating production documentation such as assembly instructions
- Reduce variability in manufacturing by providing standard work methods and work instructions
- Ensure product and process quality meets specifications required
- Support the tender process for equipment to ensure the best quality for best price
- Oversee installation of machinery and equipment
- Maintain statistical and financial records
- Improve manufacturing efficiency by analysing and planning work flow, space requirements and equipment layout
- Remove waste from the processes

- Organise plant start-up and shut-down schedules to ensure minimum loss of production time
- Plan and organise maintenance
- Respond to breakdowns
- Report down time and possible trends
- Support and lead continuous improvement, problem solving and process improvement activities
- Carry out FMEAs, (Failure Mode Effects Analysis) process documentation and implement improvements
- Poka Yoke (error proofing) where possible to prevent errors
- Investigate production and process issues providing technical support and training
- Keep up with current and developing engineering trends
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and lead process improvement activities
- Write reports and present progress at project meetings and to clients
- Achieve goals within budget
- Conduct benchmarking studies to determine best practices/designs and future trends
- Plan projects or subtasks so they may be tracked and presented
- Manage the Key Performance Indicators (KPIs)
- Attend various meetings and action/communicate instructions
- Produce written reports and make presentations
- Undertake continuous training and development
- Perform root cause analysis and resolve problems

### **People Management**

- Lead and/or support technicians and trainee engineers
- Train people within own work group
- Supervise sub-contractors

### **Relationship Management**

- Liaise and communicate with other departments, customers, suppliers and other service providers
- Be an effective team member, working with supervisor and colleagues to ensure smooth workflow with maximum output

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Assertive, resilient and welcomes change
- Engages interest and participation of others and has a collaborative approach to working together
- Actively committed to teams development
- Is optimistic and self aware
- Shows moral courage, openness and honesty in all dealings
- Self-motivated, flexible, proactive and committed
- Good communication and interpersonal skills
- Excellent Attention to detail

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### Skills and Attributes:

- Independently determines approach and assigned tasks
- Understanding manufacturing processes
- Understanding engineering, scientific and other technical information
- Strong problem-solving skills and logical approach
- Understand lean manufacturing
- Ability to work in a diverse and dynamic environment
- Planning and prioritising activities
- Excellent negotiation skills
- Ability to present data effectively
- Understanding of Health and Safety practices
- Team working skills
- Analytical skills
- PC skills
- Exercises latitude and technical judgement in deciding work methods
- Ability to train the work group and lead teams within the work group
- Ability to manage group to achieve goals within budget
- Good understanding of customer expectations and deliverables with an awareness of the impact of failure/cost of poor quality

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### Qualifications and Experience Levels:

- Relevant manufacturing/engineering degree preferred, A Levels, ONC, City & Guilds level 3, BTEC National Diploma Level 3, IVQ Technician Diploma, or equivalent NVQ level 3 qualification
- Professional accreditation with an industry related body would be advantageous
- Ability to use CAD
- Ability to design processes and layouts
- Experience of FMEA (Failure Mode Effects Analysis), Kaizen/A3 (continuous improvement and problem solving) process improvement and Poka Yoke (error proofing) techniques
- Significant work experience in a high volume manufacturing environment, preferably automotive
- Experienced with a number of systems, expert in at least one area and working knowledge of a number of other areas of specialisation
- Understanding of design and production costs to include waste, downtime, scrap and re-work

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### Example roles this job description may cover:

- Industrial Engineer
- Process Engineer
- Manufacturing Engineer

# Appendix 15

## Buyer, Procurement – Job Description

(Job Code and Level: PUPR003.2)

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### Definition:

Procurement is defined as: Sourcing, negotiating and buying of goods, materials and services to meet the Company's operational requirements.

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### Overall Purpose of the Role:

Purchase goods, materials and services to ensure that the company operational needs are met, taking into account price, quality and delivery and to ensure continuity of supply.

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### Key Responsibilities:

#### General and Task Management

- Purchase goods, materials, components or services in line with specified cost, quality and delivery targets
- Support the purchasing function and other relevant departments and communicate any supply problems which may impact on business operations
- Act as an interface between suppliers and other relevant departments on purchasing processes and new projects and activities
- Monitor and advise on any issues which present risk or opportunity to the organisation
- Monitor market trends, competitor strategies and market suppliers
- Provide analysis on costs, new and existing and review cost reduction activities
- Prepare reports and updates as and when required
- Work closely with others in the procurement function and review opportunities for continuous improvement and business improvements
- Adhere to any health, safety and environmental policies and procedures to ensure the safety and wellbeing of self, staff and visitors
- Negotiate contracts, improve prices and terms of business with suppliers and review opportunities to make business savings utilising negotiation and procurement best practice tools and methods
- Prepare and raise purchase orders and order schedules
- Build, maintain and manage supplier relationships and keep up good communications
- Ensure that a professional and consistent approach is taken in relation to all supplier relationships
- Ensure compliance to company guidelines, purchasing policies and procedures and OJEU guidance during supplier negotiations and contracts award process.
- Conduct research for new components and suppliers
- Compile data relating to supplier performance to enable evaluation

- Assess and evaluate suppliers and contribute to performance reviews to ensure contract compliance
- Contact suppliers to resolve price, quality, delivery or invoice issues

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Assertive, resilient and welcomes change
- Engages interest and participation of others and has a collaborative approach to working together
- Proactively contributes to the team
- Actively committed to teams development
- Is self aware and optimistic
- Shows moral courage, openness and honesty in all dealings

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### **Skills and Attributes:**

- Able to build and maintain effective and productive relationships with staff, stakeholders and suppliers
- Good communication, negotiation, interpersonal and influencing skills
- Analytical, numerically astute with strong demonstrated problem solving abilities
- Able to manage time effectively, prioritise tasks and achieve set targets
- Commercial and financial awareness with a full understanding of how failure impacts the production, manufacture and customer order fulfilment
- Able to work well under pressure and handle emergency and stressful situations
- Keen attention to detail and accuracy
- Familiarity with an integrated ERP system would be beneficial

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### **Qualifications and Experience Levels:**

- Relevant business/commercial or manufacturing/engineering degree preferred, ONC, A Levels, City & Guilds Level 3, BTEC National Diploma Level 3, IVQ Technician Diploma or equivalent NVQ level 3 qualification
- Chartered Institute of Procurement & Supply (CIPS) or similar qualification or studying towards CIPS qualification would be beneficial
- Previous experience of working in a purchasing team preferably within an automotive or manufacturing environment
- Good knowledge of purchasing, negotiation, commercial understanding and cost breakdown
- Experience of working closely with suppliers
- Able to add value, reduce costs and input to business improvements
- An understanding of automotive processes and components would be advantageous
- Computer literate, with advanced Excel skills/abilities

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### **Example roles this job description may cover:**

- Technical Buyer
- Commodity Buyer
- Category Buyer
- Project Buyer
- Procurement Specialist
- Purchasing Officer
- Purchaser
- Merchandiser

# Appendix 16

## Senior Engineer, Design – Job Description

(Job Code and Level: EDES003.1)

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### Definition:

Design is defined as: Designing systems, processes, methodologies as well as component and vehicle designs to enhance the overall vehicle performance for the customer and environment. Transforming concepts into prototypes for testing, validating and improvement for ultimately mass volume production. This includes designing to meet costs, timing and quality requirements.

Each level of Engineer builds on the level below as experience and learning enables more complexity and responsibility within the role.

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### Overall Purpose of the Role:

Research and develop ideas for new products, technologies, components, processes and the systems used to make them. Work to improve the performance and efficiency of existing products. Provide support to the new-business and vehicle-launch team and work to ensure that all aspects of CAD design are created to fully meet the high specifications set. Responsible for ensuring the success of the design from inception through to delivery into manufacture, using innovative engineering skills to ensure seamless integration. Very hands on position, demanding high levels of creativity and flexibility. Works on multiple highly complex major projects requiring innovative, original solutions. Responsible for large and fairly complex projects involving a large team or group. Works mostly independently with minimal supervision. Work is reviewed infrequently by organisational management/head. Results are key to successful completion of major projects/programmes.

---

### Key Responsibilities:

#### General and Task Management

- Plan multiple projects simultaneously. Estimate, track and complete projects on time and within budget
- Ability to capture and specify the design requirements
- Research concept ideas using mathematical modelling to work out whether new developments and innovations would work and be cost effective
- Analyse the Engineering and Project input in order to interrogate it, reach an agreement and integrate it formally in a Design solution
- Produce design ideas, based on research, into technical plans for prototypes using computer-aided design (CAD) and computer-assisted engineering (CAE) software
- Analyses the design proposals and the technical information in order to identify the issues arising during the development, defining and implementing adequate solutions in order to reach a feasible proposal with a high form and aesthetic quality
- Attend design reviews to present design ideas and to discuss and critique alternative design solutions
- Cost proposals



- Carry out simulations of products for new and prototype projects using in-house software for the customer and provide support and feedback on design
- Analyse and manage multiple design related issues to identify root cause
- Modify designs based on the analysis to re-test and analyse until design meets specification requirements
- Make design changes on existing products
- Track design changes
- Estimates, tracks and completes projects on time and within budget
- Identifies problems and actively devises appropriate innovative solutions to unique problems
- Control of Bill of Materials (BoM), CAD Models and Engineering Drawings
- Keep up with current and developing engineering trends
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and lead process improvement activities
- Support technical staff and/or junior engineers
- Write reports and present progress at project meetings and to clients
- Achieve goals within budget
- Conduct benchmarking studies to determine best practices/designs and future trends
- Attend various meetings and action/communicate instructions
- Make presentations
- Undertake continuous training and development
- Independently determine approach and assigned tasks

### **People Management**

- Lead groups of Engineers and Technicians if required
- Provides guidance to other team members
- Train both team and broader organisation members

### **Relationship Management**

- Manage and work with vendors
- Represent work team at reviews and cross-organisational team meetings
- Liaise and communicate with other departments, customers, suppliers and other service providers
- Work with other team members of the wider engineering team
- Develop and maintain good relationships with internal and external contacts at all levels including other companies, universities and research institutes
- Develop technical relationships with key suppliers and business partners

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Embraces personal challenge
- Confident, rounded thinking
- Is self aware
- Is resilient, assertive, optimistic and open to change
- Engages interest and participation of others and has a collaborative approach to others
- Actively committed to team development
- High levels of motivation and action orientated

---

**Skills and Attributes:**

- Exercise substantial initiative/judgement in work methods and interpreting goals
- Work independently and is reviewed infrequently with minimal supervision
- Self-supervising within the guidance and expectations of divisional management
- Excellent verbal and written communication skills
- Communicate with clarity and demonstrate excellence in approach to work and people activities
- Excellent organisation skills
- Excellent problem solving skills
- Ability to manage a wide variety of activities at the same time
- Ability to plan, analyse and challenge
- Able to work cross functionally and collaboratively with many stakeholders
- Solid understanding of all people related processes and procedures
- Financial acumen with ability to balance material usage
- Able to identify root cause of any losses
- Very knowledgeable in all technical areas of the group's scope, or having demonstrated ability to achieve that level of proficiency in a short period of time
- Able to effectively train people outside his/her work group.
- Able to give effective presentations to critical/high level customers and effectively represent work group on review panels and cross-organisational teams
- Able to write convincing proposals and reports with all necessary backup material for external consumption
- Able and willing to balance the needs and desires of a group with those of the department, and take ownership of higher level institutional goals
- Able to estimate cost and manpower for assigned projects
- Able to present options and persuasively advocate for proposals
- Able to work productively with vendors
- Proven leadership skills

---

**Qualifications and Experience Levels:**

- Relevant manufacturing/engineering degree is preferred, or HNC, BTEC Professional Level 4 Award or equivalent NVQ Level 4 qualifications.
- Membership of an industry related Professional Body would be advantageous
- Ability to use CAD
- Ability to design processes and layouts
- Experience of FMEA (Failure Mode Effects Analysis), Kaizen/A3 (continuous improvement and problem solving) process improvement and Poka Yoke (error proofing) techniques
- Extensive work experience in a high volume manufacturing environment, preferably automotive
- Consistently demonstrates extremely high levels of technical knowledge, ingenuity and creativity.
- Broad knowledge about the design and operation of systems outside of speciality.
- Leadership and people management training

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**Example roles this job description may cover:**

- Senior Designer
- Senior Product Engineer

# Appendix 17

## Technician, Maintenance – Job Description

(Job Code and Level: MFGMAI002)

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### Definition:

Ensures that facilities, layout and machinery used to produce new and existing materials and goods run to their maximum efficiency and output. This includes total preventative maintenance, managing breakdowns of mechanical, electrical and robotic equipment (including software programming).

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### Overall Purpose of the Role:

Install, maintain, improve and repair equipment, plant, services and building installations to set levels effectively in compliance with best practices ensuring production efficiency can meet customer requirements within a safe well-presented facility. Respond to technical issues affecting production and maintain electrical and mechanical services through Planned Preventative Maintenance (PPM). Work on many phases or sub-tasks of projects or entire projects of moderate complexity, with results impacting on project completion. Work under general supervision, reviewed at project milestones and/or on completion by Senior Management.

---

### Key Responsibilities:

#### General and Task Management

- Attend breakdowns, identify fault and problem solve with minimal downtime to production
- Carry out diagnosis of faults, the maintenance and repairs to all types of plant and equipment in a safe, timely and professional manner and return equipment to operational service
- Estimate length of time required to complete a job and likely consequences of failure to complete work within required timescales
- Identify and escalate any activity that has the potential to cause harm or damage
- Report breakdown root causes, equipment faults and concerns to management
- Ensure all work is undertaken to a high quality standard and adheres to all quality standard regulations
- Ensure company targets are met in respect of quality of parts produced
- Identify spares requirements and log usage
- Assist in the development of planned preventative maintenance (PPM) schedules
- Carry out PPM schedules as necessary and planned work orders as required and provide feedback to develop the system
- Assist with the moving, installation, repositioning of machines and equipment
- Make full use of the computerised maintenance management system
- Plan and prioritise workload to support production and ensure efficient use of working time
- Log completion of work on all required maintenance management systems

- Operate Fork Lift Truck and lifting equipment
- Assist visiting specialist engineers when necessary
- Ensure that contractors are utilised in accordance with company procedures
- Work within 5S (Sort, Set In Order, Shine, Standardize, Sustain) methodology to maintain workplace to a high standard
- Ensure all personal protective equipment is identified, always available, correctly used and all associated problems are reported to management
- Ensure all lost time, minor and trivial accidents are reported
- Promote environmental issues and ensure all company procedures are understood and followed
- Keep up with current and developing manufacturing and engineering trends regarding maintenance
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and lead improvement activities
- Write reports and present progress at project meetings
- Achieve goals within budget
- Plan projects or subtasks so they may be tracked and presented
- Attend various meetings and action/communicate instructions
- Undertake continuous training and development
- Independently determine approach and assigned tasks

### **People Management**

- Lead and/or support trainee engineers
- Train people within own work group

### **Relationship Management**

- Work and liaise with a range of internal departments and external suppliers, utilising good effective communication across all functions
- Ensure a safe working environment exists for self and colleagues, ensuring all health, safety environmental and quality management procedures are followed and achieve the company's and departmental KPI targets

### **Self Management**

- Embraces personal challenge
- Confident, rounded thinking
- Is self aware
- Is resilient, optimistic and open to change and has a collaborative approach to working with others
- Good communication and interpersonal skills
- Engages interest and participation of others
- Proactively contributes to the team

---

### Skills and Attributes:

- Understanding engineering, scientific and other technical information
- Ability to work in a diverse and dynamic environment
- Planning and prioritising activities
- Ability to present data effectively
- Advanced Problem-solving skills
- Understanding of Health and Safety practices
- Excellent team working skills
- Ability to train self and cascade knowledge to others
- Structured Analytical skills
- Good understanding of customer expectations and deliverables with an awareness of the impact of failure/cost of poor quality

---

### Qualifications and Experience Levels:

- ONC, A Levels, City & Guilds level 3, BTec National Diploma Level 3, IVQ Technician Diploma or equivalent NVQ level 3 qualification
- Completed a recognised indentured apprenticeship in facilities management
- Practical hands-on approach to problem solving
- Experience of working with facilities management
- Mechanical, electrical, electronic or software background
- Substantial experience in a high volume manufacturing environment, preferably automotive
- Commercial understanding of the impact of failure/downtime on production and ultimately customer delivery
- Fork Lift Truck Reach licence

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### Example roles this job description may cover:

- Electrician
- Mechanical Fitter

# Appendix 18

## Programme Manager – Job Description

(Job Code and Level: EPRG005)

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### Definition:

Programmes is defined as: Co-ordinating and controlling projects from concept to post production launch of new and modified components and vehicles ensuring delivery to timing deadlines, cost and quality.

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### Overall Purpose of the Role:

Responsible for providing the lead on major programme launches, coordinating the whole programme from cradle to grave including engineering changes. Ensure progress is monitored; risks identified and appropriate mitigation against non-delivery is invoked. Create and manage programme plans gateways, functional milestones and deliverables, managing constraints to ensure delivery to programme timing and budget with maximum effectiveness to achieve good customer relationships that will ultimately maximise long term profit. Work and act independently, being self-supervising within the expectations of Senior Management with outcomes reviewed at Senior level. Work on multiple major projects requiring innovative solutions at the cutting edge of the technical field providing expertise. Decisions and results have a prolonged impact on the direction of the project and its success. Performance affects the function's technical image.

---

### Key Responsibilities:

#### Strategy and Development

- Contribute to the Creation and implementation of best practice programme management vision, strategy, policies, processes and procedures to aid and improve operational performance

#### General and Task Management

- Create the project identification and planning documentation for the various work streams
- Receive proposed work scope and deliverables and prepare consequent proposals for timing plan and budget (external spend and hours)
- Agree the tasks required to complete each deliverable and what material will be produced to support each deliverable
- Challenge and balance inputs to create optimised proposal for project plan and budget
- Communicate initiation of the project and kick-off all required project activities in project team
- Record relevant information on appropriate project control documentation
- Update key information (work scope, deliverables, timing plan and budget) if necessary based on agreement reached with customer
- Control and communicate status of deliverables and related tasks, project timings versus plan, project expenditure (external spend and hours) versus budget, and balance resources within the overall project limits where possible

- Communicate percentage completeness of 'in-progress' tasks and deliverables versus targets, each measure to be summarised by deliverables and by whole project. Quality assess projects where they run across quarters
- Review any requests for change to project scope and determine, with support from the project team, the consequent changes to project
- Record agreed changes to project scope on appropriate project control documentation
- Escalate issues to management where a resolution cannot be found within the project
- Provide feedback to customer and project team of agreed changes
- Run and chair project meetings as necessary for the smooth operation of the project
- Ensure that appropriate evidence of materials provided is recorded on the appropriate project control documentation
- Ensure that all material agreed to be produced is delivered to the customer and suitable supporting documentation is provided
- Communicate project closure to the project team and instruct Finance to close the project in the relevant company systems
- Record the project closure on appropriate project control documentation
- Prepare end of project report detailing the performance of the project against the important measures of timing, resource and cost, and append this report to the appropriate project control documentation
- Lead and document an appropriate 'Lessons Learned' review, appending the report to the appropriate project control documentation
- Add received project assessment information to the appropriate project control documentation, including ratings for project output delivered and value assessment of project output
- Identify new business opportunities
- Programme Manage multiple large high value projects
- Long range planning
- Provide technical expertise to multiple projects and budgets
- Advance engineering principles, theories and concepts
- Manage activities of a complex nature where there may be no precedents available
- Keep up with current and developing manufacturing and engineering trends regarding maintenance/tool making
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and lead process improvement activities
- Write reports and present progress at project meetings and to clients
- Conduct benchmarking studies to determine best practices/designs and future trends
- Plan projects or subtasks so they may be tracked and presented
- Manage the Key Performance Indicators (KPIs)
- Attend various meetings and action/communicate instructions
- Produce written reports and make presentations
- Undertake continuous training and development
- Perform root cause analysis and resolve problems
- Independently determine approach and assigned tasks

### People Management

- Establish the project team members
- Lead and/or support technicians and trainee engineers
- Communicate project work scope and deliverables to project team
- Manage, coach and develop a high performing cost estimating team that meets agreed objectives and which delivers best practice results, added value and continuous improvements
- Set department objectives/KPIs and review and assess ongoing performance of direct reports
- Report on achievement of targets and identify any actions required
- Ensure that the function operates in accordance with any health, safety and environmental policies and procedures to ensure the safety and wellbeing of staff and visitors
- Train people within own work group

### Financial Budget and Control

- Hold responsibility for departmental budget
- Collect budget requirements for each project task
- Achieve goals within budget

### Relationship Management

- Responsible for instructing Finance to initiate the project in the relevant company systems (time recording, Purchasing etc)
- Develop and maintain strong relationships with internal and external stakeholders to ensure optimal performance
- Work collaboratively, negotiate and engage with key stakeholders to facilitate delivery and compliance with the manufacturing strategy
- Communicate with stakeholders the impact of market change and potential effects on manufacturing design and development. Recommend solutions without compromising quality or service while optimising cost
- Stay current and up to date on any technology changes that may affect manufacturing design and development and advise others of any impact
- Provide guidance to departments and many groups of the organisation
- Liaise and communicate with other departments, customers, suppliers and other service providers
- Contribute to new business initiatives and projects and review and communicate the impact on manufacturing activities

### Self Management

- Comply with the Health, Safety and Environmental Policies
- Support encourages and develop team
- Highly motivated, flexible and organised
- Anticipates and overcomes obstacles
- Makes useful links to arrive at insightful plans and solutions
- Embraces personal challenge
- Confident, rounded thinking



- Takes ownership for team cohesion and proactively contributes to creating a good team atmosphere
  - Is self aware
  - Is resilient, optimistic and open to change
  - Has an Adult:Adult, collaborative approach to others
- 

#### Skills and Attributes:

- Customer orientated approach to all tasks
  - Ability to develop strong working relationships
  - Strong people management skills
  - Strong process capability
  - Strong communication and presentation skills
  - Ability to manage and prioritise multiple demands
  - Strong task and project leadership skills, identifying what is important
  - Strong capability in project planning and task identification
  - Ability to derive resource and revenue budgets from project plan
  - Ability to work as part of a team or independently
  - Data driven approach to analysis
  - Ability to balance challenge self and team members without taking excessive risks
  - Methodical approach to task management and an ability to communicate task requirements clearly at all levels
  - Strong customer interfacing and management skills
  - Disciplined approach to programme management
  - Ability to negotiate complex arrangements
  - Ability to mentor staff of various skills and personalities
- 

#### Qualifications and Experience Levels:

- Relevant manufacturing/engineering degree is preferred, or HND, BTEC Professional Level 5 Award or equivalent NVQ Level 5 qualifications.
  - Extensive experience in Engineering, preferably within automotive
  - Membership of an industry related Professional Body would be advantageous
  - Excellent IT skills including MS Word, PowerPoint, Excel and Project
  - Six Sigma qualification essential
  - Experience in delivering major engineering projects on time and within budget
  - Experience of APQP
  - Proven management experience
- 

#### Example roles this job description may cover:

- Project Manager

# Appendix 19

## Quality Engineer, Operations – Job Description

(Job Code and Level: QOPS003)

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### Definition:

Ensures incoming parts from supply chain companies and internally produced components/vehicles meet the quality standards and systems required.

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### Overall Purpose of the Role:

Responsible for ensuring that the products produced meet quality standards required to minimise quality costs and maximise customer satisfaction whilst ensuring that procedures and processes are adhered to. Ensure incoming materials meet required quality standards. Responsible for identifying and raising quality issues and for speedily resolving them to ensure zero impact to the customer. Support new product introductions to ensure the robustness of product builds. Work in a team environment to develop and implement best practices that emphasise defect prevention, reduction in variation and waste and provide for continuous improvements in meeting all customer requirements. Manage the customer specific requirements and offer technical support. Work on many phases or sub-tasks of projects or entire projects of moderate complexity, with results impacting on project completion. Work under general supervision, reviewed at project milestones and/or on completion by Senior Management.

---

### Key Responsibilities:

#### General and Task Management

- Support the management of all quality-related issues within the manufacturing team (e.g. internal, supplier, customer and customer warranty)
- Identify root cause and instigate permanent corrective actions for product quality issues
- Work with internal and external stakeholders to resolve quality issues that arise as quickly and efficiently as possible to prevent compromising quality and safety standards
- Carry out product and process auditing
- Ensure control plans and associated documentation are implemented effectively and maintained
- Monitor and report on quality-related key performance indicators including scrap monitoring, rework levels, parts per million (PPM) figures
- Stop production in the event of manufacture of unacceptable goods/processes
- Ensure compliance and assist with adherence to the Quality Management system (TS16949/ISO9001)
- Write product test procedures
- Undertake special projects as required
- Assist with training of quality awareness

- Report on Key Performance Indicators (KPIs) in order to adhere to process and prevent occurrence of any non-conformity relating to product, process or system
- Assist with first off sample approvals
- Promote the use of customer preferred techniques for continuous improvement such as Six-Sigma, Poka-Yoke (Error Proofing), and Measurement System Analysis
- Participate in cross-functional teams in the development of new products or changes related to current products in meeting customer requirements
- Participate in the development and refinement of Design and Process FMEA's (Failure Mode and Effects Analysis)
- Participate in quality audits
- Keep up with current and developing manufacturing and engineering trends that concern product quality
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and lead process improvement activities
- Write reports and present progress at project meetings and to clients
- Achieve goals within budget
- Conduct benchmarking studies to determine best practices/designs and future trends
- Plan projects or subtasks so they may be tracked and presented
- Attend various meetings and action/communicate instructions
- Produce written reports and make presentations
- Undertake continuous training and development
- Perform root cause analysis and resolve problems
- Independently determine approach and assigned tasks

### **People Management**

- Lead and/or support technicians and trainee engineers
- Train people within own work group

### **Relationship Management**

- Support regular inspection meetings with representatives from appropriate departments to establish an action plan for improving build quality
- Communicate efficiently throughout the shop floor and with own and customer's management
- Liaise and communicate with other departments, customers, suppliers and other service providers

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Assertive, resilient and welcomes change
- Engages interest and participation of others and has a collaborative approach to working with others
- Proactively contributes to the team
- Actively committed to teams development
- Is self aware
- Shows moral courage, openness and honesty in all dealings

---

**Skills and Attributes:**

- Knowledge of quality systems
- Strong knowledge of APQP, PPAP, FMEA
- Lean Manufacturing knowledge
- Knowledge of TS16949 and ISO9000
- Understanding of ISO14001
- Knowledge of measurement
- Understanding of engineering drawings
- Understanding manufacturing processes
- Ability to work in a diverse and dynamic environment
- Planning and prioritising activities
- Good communication and interpersonal skills
- Strong Negotiation skills
- Ability to present data effectively
- Strong Problem-solving and analytical skills
- Understanding of Health and Safety practices
- Team working skills
- Understand lean manufacturing
- Understanding of cost and financial impacts
- Ability to work on own initiative
- Good understanding of customer deliverables and the impact of failure/cost of poor quality

---

**Qualifications and Experience Levels:**

- Relevant manufacturing/engineering degree preferred, or ONC, A Levels, BTec Diploma Level 3 or equivalent NVQ level 3 qualification
- Membership of an industry related Professional Body would be advantageous
- Previous experience in a high volume manufacturing environment, preferably automotive
- Experience of working in Quality Assurance
- Six Sigma skills
- Experience of dealing with customers and suppliers

---

**Example roles this job description may cover:**

- Quality Assurance Engineer

# Appendix 20

## Manufacturing Team Leader – Job Description

(Job Code and Level: MFGMAN002.2)

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### Definition:

Responsible for the manufacturing of components or vehicles being made into finished goods on a specific production line. May include some people management and reporting requirements.

Manufacturing is defined as: Produces goods and parts from raw materials using such processes as welding; sewing; pressing; machining and painting. This may include some setting up of machinery and basic programming.

Assembly is defined as: Puts together various goods and parts to make/create a part or vehicle.

---

### Overall Purpose of the Role:

Responsible for the operation of a section within the Manufacturing function, supporting the Manager with the day-to-day management of their manufacturing area, overseeing a group of members and ensuring an efficient operation in achieving business targets. Provide leadership and line management to the team, coordinating their workloads, providing support to ensure that the team delivers, monitoring any issues, and ensuring production targets, KPIs, and quality standards are met in order to meet the requirements of the customer. Develop the team by focusing on individual performance and support requirements to achieve high standards, whilst fostering a culture of working safely. Work under general supervision, reviewed by Management. Decisions and results have an impact on the function and their success. Performance affects the function's image.

---

### Key Responsibilities:

#### General and Task Management

- Work to ensure people and resources are applied in an efficient and effective manner to meet delivery requirements while achieving quality and safety standards
- Ensure that team members follow defined manufacturing procedures and comply with quality requirements
- Ensure full adherence to 5S practices at all times
- Ensure equipment is within calibration date and all systems are functioning correctly
- Ensure all records are completed appropriately
- Ensure that non-conforming material is clearly identified and segregated
- Ensure that the escalation procedure for quality concerns is followed
- Ensure achievement of production throughput against stated capacity targets.
- Ensure the team are aware of day to day targets and responsibilities
- Manage work order closures and stock control transactions

- Maintain visible lead for adherence to procedures and instructions
- Monitor change over and/or line set up efficiency
- Prepare line set-ups for following shifts, including first piece buyoffs
- Monitor and maintain all safety equipment and tools
- Undertake continuous training and development
- Perform root cause analysis and resolve problems
- Identify business improvement opportunities within the organisation
- Identify and deploy the technical skill sets, resource levels and systems to deliver projects, including the engagement of external resources as required
- Conduct risk assessments of processes and tasks in the department

### **People Management**

- Responsible for training of operators for products and processes within the local team
- Responsible for daily management and support for the team to achieve operational success
- Monitor time and attendance and ensure compliance with Company procedures
- Carry out incident, accident and non-conformity investigations and associated reporting and action closure
- Monitor the completion of tasks and ensure good performance and record on appropriate systems
- Consistently promote high standards through personal example and roll out through the team so that each member of the team understands the standards and behaviours expected of them
- Communicate KPIs from the strategic annual plan so that each employee is aware of expectations and deliverables
- Provide product expertise within team, and respond to operator queries
- Work positively with support functions to fully define the processes/procedures/controls relevant to team activities. Provide support and input to continuous improvement activities within the team

### **Relationship Management**

- Interface with Production Scheduling to determine schedules for shift production
- Liaise and communicate with other departments and ensure an effective interface with is maintained
- Feedback to the Management team to share ideas and improve operation, recommending, supporting and implementing continuous improvement activities and process and procedure improvements to optimise results and improve quality of delivery, in line with quality standards requirements and delivery in line with Company and Customer requirements
- Provide technical expertise to the team

### **Self Management**

- Support, comply and ensure complicity with Health & Safety regulations, the Company Handbook, Quality and Environmental standards, and all other Company policies and procedures
- Embraces personal challenge
- Confident, rounded thinker
- Is self aware, resilient, assertive and open to change
- Engages interest and participation of others and has a collaborative approach to working together
- Actively Committed to team development
- High levels of motivation, optimistic and action orientated

---

### Skills and Attributes:

- Exercise considerable initiative/judgement in work methods and in interpreting and delegating work requirements/goals
- Work independently, reviewed infrequently with minimal supervision
- Ability to lead by example, gain respect from team and communicate with clarity whilst demonstrating excellence in approach to work and people activities
- Excellent verbal and written communication skills
- Excellent organisation skills
- Excellent problem solving skills
- Ability to manage a wide variety of activities at the same time
- Ability to plan, analyse and challenge
- Able to work cross functionally and collaboratively with many stakeholders
- Solid understanding of all people related processes and procedures
- Good understanding of customer deliverables and the impact of failure/cost of poor quality

---

### Qualifications and Experience Levels:

- GCSE Level A-C, IVQ Technician certificate, BTEC first certificate or equivalent NVQ level 2 qualification
- Commitment to work towards professional accreditation with an industry related body
- Experience of leading small group activities to drive improvement ideas
- Experience of assisting and developing (multi-skilled) people
- Strong PC skills and experience of packages such as Excel and SAP
- Knowledge of lean manufacturing techniques and recognised QC tools
- Knowledge of Health & Safety legislation including ISO14001 and responsibilities
- Knowledge of Quality standard TS16949
- Understanding of production costs to include waste, downtime, scrap and re-work

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### Example roles this job description may cover:

- Cell Leader
- Process Lead
- Production Team Leader
- Manufacturing/Production Supervisor

# Appendix 21

## Project Engineer – Job Description

(Job Code and Level: **EPRG003**)

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### Definition:

Programmes is defined as: Co-ordinating and controlling projects from concept to post production launch of new and modified components and vehicles ensuring delivery to timing deadlines, cost and quality.

---

### Overall Purpose of the Role:

Responsible for coordinating all project elements including engineering design, quality planning, manufacturing, installation, commissioning and final buy-off phases as well as ensuring the project remains within budget in order to meet the requirements of the customer's needs. Work on many phases or sub-tasks of projects or entire projects of moderate complexity, with results impacting on project completion. Work under general supervision, reviewed at project milestones and/or on completion by Senior Management.

May have Project Engineers within each specific function e.g. Design Engineering, Production Engineering responsible for ensuring their area's delivery within a project or programme.

---

### Key Responsibilities:

#### General and Task Management

- Coordinate all project elements including engineering design, quality planning, manufacturing, installation, commissioning and final buy-off phases
- Manage the project within budget
- Plan project requirements and resources, including the sourcing of sub-contract elements, etc.
- React promptly and effectively to changing client and product needs
- Anticipate any potential project risks, identifying and establishing corrective actions
- Produce deliverables on-time to customer requirements, clarifying these requirements where necessary
- Define the customer specification into either a departmental action or sub-contractor order
- Accurately cost any changes in specifications
- Effectively analyse customer and internal changes, including feasibility study
- Produce clear, focused and understandable explanations for change requests
- Track customer changes and participate in customer meetings when required
- Participate in Design Failure Mode and Effect Analysis (DFMEAs), Quality history reviews, robustness studies, etc
- Participate in Advanced Product Quality Planning (APQP) and Production Part Approval Process (PPAP) processes



- Track tasks against the project timing plan
- Assist with design verification and sign off reporting
- Apply specific technical skills as required to support the customer or colleagues
- Proactively seek out opportunities for new or repeat business
- Be willing and available to work at company and customer premises as required
- Keep up with current and developing engineering trends
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and lead process improvement activities
- Write reports and present progress at project meetings and to clients
- Conduct benchmarking studies to determine best practices/ future trends
- Plan projects or subtasks so they may be tracked and presented
- Manage the Key Performance Indicators (KPIs)
- Attend various meetings and action/communicate instructions
- Undertake continuous training and development
- Perform root cause analysis and resolve problems
- Independently determine approach and assigned tasks

### **People Management**

- Lead and/or support technicians and trainee engineers
- Train people within own work group

### **Relationship Management**

- Liaise and communicate with other departments, customers, suppliers and other service providers
- Be an effective team member, working with supervisor and colleagues to ensure smooth workflow with maximum output

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Assertive, Optimistic, resilient and welcomes change
- Engages interest and participation of others and has a collaborative approach to working together
- Proactively contributes to the team
- Is self aware
- Self-confident and determination
- Shows moral courage, openness and honesty in all dealings

---

### **Skills and Attributes:**

- Responsible for projects involving multiple people
- Able to read and understand engineering drawings
- Ability to understand and translate product drawings into process information
- Ability to track budget spend, including sub-contract hours

- Ability to make and manage good relationships
  - Strong written and verbal communication skills
  - Strong administrator
  - Analytical skills and good judgement
  - Initiative and results/target focused
  - Quality conscious
  - Ability to work to tight deadlines
  - Problem solving skills
  - Presentation skills
  - Ability to promote and drive continuous improvement
  - Able to make decisions
  - Understand Lean principles
  - Exercises latitude and technical judgement in deciding work methods
  - Good understanding of customer expectations and deliverables with an awareness of the impact of failure/cost of poor quality
- 

#### **Qualifications and Experience Levels:**

- Relevant manufacturing/engineering degree preferred, A Levels, ONC, City & Guilds level 3, BTEC National Diploma Level 3, IVQ Technician Diploma, NVQ level 3
  - Professional accreditation with an industry related body would be advantageous
  - Good understanding of engineering principles
  - Mechanical, electrical, electronic or software background
  - Proven Project Engineering/Project Management experience
  - Advanced Microsoft user to include Project and Excel software
  - Experience in creating project plans in Microsoft Project
  - Experience in BOM structures
  - Understanding of legislation and standards
  - An understanding of Lean Manufacturing
  - Understanding of design and production costs to include waste, downtime, scrap and re-work
- 

#### **Example roles this job description may cover:**

- Programme Engineer

# Appendix 22

## Quality Technician – Job Description

(Job Code and Level: QOPS002)

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### Definition:

Inspects and tests incoming parts from supply chain companies and internally produced components/vehicles to meet the quality standards and systems required.

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### Overall Purpose of the Role:

Assist/support the Quality Engineers by providing production expertise to resolve Quality issues within the production operation. Ensure that the product meets customer's requirements (both internal and external) at each stage of its manufacturing process, carrying out relevant testing and where necessary take corrective action to rectify non-conformance issues. Report quality issues data, ensuring the Quality Management System is adhered to at all stages.

---

### Key Responsibilities:

#### General and Task Management

- Carry out product tests and thorough independent final inspection of finished assemblies to defined procedures, formally reporting all defects
- Responsible for checking, progressing and collating accurate build and inspection records
- Provide technical support in the areas of machine pre-delivery inspection, Goods Inwards, and Production line Quality support activities
- Inspect and auditing of all components and all stages of the manufacturing process
- Investigate any quality issues to identify root cause and raise appropriate corrective action paperwork and ensure issues are addressed and resolved
- Ensure compliance and assist with adherence to the Quality Management system (TS16949/ISO9001)
- Support regular inspection meetings with representatives from appropriate departments to establish an action plan for improving build quality
- Attend and report at regular improvement meetings, providing secure preventative actions to external and internal quality related concerns
- Ensure all products flow through the inspection department
- Ensure all incidents of non-conformance are recorded
- Maintain the calibration system, ensuring all equipment is correctly calibrated
- Assist the Quality Engineer with new product introduction
- Manage manufacturing master drawings to ensure build standard control is maintained on assigned projects

- Produce management feedback on performance in areas of responsibility
- Carry out internal audits of other departments
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and participate in process improvement activities
- Write simple reports and provide information to management
- Achieve goals within budget
- Plan projects or subtasks so they may be tracked and presented
- Be aware and work to achieve the Key Performance Indicators (KPIs)
- Attend various meetings and action/communicate instructions
- Undertake continuous training and development
- Participate in root cause analysis and resolving problems
- Agree the approach to be taken to assigned tasks
- Comply with the Health, Safety and Environmental Policies

#### **Relationship Management**

- Liaise and communicate with other departments
- Support the engineers
- Commercial and financial awareness with a full understanding of how failure impacts business financials, customer satisfaction and future orders

#### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Balanced and confident
- Applies experience and logic
- Achievement Focussed
- Makes productive contributions
- Team player with a positive effect on the mood
- Consistently manages the task
- Is self aware resilient, optimistic and open to change
- Shows moral courage, openness and honesty in all dealings and has a collaborative approach to working with others

---

#### **Skills and Attributes:**

- Understanding of quality system
- Knowledge of APQP, PPAP, FMEA
- Lean Manufacturing knowledge
- Awareness of TS16949
- Awareness of ISO9000
- Understanding of ISO14001
- Knowledge of measurement

- Understanding of engineering drawings
- Understanding manufacturing processes
- Ability to work in a diverse and dynamic environment
- Planning and prioritising activities
- Good communication and interpersonal skills
- Problem-solving skills
- Understanding of Health and Safety practices
- Team working skills
- Analytical skills
- Understand lean manufacturing
- Ability to work on own initiative
- Analytical skills

---

#### **Qualifications and Experience Levels:**

- GCSE Level A-C, IVQ Technician certificate, BTec first certificate or equivalent, NVQ level 2 qualification
- Commitment to work towards professional accreditation with an Industry related body
- Previous manufacturing experience would be advantageous
- Experience of working in Quality Assurance would be advantageous
- Awareness of six sigma techniques

## Appendix 23

# Senior Operator, Manufacturing – Job Description

(Job Code and Level: MFGMAN002.1)

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### Definition:

Manufactures and/or assembles a range of components or vehicles into finished goods across production lines. Has extensive knowledge of the production processes and may be able to set up/programme and carry out diagnostics. Is likely to train other operators to required standards and may be the official trainer/assessor.

Manufacturing is defined as: Produces goods and parts from raw materials using such processes as welding; sewing; pressing; machining and painting. This may include some setting up of machinery and basic programming.

Assembly is defined as: Puts together various goods and parts to make/create a part or vehicle.

---

### Overall Purpose of the Role:

Working to strict safety and quality requirements, help to achieve daily production requirements in terms of quality and quantity to meet customer expectations and requirements, optimising efficiency and maintaining operational excellence. Able to work on many/all areas of the production process with little supervision.

---

### Key Responsibilities:

#### General and Task Management

- Measure, grade and feed batches of raw materials into production machinery/process
- Operate production line equipment such as conveyor line, hoists, airlines
- Monitor the production process and carry out basic testing and quality checks
- Adjust machine controls whilst monitoring the production process and outputs
- Manufacture goods on a production line
- Carry out cleaning and basic maintenance of work areas and the machines
- Report equipment faults to maintenance staff
- Build up components and sub-assemblies into finished electrical or mechanical products
- Fit parts to machinery and equipment
- Finish products such as applying protective coatings, bonding
- Cut and shape parts and tools
- Operate machine tools such as lathes, grinders and borers
- Use moulding machines which are pre-set to carry out certain tasks

- Set and operate hand-controlled or computer-controlled machines
- Machine parts/components
- Make quality control checks on products
- Trim excess plastic (flash) from products
- Ensure parts are to the correct tolerances and meet customer and internal standards and specifications
- Record how much raw material has been used during production and the number of items produced
- Pack goods with protective materials ready for shipment in crates, stillages or other containers
- Seal containers using appropriate materials such as glue, staples or shrink-wrap
- Weigh and label packaged goods ready for dispatch
- Stack goods appropriately
- Contribute to continuous improvement activities

### People Management

- Train/mentor trainee and less experienced operators

### Self Management

- Support, comply and ensure complicity with Health & Safety regulations, the Company Handbook, Quality and Environmental standards, and all other Company policies and procedures
- Assertive, optimistic, resilient and welcomes change
- Self-motivated and hard working
- Adaptable and flexible
- Positive, responsible attitude
- Consistently manages the task
- Is self aware and has a collaborative approach to working with others
- Shows moral courage, openness and honesty in all dealings

---

### Skills and Attributes:

- Ability to work across most/all areas of the production process
- Able to work as part of a team
- Able to train trainee operators
- Able to work on own initiative when necessary
- Able to work in a safe manner
- Ability to read and follow written and verbal instructions and work standards
- An eye for detail
- Able to work with minimum supervision and to timescales
- Ability to learn quickly
- Good understanding of customer deliverables and the impact of failure / cost of poor quality

---

**Qualifications and Experience Levels:**

- GCSE Level A-C, IVQ Technician certificate, BTec first certificate or equivalent NVQ level 2 qualification
- Considerable previous manufacturing experience
- Experience of working with production and sub-assemblies
- Practical hands-on approach to problem solving
- Experience of working to production targets
- Understanding of lean manufacturing and 5S process
- Understanding of production costs to include waste, downtime, scrap and re-work

---

**Example roles this job description may cover:**

- Senior Cell Operator
- Senior Production Operator
- Senior Process Operator
- Senior Paint Technician
- Senior Welder
- Senior Machinist



# Appendix 24

## Tool Maker – Job Description

(Job Code and Level: MFGTOO002)

---

### Definition:

Makes or improves different types of tools to enable the production processes to be as efficient as possible. This may include jigs, fixtures, clamps or moulds to obtain a more robust consistently produced part that meets the specification of the customer. Likely to be highly skilled and knowledgeable and support apprentices.

---

### Overall Purpose of the Role:

Responsible for the repair, maintenance and improvement to all tooling dies, jigs, fixtures and fittings for press tools, CNC equipment in line with production and customer requirements to support business objectives. Support new tooling for new product introductions to ensure the robustness of product builds. Work on many phases or sub-tasks of projects or entire projects of moderate complexity, with results impacting on project completion. Work under general supervision, reviewed at project milestones and/or on completion by Senior Management.

---

### Key Responsibilities:

#### General and Task Management

- Repair and maintain press tools, die repairs
- Routine servicing and regrinding of tools
- Attend breakdowns, identify fault and problem solve at the press with minimal downtime to aid production
- Evaluate each job and determine if it can be repaired in press or must be removed to Tool Room for essential maintenance and repair work
- Estimate length of time required to complete a job and likely consequences of failure to complete work within required timescales
- Identify and escalate any activity that has the potential to cause harm or damage
- Report breakdown root causes, equipment faults and concerns to management
- Ensure all work is undertaken to a high quality standard and adheres to all quality standard regulations
- Ensure company targets are met in respect of quality of parts produced
- Identify spares requirements and log usage
- Take ownership of smaller less complex specific tool suite to develop and maintain performance with minimal supervision
- Operate Fork Lift Truck and lifting equipment
- Support new project tooling from commissioning stages through to start of production
- Assist in tooling buyoffs and trials
- Manufacture new tooling and ancillary spares to support production activity and customer deadlines

- Document and update die history and other work records
- Carry out Planned Preventative Maintenance
- Carry out engineering level changes to tools and modifications
- Test and confirm electrical and hydraulic/pneumatic operation of tools before return to production
- Maintain the highest standards of workmanship at all times
- Record all relevant data in relation to tooling and record on the Tool Room database
- Be actively involved in improvement activities to support the achievement of departmental and company objectives
- Ensure risk assessments are available, read and understood for each activity undertaken
- Understand and operate within basic cost/budget measures for tooling
- Work within 5S (Sort, Set In Order, Shine, Standardize, Sustain) methodology to maintain workplace to a high standard
- Ensure all personal protective equipment is identified, always available, correctly used and all associated problems are reported to management
- Ensure all lost time, minor and trivial accidents are reported
- Promote environmental issues and ensure all company procedures are understood and followed
- Keep up with current and developing manufacturing and engineering trends regarding tool making
- Undertake special projects as required
- Quality control of work by appropriate reviews
- Conduct benchmarking studies to determine best practices/designs and future trends
- Plan projects or subtasks so they may be tracked and presented
- Attend various meetings and action/communicate instructions
- Undertake continuous training and development
- Perform root cause analysis and resolve problems
- Independently determine approach and assigned tasks

### **People Management**

- Lead and/or support technicians and trainee engineers
- Train people within own work group
- Ensure a safe working environment exists for self and colleagues, ensuring all health, safety environmental and quality management procedures are followed and achieve the company's and departmental KPI targets

### **Relationship Management**

- Assist visiting specialist engineers when necessary
- Work and liaise with a range of internal departments and external suppliers, utilising good effective communication across all functions
- Ensure that contractors are utilised in accordance with company procedures

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Assertive, optimistic, resilient and welcomes change
- Engages interest and participation of others
- Proactively contributes to the team

- Is self aware and has a collaborative approach to working with others
  - Shows moral courage, openness and honesty in all dealings
  - Adaptable and flexible with a positive, responsible attitude
  - Self-motivated and hard working
- 

#### Skills and Attributes:

- Knowledge of measurement
  - Understanding of engineering drawings
  - Understanding manufacturing processes
  - Ability to work in a diverse and dynamic environment
  - Planning and prioritising activities
  - Good communication and interpersonal skills
  - Ability to present data effectively
  - Problem-solving skills
  - Understanding of Health and Safety practices
  - Analytical skill set
  - Understand lean manufacturing
  - Understanding of cost and financial impacts
  - Ability to work on own initiative
  - Able to work as part of a team
  - Ability to learn quickly and work in a safe manner
  - Ability to read and follow written and verbal instructions and work standards
  - Able to work with minimum supervision and to timescales
  - Good understanding of customer deliverables and the impact of failure / cost of poor quality
- 

#### Qualifications and Experience Levels:

- GCSE Level A-C, IVQ Technician certificate, BTec first certificate or equivalent NVQ level 2 qualification
  - Considerable Previous tool making experience
  - Practical hands-on approach to problem solving
  - Experience of working to tight production targets
  - Understanding of lean manufacturing and 5S process
  - FLT reach licence
  - Understanding of production costs to include waste, downtime, scrap and re-work
- 

#### Example roles this job description may cover:

- Tool Making Technician

# Appendix 25

## Senior Technician, Maintenance – Job Description

(Job Code and Level: MFGMAI003.1)

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### Definition:

Ensures that facilities, layout and machinery used to produce new and existing materials and goods run to their maximum efficiency and output. This includes total preventative maintenance, managing breakdowns of mechanical, electrical and robotic equipment (including software programming). May include training and assessing of other technicians and apprentices.

---

### Overall Purpose of the Role:

Install, maintain, improve and repair equipment, plant, services and building installations to set levels effectively in compliance with best practices ensuring production efficiency can be met within a safe well-presented facility. Respond to technical issues affecting production and maintain electrical and mechanical services through Planned Preventative Maintenance (PPM). Responsible for multiple highly complex major projects requiring innovative original solutions where results are key to successful completion of major projects. Work mostly independently with minimal supervision and work is reviewed at project milestones and/or on completion by Senior Management.

---

### Key Responsibilities:

#### General and Task Management

- Attend breakdowns, identify fault and problem solve, with minimal downtime to production
- Carry out diagnosis of faults, the maintenance and repairs to all types of plant and equipment in a safe, timely and professional manner and return equipment to operational service
- Estimate length of time required to complete a job and likely consequences of failure to complete work within required timescales
- Identify and escalate any activity that has the potential to cause harm or damage
- Report breakdown root causes, equipment faults and concerns to management
- Ensure all work is undertaken to a high quality standard and adheres to all quality standard regulations
- Ensure company targets are met in respect of quality of parts produced
- Identify spares requirements and log usage
- Assist in the development of planned preventative maintenance (PPM) schedules
- Carry out PPM schedules as necessary and planned work orders as required and provide feedback to develop the system
- Assist with the moving, installation, repositioning of machines and equipment
- Make full use of the computerised maintenance management system
- Plan and prioritise workload to support production and ensure efficient use of working time

- Fill in job tickets/log completion of work on the computerised maintenance management system
- Operate Fork Lift Truck and lifting equipment
- Work within 5S (Sort, Set In Order, Shine, Standardize, Sustain) methodology to maintain workplace to a high standard
- Ensure all personal protective equipment is identified, always available, correctly used and all associated problems are reported to management
- Ensure all lost time, minor and trivial accidents are reported
- Promote environmental issues and ensure all company procedures are understood and followed
- Ensure a safe working environment exists for self and colleagues, ensuring all health, safety environmental and quality management procedures are followed and achieve the company's and departmental KPI targets
- Keep up with current and developing manufacturing and engineering trends regarding maintenance
- Undertake special projects as required
- Quality control of work by appropriate reviews
- Conduct benchmarking studies to determine best practices/designs and future trends
- Plan projects or subtasks so they may be tracked and presented
- Actively utilise continuous improvement methodology to progress the maintenance function
- Write reports and present progress at project meetings
- Achieve goals within budget
- Undertake continuous training and development
- Perform root cause analysis and resolve problems
- Independently determine approach and assigned tasks
- Understand and operate within basic cost/budget measures

### **People Management**

- Train and mentor apprentices and less experienced technicians
- Provide leadership and assistance to less experienced technicians and apprentices
- Support training needs of the department and provide expertise to apprentices and trainees
- Provide a communication point for the team and provide a proactive feedback process between the technicians and management
- Champion high team standards

### **Relationship Management**

- Assist visiting specialist engineers when necessary
- Work, liaise and utilise good effective communication with a range of internal departments, external suppliers, service providers and customers.
- Ensure that contractors are utilised in accordance with company procedures
- Attend various meetings and action/communicate instructions
- Act as first point of contact for production and help provide a proactive feedback process between maintenance and other departments

### **Self Management**

- Support, comply and ensure complicity with Health & Safety regulations, the Company Handbook, Quality and Environmental standards, and all other Company policies and procedures
- Embraces personal challenge

- Confident, rounded thinking
- Is self aware
- Is resilient, optimistic and open to change
- High levels of motivation and action orientated
- Engages interest and participation of others and has a collaborative approach to working together.
- Proactively contributes to the team

---

#### Skills and Attributes:

- Exercise substantial initiative/judgement in work methods and interpreting goals
- Work independently and is reviewed infrequently with minimal supervision
- Self-supervising within the guidance and expectations of divisional management
- Ability to coach, counsel and manage people
- Excellent verbal and written communication skills
- Communicate with clarity and demonstrate excellence in approach to work and people activities
- Excellent organisation skills
- Excellent problem solving skills
- Ability to manage a wide variety of activities at the same time
- Ability to plan, analyse and challenge
- Able to work cross functionally and collaboratively with many stakeholders
- Solid understanding of all people related processes and procedures
- Financial acumen with ability to balance material usage
- Able to identify root cause of any losses
- Good understanding of customer expectations and deliverables with an awareness of the impact of failure/cost of poor quality

---

#### Qualifications and Experience Levels:

- A Levels, ONC, City & Guilds level 3, BTec National Diploma Level 3, IVQ Technician Diploma, NVQ level 3
- Professional accreditation with an industry related body would be advantageous
- Completed a recognised indentured apprenticeship in facilities management
- Practical hands-on approach to problem solving
- Experience of leading and developing (multi-skilled) people
- Strong PC skills and experience of packages such as SAP
- Knowledge of lean manufacturing techniques and recognised QC tools
- Knowledge of Health & Safety legislation including ISO14001 and responsibilities
- Knowledge of Quality standard TS16949
- Experience of working with facilities management
- Mechanical, electrical, electronic or software background with a working knowledge of the other disciplines
- Substantial experience in a high volume manufacturing environment, preferably automotive
- Commercial understanding of the impact of failure/downtime on production and ultimately customer delivery

---

#### Example roles this job description may cover:

- Senior Maintenance Engineer

# Appendix 26

## Supplier Quality Engineer – Job Description

(Job Code and Level: **QSQ003**)

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### Definition:

Ensures that the supply chain companies continually develop their process in line with the design intent of the customer and verify their systems to ensure they are compliant with the end customer's needs. This includes on-going supply chain company verification.

---

### Overall Purpose of the Role:

Work in a team environment with suppliers to develop and implement best practices that emphasise defect prevention, reduction in variation and waste and provide for continuous improvements in meeting all customer requirements. Collect root cause analysis and provide corrective feedback to prevent line stops due to supply issues. Manage the customer specific requirements and offer technical support to suppliers. Responsible for ensuring that the products produced meet quality standards required to minimise quality costs and maximise customer satisfaction whilst ensuring that procedures and processes are adhered to. Maintain the robustness of product builds following new product introductions to ensure continuity and improvement in supplier capability. Manage the customer specific requirements and offer technical support. Work on multiple phases or sub-tasks of projects or entire projects of moderate complexity, with results impacting on project completion. Work under general supervision, reviewed at project milestones and/or on completion by Senior Management.

---

### Key Responsibilities:

#### General and Task Management

- Carry out supplier validation audits, with supplier support and supplier advanced product quality planning (APQP).
- Work with Engineering (Design and Manufacturing Engineers) team to define process parameters and criteria to ensure supplier process capability is effective to meet product and process requirements
- Assist in the supplier approval process by assessing manufacturing/technology capabilities and Health, Safety and Environmental risks
- Assist in new product launches to ensure that supplier quality meets the required standards
- Facilitate root cause analysis and corrective actions of supplier quality issues
- Perform on-site supplier visits for root cause analysis and verification of correction actions of supplier quality issues
- Collate and evaluate supplier quality data to identify process improvement opportunities within the supply chain
- Work with the supplier directly, create correction action plans to address process failures
- Review supplier manufacturing processes, collaborate with suppliers on process improvement and value enhancement opportunities

- Promote the use of customer preferred techniques for continuous improvement such as Lean, Six-Sigma, Poka-Yoke (Error Proofing), Measurement System Analysis, and PFMEA (Process Failure Mode and Effects Analysis)
- Provide concise, complete and accurate documentation of inspection results relative to area of responsibility. In appropriate functional areas, this refers to supporting inspection and test status requirements defined by regulations, engineering product specifications or Control Plans, PPAP approval or product warrant submission
- Facilitate the escalation of unresolved supplier quality issues within assigned projects and suppliers
- Assist the Quality Manager to monitor and report on supplier product quality and performance
- Assist with training of quality awareness
- Report on Key Performance Indicators (KPIs) in order to adhere to process and prevent occurrence of any non-conformity relating to product, process or system
- Assist with first off sample approvals
- Participate in cross-functional teams in the development of new products or changes related to current products in meeting customer requirements
- Manage and coordinate supplier PPM, supplier problem solving on time, cost recovery and supplier warranty indicators
- Lead quality audits
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and lead process improvement activities at the supplier
- Write reports and present progress at project meetings and to clients
- Achieve goals within budget
- Conduct benchmarking studies to determine best practices/designs and future trends
- Plan projects or subtasks so they may be tracked and presented
- Attend various meetings and action/communicate instructions
- Produce written reports and make presentations
- Stay current and up to date on any changes that may affect the supply and demand of needed products and materials and advise others of any impact
- Undertake personal continuous training and development
- Perform root cause analysis and resolve problems
- Independently determine approach and assigned tasks

### **People Management**

- Lead and/or support technicians and trainee engineers
- Train people within own work group

### **Relationship Management**

- Develop and maintain strong relationships with internal and external stakeholders to ensure optimal performance
- Communicate efficiently throughout the shop floor and with own and customer's management
- Liaise and communicate with other departments, customers, suppliers and other service providers
- Diplomatic approach to relationships



## Self Management

- Comply with the Health, Safety and Environmental Policies
- Assertive, optimistic, resilient and welcomes change
- Engages interest and participation of others and has a collaborative approach to working with others
- Proactively contributes to the team
- Is self aware
- Ability to work on own initiative
- Shows moral courage, openness and honesty in all dealings

---

## Skills & Attributes:

- Knowledge of quality and business systems
- Strong knowledge of APQP, PPAP, FMEA
- Lean Manufacturing knowledge
- Knowledge of TS16949
- Knowledge of ISO45001/OHSAS18001
- Understanding of ISO14001
- Knowledge of measurement techniques
- Metrology, Inspection Methods and Equipment
- Understanding and interpretation of engineering drawings
- Understanding manufacturing processes
- Ability to work in a diverse and dynamic environment
- Planning and prioritising activities
- Good communication and interpersonal skills
- Listening skills
- Negotiation skills
- Ability to present data effectively
- Problem-solving skills
- Understanding of Health and Safety practices
- Team working skills
- Analytical skills
- Understanding of cost and financial impacts

---

## Qualifications and Experience Levels:

- Relevant manufacturing/engineering degree preferred, or ONC, A Levels, BTec Diploma Level 3 or equivalent NVQ level 3 qualification
- Substantial experience in a high volume manufacturing environment, preferably automotive
- Experience of working in Quality Assurance
- Lean skills
- Experience of dealing with customers and suppliers
- Membership of appropriate professional body would be beneficial

---

## Example roles this job description may cover:

- Supplier Technical Assistant
- Supplier Technical Advisor

# Appendix 27

## Technician, Development – Job Description

(Job Code and Level: EDESDEV002)

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### Definition:

Development is defined as: Test and validation of prototype parts and assemblies for improvement and ultimately for mass volume production. This includes development to meet cost, producibility, quality, performance, reliability, serviceability and other user features.

---

### Overall Purpose of the Role:

In conjunction with Design and Development build, assemble and develop bespoke test rigs for prototype assemblies supporting product process technology and development projects. Fully participate with new development to meet future requirements, from concept to validation. Undertake testing programmes on future and updating current materials and components, assessing production conformity and product functional performance. Provide assistance/support to design and development engineers throughout the process of designing, testing and developing components/products. Work on many phases or sub-tasks of projects or entire projects of moderate complexity, with results impacting on project completion. Work under general supervision, reviewed at project milestones and/or on completion by Senior Management.

---

### Key Responsibilities:

#### General and Task Management

- Carryout product trials in laboratories, on test rigs or with simulated vehicle mock-ups
- Set up and supervise testing on assigned test rigs as per the testing schedule
- Prepare and load test samples
- Build, assemble and develop bespoke machines/prototypes to support product process technology and development projects
- Assess functional performance of new and novel automotive products – vital to the design and development process
- Assess production conformity
- Ensure development builds are on-going and meet customer expectations
- Process, check and analyse test data ensuring compliance to agreed quality measures
- Fault finding to rectify mechanical, electrical and hydraulic systems with the rigs and associated equipment as required
- Carry out rig maintenance activities
- Support creation of key documentation within an Advanced Product Quality Planning (APQP) framework to ensure all issues and lessons are captured during the product development cycle inclusive of build specifications, control plans, part identification, test specifications etc.

- Support design and manufacturing activities such as Design Failure Mode and Effect Analysis (DFMEA) and Process Failure Mode and Effect Analysis (PFMEA)
- Ensure smooth transfer of product through all test stages and introduction processes, from low volume to large scale production
- Undertake special projects as required
- Contribute to continuous improvement activities
- Quality control of work by appropriate reviews
- Support and participate in process improvement activities
- Supply data and simple reports to the design and development engineers
- Be aware and work to achieve the Key Performance Indicators (KPIs)
- Undertake continuous training and development
- Participate in root cause analysis and resolution of problems
- Agree the approach to be taken to assigned tasks

### **Relationship Management**

- Liaise and communicate with other departments
- Support the design and development engineers

### **Self Management**

- Comply with the Health, Safety and Environmental Policies
- Balanced and confident
- Applies experience and logic
- Achievement Focussed
- Makes productive contributions
- Team player with a positive effect on the mood
- Consistently manages the task
- Is resilient, optimistic, open to change and has a collaborative approach when dealing with others
- Is self aware, shows moral courage, openness and honesty in all dealings
- Excellent interpersonal skills

---

### **Skills and Attributes:**

- Computer literate – Good knowledge of Excel and Word
- Ability to analyse and interpret complex technical data
- Ability to demonstrate a practical mechanical aptitude
- Able to work as a strong team player as well as able to work independently
- Proactive approach to achieving excellent quality standards
- Excellent attention to detail
- Ability to build close working relationships internally and with customers
- Good hands-on skills with assembly or fitting type experience
- Good organisational skills
- Good understanding of customer expectations and deliverables with an awareness of the impact of failure/cost of poor quality

---

**Qualifications and Experience Levels:**

- GCSE Level A-C, IVQ Technician certificate, BTEC first certificate or equivalent NVQ level 2 qualification
- Recognised apprenticeship in mechanical, electromechanical, electrical or automotive preferable
- Commitment to work towards professional accreditation with an industry related body
- Experience of working in a Test environment
- Understanding of CAD/CATIA
- Experience of product development manufacture and assembly techniques
- Experience of building equipment
- Knowledge of hydraulics, pneumatics or mechanical systems
- Experience in milling and lathe work

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**Example roles this job description may cover:**

- Development Technician
- Development Build Technician
- Test Technician
- Engine Technician

# Appendix 28

## The North West

### Job and Skill Requirements

#### Vacancy Requirements:

Respondents identified 18 different types of roles totalling 67 vacancies that are ‘difficult to fill’ or ‘challenging’. Below is the table outlining the top ranking vacancies by volume required for this region.

Critical Now Impacting business output/Vacancy open 3+ months		Future Ongoing Start to Impact business next 3-12 months/ Ongoing future recruitment need	
Rank		Rank	
1	Manufacturing Team Leader	1	Design Engineer
2	Manufacturing Assembly Technician/Senior Op	2	Production Engineer
3	Production Engineer	3	Tool Maker
4	Section Lead/Senior Production Engineer	4	Buyer
		5	Manufacturing Operator
		6	Manufacturing Supervisor/Manager
		7	Logistics Analyst
		8	Maintenance Apprentice
		9	Quality Assurance Engineer
		10	Quality Ops Technician

Reasons	Actions
<ul style="list-style-type: none"> <li>Business growth</li> <li>Technological advancement</li> <li>Lack of experience/skill/expertise available</li> <li>Competition in UK labour market</li> <li>Age demographic</li> <li>Location</li> </ul>	<ul style="list-style-type: none"> <li>Contractors covering roles</li> <li>Reviewing of salary/benefits</li> <li>Broaden recruitment search abroad</li> <li>Taking on more graduates and apprentices</li> <li>Development of local tailored educational training programmes</li> </ul>

**North West Skill Requirements:**

Respondents identified 12 different types of learning required for 645 employees. Below are the top ranked critical and future requirements for this region by volume of people requiring learning.

<b>Critical Now</b> Impacting business output/skill need to be addressed in the next 6-12 months		<b>Future Ongoing</b> Starting to impact the business in the next 1-2 years/foreseeable ongoing need for 2-5 years	
Rank		Rank	
1	Logistics solutions for assembly	1	Welding
2	Sensor technology	2	Plug-in hybrid electronic vehicles
3	Programmable Logic Control (PLC)	3	Fault finding
4	Robotics	4	Programme Logic Control (PLC)
5	Manufacturing process knowledge	5	Procurement
6	Electrical skills	6	Programme management
		7	Tool making

<b>Reasons</b>	<b>Actions</b>
Lack of experience/skill/expertise Technological advancement Age demographic	Contractors covering Upskilling staff/will upskill staff Taking on more graduates and apprentices Development of local tailored educational training programmes

**Logistics Solutions for Assembly:**

<b>What</b>	<b>Who</b>
For maintenance	Maintenance Technician

**Senor Technology:**

<b>What</b>	<b>Who</b>
For maintenance	Maintenance Technician

**Programmable Logic Control (PLC):**

<b>What</b>	<b>Who</b>
For maintenance	Maintenance Technician

**Robotics:**

<b>What</b>	<b>Who</b>
Repair/preventative and diagnostics/general upkeep	Maintenance Technician and Manufacturing Technical/Senior Ops

### Manufacturing Process Knowledge:

What	Who
Combination of process knowledge and costing	Cost Estimating Engineers

### Electrical Skills:

What	Who
Fault finding/diagnostic problem resolution	Manufacturing Assembly Operator

### Welding:

What	Who
New welding techniques	Maintenance Technician and Manufacturing Technician/Senior Op

### Plug-in Hybrid Electronic Vehicles (PHEV):

What	Who
Assembly of PHEV	Design Engineer/Production Engineer

### Fault Finding:

What	Who
Electrical	Maintenance Technician

### Procurement:

What	Who
Development and sustaining OEM/supplier relationships/ key performance indicators and reporting/commodity development and management	Buyer/Procurement Manager

### Programme Management:

What	Who
Global programme management/multi-vehicle or component management	Buyer/Procurement Manager

### Tool Making:

What	Who
Conversion mechanical to electrical or electrical to mechanical	Manufacturing Team Leader/Lean Master Practitioner

# Appendix 29

## The North East

### Job and Skill Requirements

#### Vacancy Requirements:

Respondents identified 16 different types of role totalling 94 vacancies that are 'difficult to fill' or 'challenging'. Below is the table outlining the top ranking vacancies by volume required for this region.

Critical Now Impacting business output/Vacancy open 3+ months		Future Ongoing Will start to impact the business in the next 3-12 months/ongoing future recruitment needed	
Rank		Rank	
1	Maintenance Technician	1	Maintenance Technician
2	Programme Engineer	2	Production Engineer
3	Production Engineer	3	Design Engineer
4	Quality Ops Engineer	4	Tool Maker
5	Tool Maker	5	Senior Design Engineer/Lead
		6	Graduate Design Engineer
		7	Research Engineer
		8	Quality Ops Engineer
		9	Design and Development Technician
		10	Manufacturing Assembly Technician/ Senior Operator

Reasons	Actions
Business growth Contractors only Lack of experience/skill/expertise available Competition in UK labour market Age demographic Location	<b>Contractors covering roles</b> <b>Reviewing of salary/benefits</b> <b>Broaden recruitment search abroad</b> <b>Taking on more graduates and apprentices</b> <b>Development of local tailored educational programmes</b>



**The North East Skill Requirements:**

Respondents identified 18 different types of learning required for 1727 employees. Below are the top ranked critical and future requirements for this region by volume of people requiring learning.

Critical Now Impacting business output/skill need to be addressed in the next 6-12 months		Future Ongoing Will start to impact business in the next 1-2 years/ foreseeable ongoing need for 2-5+ years	
Rank		Rank	
1	Mechatronics	1	Basic engineering
2	Languages	2	Leadership training
3	Advanced problem solving	3	Electronics
4	Setting	4	Setting
5	Polymers	5	Mechanical skills
6	Electronics	6	Polymers
7	Metrology/quality core tools	7	Metrology
8	Computer Aided Design/CAE	8	Computer Aided Design
9	Robotics	9	Tool making
10	Tool making	10	Mechatronics

Reasons	Actions
Business growth Technological advancement Lack of experience/skill/expertise Competition in UK labour market Age demographic Location	<b>Upskilling staff/will upskill staff</b> <b>Taking on more graduates and apprentices</b> <b>Development of local tailored educational training programmes</b> <b>Succession planning</b> <b>Salary/benefits review</b> <b>Ongoing rolling recruitment/convert contractors to permanent</b>

**Mechatronics:**

What	Who
NVQ Level 3 multi-skilled maintenance/hydraulics, pneumatics and conveyor systems/experience of plant and equipment/fault finding and diagnosis/IT skills – Excel/combined mechanical and electrical skills	<b>Maintenance Technician</b>

**Basic Engineering:**

What	Who
General core engineering skills for electronics industry/production engineering skills/setting up and maintaining production of developed products/Level 4 HNC/reading drawings and understanding materials	<b>Production Engineer</b> <b>Manufacturing Senior Operator</b> <b>Manufacturing Team Leader</b>

**Languages:**

What	Who
German, French, Italian and Chinese	Logistics Analyst/Quality Ops Engineer/ Programme Engineer/Production Engineer

**Leadership:**

What	Who
People management ILM 2 and 3 leadership supervisory skills ProLead programme Team building Diversity Communications Motivating others	Principle Engineer/Maintenance Team Leader/ Maintenance Manager/Manufacturing Manager/ Logistics Analyst

**Advanced Problem Solving:**

What	Who
Cross functional/multi-disciplinary problem solving	Production Engineer/Quality Ops Engineer

**Electronics:**

What	Who
Electronics/pneumatics/machine design/automation/skills in surface mount technology/systems controls/power electronics/hardware/surface mount technology skills	Design and Development Engineer/ Production Engineer/Research Engineer

**Setting:**

What	Who
Machine/press setting and operating single or progression tooling in mechanical and hydraulic presses. Knowledge of measuring instruments/power press regulation (PUWER) training.	Manufacturing Technicians/Senior Operators

**Mechanical Skills:**

What	Who
Press tooling/precision steel progression compound tools (pierce form blank ops) high volume production/hand held tools for grinding/stoning/polishing. Operation of manual milling machines, lathes/drilling and surface grinding. TIG/MIG and ARC welding/measuring equipment/fault finding and diagnosis skills/hydraulics and pneumatics.	Maintenance Technician

### Polymers:

What	Who
Technical polymer expertise	Manufacturing Technician/Senior Operator

### Metrology/Quality Core Tools:

What	Who
Measuring equipment and gauges/understanding tolerances and calibration/CMM technology/geometrical dimensioning and tolerancing/Statistical Process Control (SPC)/PPAP/FMEA and control plan/read engineering drawings. Quality tools and techniques	Production Operations Technician/Manufacturing Operators  Quality Ops Engineer/Supplier Quality Engineer/Quality Assurance Engineer

### Computer Aided Design/Computer Aided Engineering:

What	Who
CATIA V5-R18 skills/Auto CAD/expertise in clamps and exhausts. Software real time control.	Design Engineer/Design Graduate  Design Engineer

### Robotics:

What	Who
Programming	Maintenance Technician

### Tool Making:

What	Who
Knowledge of press tooling/mechanical engineering/precision steel progression compound tools (pierce-form-blank ops) or similar for high volume production/hand held tools for grinding, stoning, polishing/manual milling machines/lathes/drilling and surface grinding machines/TIG, MIG and ARC welding/measuring equipment/fault finding and diagnosis/Excel/tool making apprenticeship	Tool Maker/Production Engineer

### Manufacturing Process Knowledge:

What	Who
Production and mechanical engineering skills and qualifications	Production Engineer

# Appendix 30

## The West Midlands

### Job and Skill Requirements

#### Vacancy Requirements:

Respondents identified 45 different types of role totalling 768 vacancies that are 'difficult to fill' or 'challenging'. Below is the table outlining the top ranking vacancies by volume required for this region.

Critical Now Impacting business output/vacancy open 3+ months		Future Ongoing Will start to impact the business in the next 3-12 months/ongoing future recruitment needed	
Rank		Rank	
1	Design Engineer	1	Design Engineer
2	Production Engineer	2	Maintenance Technician
3	Programme Manager	3	Manufacturing Technician/Senior Op
4	Quality Ops Engineer	4	Production Engineer
5	Senior Programme Engineer/Lead	5	Quality Assurance Engineer
6	Manufacturing Team Leader	6	Manufacturing Team Leader
7	Programme Engineer	7	Maintenance Team Leader/Senior Technician
8	Senior Production Engineer/Lead	8	Programme Engineer
9	Quality Assurance Engineer	9	Programme Manager
10	Maintenance Technician	10	Manufacturing Supervisor/Manager

Reasons	Actions
Business growth Technological advancement Lack of experience/skill/expertise available Competition in UK labour market Age demographic Location	<b>Contractors covering roles (trying to convert to permanent roles)</b> <b>Reviewing of salary/benefits</b> <b>Broaden recruitment search abroad</b> <b>Taking on more graduates and apprentices</b> <b>Development of local tailored educational training programmes</b>

### The West Midlands Skill Requirements:

Respondents identified 47 different types of learning required for 6296 employees. Below are the top ranked critical and future requirements for this region by volume of people requiring learning.

Critical Now Impacting business output/skill need to be addressed in the next 6-12 months		Future Ongoing Will start to impact business in the next 1-2 years/ foreseeable ongoing need for 2-5+ years	
Rank		Rank	
1	Lean manufacturing	1	Lean manufacturing
2	Manufacturing process knowledge	2	Manufacturing process knowledge
3	Leadership training	3	Leadership training
4	Quality core tools	4	Advanced problem solving
5	Programmable Logic Control (PLC)	5	Procurement
6	Programme management	6	Quality core tools
7	Electrification and hybrids	7	Basic engineering
8	Advanced problem solving	8	Programmable Logic Control (PLC)
9	Welding	9	Robotics
10	Tool making	10	Welding

Reasons	Actions
Business growth Technological advancement Lack of experience/skill/expertise Competition in UK labour market Age demographic	<b>Contractors</b> <b>Upskilling staff/will upskill staff</b> <b>Taking on more graduates and apprentices</b> <b>Development of local tailored educational training programmes</b> <b>Succession planning</b>

### Lean Manufacturing:

What	Who
Lean topics/visual management and communication boards/embedding of behaviour and cultural elements of continuous improvement so team own and drive this. In-depth application of LEAN.	<b>Manufacturing Operator/Senior Operator and Technician</b>  <b>Cost Estimating Engineer/Supplier Quality Engineer</b>

### Manufacturing Process Knowledge:

What	Who
Combination of process knowledge and costing Skilled and qualified production and mechanical engineering. Standardisation of production operations across the plant/ SOPs.	<b>Cost Estimating Engineer</b> <b>Production Engineer</b>  <b>Manufacturing Senior Op/Technician</b>

**Leadership Training:**

What	Who
Interpersonal skills/people management/ILM Level 2 and 3 Team building/communications/diversity/motivating others/ ProLead	<b>Manufacturing Team Leader</b> <b>Manufacturing Team Leader/Logistics Analyst/</b> <b>Maintenance Manager/Manufacturing Senior</b> <b>Technician</b>

**Quality Core Tools:**

What	Who
Root cause analysis toolkit/brainstorm construct analysis usage/measure/mitigation/line balancing/control planning/ high level of mathematics/analyse and interpret data. Problem solving/validating and refining engine performance/universal balance machine improvements, calibration and tooling to ensure no rattles, humming noise.	<b>Manufacturing Operator/Senior Programme Engineer/</b> <b>Quality Ops Engineer/Manufacturing Team Leader/</b> <b>Production Engineer/Design Engineer</b>

**Advanced Problem Solving:**

What	Who
8D Basic training for production In-depth training including root cause analysis for team leaders and engineers	<b>Senior Programme Engineer/Supplier Quality Engineer</b> <b>Manufacturing Team Leader</b> <b>Manufacturing Supervisor/Manager/Production</b> <b>Engineer/Quality Ops Engineer/Maintenance</b> <b>Technician</b>

**Programmable Logic Control (PLC):**

What	Who
Fault finding and maintenance on ABB/Siemens machines. Fault finding and problem solving ABB Robotics/TRUMPF laser welding/Siemens PLC.	<b>Maintenance Technician</b> <b>Maintenance Team Leader/Manufacturing Senior Op/</b> <b>Technician/Manufacturing Team Leader</b>

**Procurement:**

What	Who
Ordering paints from approved suppliers/technical data and health and safety aspects such as COSHH, PPE and risk assessment. OEM/supplier relationship development/KPI and reporting/ commodity development and management.	<b>Manufacturing Operator</b>  <b>Buyer/Procurement Manager</b>

### Programme Management:

What	Who
Methodologies and application of robust programme management techniques	Buyer/Design Manager

### Electrification & Hybrids:

What	Who
New technology of electrification and hybrids Move from internal combustion to electrification	Cost Estimating Engineer/Buyer Senior Manufacturing Technician

### Basic Engineering:

What	Who
Experience across mechanical, electrical, manufacturing and supply chain Level 4 HNC in engineering Reading drawings/understand materials	Production Engineer Production Engineering Trainee Manufacturing Senior Technician and Team Leader

### Welding:

What	Who
Automated welding/machine controlled – friction and magarc welding KUKA machines Basic training – ABB TRUMPF laser welding	Production Engineer Maintenance Senior Technician and Team Leader

### Robotics:

What	Who
Electronics – electrical skills ABB	Maintenance Technician Manufacturing Senior Technician and Team Leader/ Senior Maintenance Technician

### Tool Making:

What	Who
Full apprenticeship Conversion mechanical to electrical and electrical to mechanical Tool design skills	Tool Maker Apprentice Manufacturing Team Leader/Master Lean Practitioner Tool Maker

# Appendix 31

## The East Midlands

### Job and Skill Requirements

#### Vacancy Requirements:

Respondents identified 21 different types of role totalling 73 vacancies that are 'difficult to fill' or 'challenging'. Below is the table outlining the top ranking vacancies by volume required for this region.

Critical Now Impacting business output/vacancy open 3+ months		Future Ongoing Will start to impact the business in the next 3-12 months/ongoing future recruitment need	
Rank		Rank	
1	Section Lead/ Senior Design Engineer	1	Design Engineer
2	Production Engineer	2	Team Leader Tool Maker/Senior Tool Maker
3	Programme Manager	3	Manufacturing Team Leader
4	Manufacturing Technician/Senior Op	4	Production Engineer

Reasons	Actions
Business growth Lack of experience/skill/expertise available Competition in UK labour market Age demographic Location	<b>Contractors covering roles (trying to convert to permanent roles)</b> <b>Broaden recruitment search</b> <b>Taking on more graduates and apprentices</b> <b>Development of local tailored educational programmes</b>



### The East Midlands Skill Requirements:

Respondents identified 20 different types of learning required for 806 employees. Below are the top ranked critical and future requirements for this region by volume of people requiring learning.

Critical Now Impacting business output/skill need to be addressed in the next 6-12 months		Future Ongoing Will start to impact business in the next 1-2 years/ foreseeable ongoing need for 2-5+ years	
Rank		Rank	
1	Quality core tools	1	Leadership training
2	Leadership training	2	Lean manufacturing
3	Value stream mapping	3	Advanced problem solving
4	MRP	4	Mechatronics
5	Design for manufacturing and assembly	5	Plaster injection moulding
6	Programme management	6	Robotics
		7	Chartered or Professional Development
		8	Programmable Logic Control (PLC)
		9	Pressing
		10	Tool making

Reasons	Actions
Business growth Technological advancement Lack of experience/skill/expertise Competitions in UK labour market	<b>Upskilling staff/will upskill staff</b> <b>Development of local tailored educational training programmes</b>

### Quality Core Tools:

What	Who
Brainstorm construct analysis usage/measure/mitigation/ line balancing/control planning	Manufacturing Operator

### Leadership Training:

What	Who
Communications/motivating others/handling conflict/ disciplinary and grievance/absence management/ performance management/coaching and mentoring/ negotiations/supervisory skills	<b>Manufacturing Team Leader/Quality Ops Manager/ Maintenance Manager/Maintenance Team Leader/ Senior Planner/Material Planning Lead/Purchasing Lead/Senior Buyer/Production Engineering Manager/ Manufacturing Manager/Graduate Trainee</b>

**Lean Manufacturing:**

What	Who
Continuous improvement/5S/standardisation/Lean awareness	<b>Manufacturing Operator and Senior Operator</b>
Value stream mapping – identify and map all materials and processes coming in and out of production	<b>Production Engineer</b>

**MRP:**

What	Who
MRP 123 super user training	<b>Buyer/Logistics Co-ordinator/Production Engineer</b>
MRP 123 basic training	<b>Manufacturing Operator</b>

**Advanced Problem Solving:**

What	Who
Practical problem solving/business improvement techniques/fully embedding the programme culturally and use tools and techniques daily	<b>Manufacturing Team Leader/Production Engineer</b>

**Design for Manufacture & Assembly:**

What	Who
Fundamental skills for process engineering/mistake proofing process/error proofing in design stage	<b>Production Engineer/Manufacturing Team Leader and Senior Operator</b>

**Mechatronics:**

What	Who
Combination of mechanics, robotics and controls/internally run apprenticeship	<b>Maintenance Technician/Production Engineer</b>

**Programme Management:**

What	Who
Tools and skills for managing engineering projects	<b>Programme Manager</b>

**Plastic Injection Moulding:**

What	Who
Advance process techniques for large injection tools/maintenance of injection tools	<b>Manufacturing Operation and Senior Operator/ Tool Maker</b>

### Robotics:

What	Who
FANUC robot training – programming/maintaining and fault finding	Manufacturing Operator/Maintenance Technician

### Chartership or Professional Development:

What	Who
Professional qualification to underpin knowledge of materials planning and logistics principles	Logistics Co-ordinator

### Programmable Logic Control (PLC):

What	Who
Knowledge of software and way to interrogate it	Maintenance Technician/Manufacturing Team Leader

### Pressing:

What	Who
Press and die engineering/how to maintain furnace/tooling/press and die/laser trimming and cutting equipment	Maintenance Technician

### Tool Making:

What	Who
Broaden skills from CNC bending expertise into broader tool making as business growing into pressing	Maintenance Senior Technician and Team Leader

# Appendix 32

## The South

### Job and Skill Requirements

#### Vacancy Requirements:

Respondents identified 23 different types of role totalling 244 vacancies that are 'difficult to fill' or 'challenging'. Below is the table outlining the top ranking vacancies by volume required for this region.

Critical Now Impacting business output/vacancy open 3+ months		Future Ongoing Will start to impact the business in the next 3-12 months/ongoing future recruitment need	
Rank		Rank	
1	Production Engineer	1	Design Engineer
2	Design Engineer	2	Maintenance Team Leader/ Engineer
3	Design & Development Manager/Technical Expert	3	Logistics Planner
4	Head of Logistics	4	Production Engineer
5	Manufacturing Technician/Senior Op	5	Buyer
		6	Quality Ops Engineer

Reasons	Actions
<ul style="list-style-type: none"> <li>Business growth</li> <li>Technological advancement</li> <li>Lack of experience/skill/expertise available</li> <li>Competition in UK labour market</li> <li>Age demographic</li> <li>Location</li> </ul>	<ul style="list-style-type: none"> <li>Contractors covering permanent roles (trying to convert to permanent)</li> <li>Reviewing of salary/benefits</li> <li>Broaden recruitment search abroad</li> <li>Taking on more graduates and apprentices</li> <li>Development of local tailored educational training programmes</li> </ul>

### The South Skill Requirements:

Respondents identified 19 different types of learning required for 205 employees. Below are the top ranked critical and future requirements for this region by volume of people requiring learning.

Critical Now Impacting business output/skill need to be addressed in the next 6-12 months		Future Ongoing Will start to impact business in the next 1-2 years/ foreseeable ongoing need for 2-5+ years	
Rank		Rank	
1	Tool Making	1	Leadership Training
2	Flow Dynamics	2	Programming
3	Computer Aided Design	3	Robotics
4	Programmable Logic Control (PLC)	4	Automotive Knowledge
		5	Advanced Problem Solving
		6	Cryogenics
		7	Electrification and Hybrids
		8	Quality Core Tools
		9	Connectivity and Connected Car
		10	Basic Engineering

Reasons	Actions
Business growth Technological advancement Lack of experience/skill/expertise Competition in UK labour market Age demographic Location	<b>Upkilling staff/will upskill staff</b> <b>Taking on more graduates and apprentices</b> <b>Development of local tailored educational training programmes</b> <b>Succession planning</b> <b>Salary/benefits review</b> <b>Ongoing rolling recruitment/convert contractors to permanent</b>

### Tool Making:

What	Who
Knowledge of press shop, how to make, alter repair Tool making linked to lathing, milling and grinding	<b>Manufacturing Operator</b>

### Leadership:

What	Who
People management skills ProLead Core people management tools	<b>Manufacturing Team Leader</b> <b>Maintenance Manager</b> <b>Principle Engineer</b>

**Flow Dynamics:**

What	Who
How fluid is transferred around the engine	Design Engineer

**Programming:**

What	Who
Robot setting up/basic programming within paint/press and welding areas	Manufacturing Operator

**Computer Aided Design:**

What	Who
Auto CAD CATIA Expertise in clamps and exhausts from a design engineering perspective	Design Engineer

**Robotics:**

What	Who
Automating robots	Production Engineer

**Programmable Logic Control (PLC):**

What	Who
Labview based programming	Design Engineer

**Automotive Knowledge:**

What	Who
Understanding of car dynamics and the industry	Design and Development Engineer

**Advanced Problem Solving:**

What	Who
Problem solving and decision making techniques/ temperaments/sourcing information to make best decisions	Manufacturing Manager

### Cryogenics/Refrigeration:

What	Who
Classical thermodynamics analysis/heat transfer and fluid flow analysis techniques/low temperature systems/refrigeration and HVAC systems	Research Engineer

### Electrification and Hybrids:

What	Who
Powertrain integration	Design Engineer

### Quality Core Tools:

What	Who
Managing of the quality of products to the quality management system, customer and industry standards	Quality Ops Engineer

### Connectivity and Connected Car:

What	Who
Computerised electronics	Design Engineer

### Basic Engineering:

What	Who
Setting up and maintaining production of developed products	Production Engineer

# Appendix 33

## Welsh

### Job and Skill Requirements

#### Vacancy Requirements:

Respondents identified 13 different types of role totalling 26 vacancies that are 'difficult to fill' or 'challenging'. Below is the table outlining the top ranking vacancies by volume required for this region.

Critical Now Impacting business output/vacancy open 3+ months		Future Ongoing Will start to impact the business in the next 3-12 months/ongoing future recruitment need	
Rank		Rank	
1	Tool Maker	1	Manufacturing Team Leader
2	Maintenance Technician	2	Maintenance Apprentice Trainee
3	Production Engineer	3	Design Engineer
4	Quality Assurance Engineer	4	Quality Assurance Manager
5	Programme Manager	5	Production Engineer
6	Materials Planning Analyst	6	Procurement Section Leader/ Planner
		7	Buyer

Reasons	Actions
Business growth Technological advancement Lack of experience/skill/expertise available Competition in UK labour market Location	<b>Contractors covering roles</b> <b>Reviewing salaries/benefits</b> <b>Broaden recruitment search</b> <b>Taking on more graduates and apprentices</b> <b>Development of local tailored educational programmes</b>



### Welsh Skill Requirements:

Respondents identified 14 different types of learning required for 149 employees. Below are the top ranked critical and future requirements for this region by volume of people requiring learning.

Critical Now Impacting business output/skill need to be addressed in the next 6-12 months		Future Ongoing Will start to impact business in next 1-2 years/ foreseeable ongoing need 2-5+ years	
Rank		Rank	
1	Quality core tools	1	Health and safety
2	Robotics	2	Advanced problem solving
3	Leadership training	3	Lean manufacturing
4	Welding	4	Electricification and hybrids
5	Mechanical skills		
6	Programmable Logic Control (PLC)		
7	Fault finding		
8	Tool making		
9	Chartered or professional development		

Reasons	Actions
<ul style="list-style-type: none"> <li>Business growth</li> <li>Technological advancement</li> <li>Lack of experience/skill/expertise</li> <li>Competition in UK labour market</li> </ul>	<ul style="list-style-type: none"> <li>Upskilling staff/will upskill staff</li> <li>Taking on more apprentices and graduates</li> <li>Development of local tailored educational programmes</li> <li>Developing succession plan</li> </ul>

### Quality Core Tools:

What	Who
Knowledge and application of design of experiment/ understanding and interpreting of Statistic Process Control (SPC) Data	Production Engineer

### Health & Safety:

What	Who
Different learning levels across the whole plant	All roles within manufacturing plant up to senior management level

### Robotics:

What	Who
Knowledge of ABB and KUKA	Production Engineer

**Advanced Problem Solving:**

What	Who
Fully embedding the programme culturally so tools and techniques are used daily	Production Engineer

**Leadership Training:**

What	Who
Absence management/disciplinary and grievance/ motivating others/leading a team	Manufacturing Team Leader

**Lean Manufacturing:**

What	Who
Kaizen/5S/optimising efficiency	Manufacturing Team Leader

**Welding:**

What	Who
Latest welding skills and techniques	Maintenance Technician/Tool Maker

**Electrification & Hybrids:**

What	Who
Move away from mechanical to electronics and hybrid technology	Production Engineer/Maintenance Technician/ Quality Ops Engineer

**Mechanical Skills:**

What	Who
Hydraulics and pneumatics	Maintenance Technician

**Programmable Logic Control (PLC):**

What	Who
Allen Bradley and some Siemens	Maintenance Technician

**Fault Finding:**

What	Who
Fault finding and diagnosis	Maintenance Technician

**Tool Making:**

What	Who
Milling, turning and grinding skills	Tool Maker

**Chartered or Professional Development:**

What	Who
Chartered Institute of Procurement and Supply professional qualification	Logistics Planner

# Glossary

<b>5S</b>	A technique to improve organisational efficiency. Sort, Set in Order, Shine, Standardise and Sustain.
<b>8D</b>	Eight Disciplines of problem solving. A method to solve complex problems.
<b>ABB</b>	Brand name of a robotics supplier to the automotive industry.
<b>Advanced Problem Solving</b>	A training programme developed by Toyota Motor Manufacturing (UK) and piloted through the Automotive Industrial Partnership to address an industry need for transferrable and in depth problem solving skills.
<b>AERO CFD (Computational Fluid Dynamics)</b>	A method of solving equations that govern fluid flow processes and a key tool for aerodynamic design.
<b>Allen-Bradley</b>	Brand name of industrial components used in the automotive industry.
<b>APQP (Advanced Product Quality Planning)</b>	A framework of procedures and techniques used to develop products.
<b>Art of Manufacturing</b>	A one day interactive programme developed by Nissan and piloted through the Automotive Industrial Partnership to encourage more Year 6 students to consider an automotive industry career.
<b>Assembly</b>	Puts together various goods and parts to make/create a part or vehicle.
<b>Auto CAD (Computer-Aided Design)</b>	Software to create precise 2 and 3 dimensional drawings.
<b>Automotive Apprenticeship Matching Service</b>	Established by the Automotive Industrial Partnership to redirect high quality talent from over-subscribed automotive apprenticeship programmes to other companies within the sector that have opportunities.
<b>Automotive Council</b>	Set up in 2009, the Automotive Council is a platform for the industry and government to work together to drive the sector to global leadership.
<b>Automotive Industrial Partnership</b>	Established in 2014 by the Automotive Council, to bring together industry and government to ensure the UK's automotive sector has the pipeline of skills talent it needs now and for the future.
<b>Automotive Industry Job Framework</b>	Created to provide a common language for the jobs and structure across the engineering, purchasing, materials, planning and logistics, quality and manufacturing functions.
<b>Bill of Material (BOM)</b>	List of materials needed to produce a product.
<b>Calibration</b>	Validating and refining performance.
<b>CATIA V5</b>	Software used to design, simulate, analyse and manufacture products.
<b>CIPS</b>	Chartered Institute of Procurement and Supply.
<b>CMM (Coordinate Measuring Machine)</b>	A device to take detailed geometric and surface measurements.
<b>DoE (Design of Experiment)</b>	A method to identify cause and affect relationships – managing inputs to maximise outputs.
<b>FANUC</b>	A supplier of robots used in the automotive industry.
<b>FEA (Finite Element Analysis)</b>	A computer simulation technique to allow a product design or equipment to be tested and analysed in detail.
<b>FLT</b>	Fork Lift Truck.
<b>FMEA (Failure Mode Effect Analysis)</b>	A technique to identify failures in a design, manufacturing or assembly process.
<b>HEV</b>	Hybrid Electronic Vehicles.
<b>ILM</b>	Institute of Leadership and Management.
<b>IMechE</b>	Institution of Mechanical Engineers.
<b>Industrial Cadets</b>	A four day programme for secondary school pupils (aged 13) developed by Nissan and piloted through the Automotive Industrial Partnership to encourage more young talent to join the automotive industry.

<b>Kaizen</b>	A system to continually improve quality, technology and processes.
<b>LabVIEW (Laboratory Virtual Instrument Engineering Workbench)</b>	A graphical programming language used by engineers.
<b>Lean Manufacturing function</b>	Continually looks to make efficiency improvements to a company's products, systems, operations and processes.
<b>Maintenance Upskilling</b>	A programme developed by Jaguar Land Rover and piloted through the Automotive Industrial Partnership to fill maintenance technician roles by upskilling staff and developing new entrants with transferrable skills.
<b>Materials Planning and Logistics (MP&amp;L)</b>	Schedules and forecasts the right volumes of materials, goods and products inbound to the business from its suppliers.
<b>Materials Requirement Planning (MRP)</b>	A production planning, scheduling and inventory control system.
<b>MATLAB (Matrix Laboratory)</b>	A high performing language for technical computing.
<b>Mechatronics</b>	Multi-skilled learning in hydraulics, pneumatics, conveyor systems and fault finding and diagnosis.
<b>Metrology</b>	Using measuring equipment and gauges to understand tolerance levels.
<b>NVH (Noise, Vibration and Harshness)</b>	Measuring and modifying these characteristics.
<b>OEM</b>	Original Equipment Manufacturer.
<b>PLC (Programme Logic Control)</b>	Digital computer used to control machinery.
<b>Poke Yoke</b>	Error proofing.
<b>PPAP (Production Part Approval Process)</b>	A standardised process to help manufacturers and suppliers to communicate and approve production designs and processes before, during and after manufacture.
<b>PPM</b>	Parts Per Million
<b>Preventative Maintenance</b>	Maintaining equipment regularly to reduce the likelihood of a breakdown.
<b>Production Engineering</b>	Defines and works out how the product will be assembled on the production line. Reviews efficiencies and eliminates waste within the manufacturing process. Delivers high quality products/components to clearly defined standards.
<b>Programming</b>	Using computer code to create software programmes.
<b>ProLead</b>	A higher level leadership and technical management programme developed and piloted by the Automotive Industrial Partnership.
<b>Quality Core Tools</b>	Supplier development tools. Managing quality for products in line with quality management system and customer/industry specification.
<b>Real-Time Control System (RCS)</b>	A methodology for designing, engineering, integrating and testing control systems.
<b>Root Cause Analysis</b>	Method of problem solving to identify the root causes of faults.
<b>Simulink</b>	A programme that enables rapid construction of prototypes to explore design concepts.
<b>Six Sigma</b>	A problem solving methodology for eliminating manufacturing defects.
<b>Standardisation</b>	Implementing and developing technical standards.
<b>Statistical Process Control (SPC)</b>	A type of quality control which utilises statistical methods.
<b>Trailblazer Apprenticeship</b>	Groups of employers (trailblazers) are leading the way in carrying out apprenticeship reform. They are working together to design new apprenticeship standards and assessment approaches.
<b>TRUMPF Lasers</b>	Industrial laser manufacturer.
<b>Value Stream Mapping</b>	Streamlining work processes to reduce costs and increase quality.
<b>Visual Management and Communication Boards</b>	A communication tool used to provide visual information at a glance.







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