



Apprentice Technician, Design & Development Job Description Product Design & Development Technician, Level 3

(Job Code and Level: EDES000)

Definition:

Design and Development 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.

Overall Purpose of the Role:

Learn to Design, Develop and Validate components. Support sub-elements of large projects, working under instruction of technical lead engineer. Develop innovative technical solutions that meet project needs, and produce CAD models for these components. Provide support to new-business and vehicle launch teams. Works closely with more senior staff on simple projects under close supervision and work reviewed frequently. Works within well established practices and clearly defined scope of work. Work closely with more senior staff on simple projects. Plan within immediate assigned tasks and contributes to milestones. Demonstrate initiative on moderate problem solving within assigned tasks.

Duration:

Typically the duration of this apprenticeship is 36 – 48 months. This duration may be reduced for a candidate with previous relevant experience and/or someone already part qualified.

Key Responsibilities:

General and Task Management

- Primarily work on all stages of product creation and modification

- Support activities ranging from early concept feasibility, design and development stages right through to final preparation for launch and customers
- Includes work in concept studios, rapid prototyping, assembly, testing, validating and analysing performance.
- Typically work closely with engineers in bringing new concepts to life or supporting redesigns of existing products
- Keep up with current and developing manufacturing and engineering trends
- Undertake special projects as required
- 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
- Conduct benchmarking studies to determine best practices/designs and future trends
- 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

Relationship Management

- Support technicians and engineers
- Liaise and communicate with other departments

Self Management

Occupational Behaviours: Modern high value manufacturing organisations require their apprentices to have a set of occupational behaviours that will ensure success both in their current and future roles and in meeting the overall company objectives. These required behaviours include:

- **Safety mindset:** This occupation sits within an industry with a high level of safety critical activities. There has to be strict compliance and a disciplined and responsible approach to manage, mitigate and avoid risk.
- **Strong work ethic:** Positive attitude, motivated by engineering; dependable, ethical, responsible and reliable.
- **Logical approach:** Able to structure a plan and develop activities following a logical thought process, but also able to quickly “think on feet” when working through them.
- **Problem solving orientation:** Identifies issues quickly, enjoys solving complex problems and applies appropriate solutions. Has a strong desire to push to ensure the true root cause of any problem is found and a solution identified which prevents further recurrence.
- **Quality focus:** Follows rules, procedures and principles in ensuring work completed is fit for purpose and pays attention to detail / error checks throughout activities.
- **Personal responsibility and resilience:** Motivated to succeed accountable and persistent to complete task.

- Clear communicator: Use a variety of appropriate communication methods to give/receive information accurately, and in a timely and positive manner.
- Team player: Not only plays own part but able to work and communicate clearly and effectively within a team and interacts/ helps others when required. In doing so applies these skills in a respectful professional manner.
- Applies Lean Manufacturing Principles: Continuous improvement in driving effectiveness and efficiency.
- Adaptability: Able to adjust to different conditions, technologies, situations and environments.
- Self-Motivation: A 'self-starter' who always wants to give their best, sets themselves challenging targets, can make their own decisions.
- Willingness to learn: wanting to drive their continuous professional development
- Commitment: Able to commit to the beliefs, goals and standards of their own employer and to the wider industry and its professional standards.

Skills and Attributes:

During the foundation stage the apprentice will develop a solid grasp of the core engineering skills. These skills will not only prepare the apprentice for the workplace in demonstrating that they have the required manual dexterity to do their core role, but will build and stretch their transferable competencies over time. The skills required for full competence are:

- How to comply with statutory regulations and stringent organisational safety requirements
- How to effectively use and interpret a range of engineering data sources and documentation
- Organising work efficiently and effectively in engineering resources when completing tasks
- Producing components and prototypes using a wide range of hand fitting techniques
- Preparing and using lathes, milling, as well as other general or specialist high tech
- Producing assemblies and rigs using a range of materials and techniques
- Applying and testing mechanical, electrical and electronic devices and equipment
- Engineering project planning within the prototyping context
- Business improvement planning
- Applying mechanical principles and joining techniques to, products, devices and equipment
- Applying electrical and electronic principles to products devices and equipment
- Maintaining and testing instrumentation within product devices
- Identifying, diagnosing and rectifying design problems through the whole creation process including design studio, workshops, test environments or under laboratory conditions

- Applying latest advanced manufacturing technologies in product creation (such a 3D printing)

During the development stage the apprentice hone these skills working on prototype development activities ranging from products themselves, mechanical, electrical & electronic assembly, experimental / new model rigs, product related fitting instrumentation and testing using a well-planned, logical and systematic approach.

Qualifications and Experience Levels:

- Individual employers will set the selection criteria for their Apprenticeships. In order to optimise success candidates will typically have 4 GCSE's at Grade C or equivalent, including Mathematics, English and a Science. Employers who recruit candidates without English or Maths at Grade C or above must ensure that the candidate achieves this standard prior to the completion of the Apprenticeship.
- Advanced mathematical and scientific methods and applications for engineers
- Properties, applications and testing of engineering materials
- Engineering drawings/Computer Aided Design (CAD) for technicians
- How to undertake and apply business-led projects
- Advanced mechanical and joining principles, applications and systems
- Advanced electrical, electronic principles, systems and sub-systems
- Measurement, monitoring, testing & diagnostics within engineered systems
- Product-related systems, sub-systems and ancillaries.

Further Information:

www.gov.uk/government/publications/apprenticeship-standard-product-design-and-development-engineer

Example roles this job description may cover:

- Graduate Technician Design
- Placement Trainee Design