

# General Motors Engineering Centre Job Descriptions



# Job Description – Design Engineer

**Title:** Design Engineer  
**Department:** VEC – Engineering Services  
**Location:** Vauxhall Engineering Centre – Millbrook Proving Ground

## The Department:

The VEC is responsible for the engineering of GM Europe's Light Commercial Vehicles (LCVs). To achieve this there are close links with our GM partners at ITDC based in Rüsselsheim, and our Renault partners based at iDVU near Paris.

## The Role:

Working within the Engineering Services group at the Vauxhall Engineering Centre, you will work on a number of different automotive projects throughout your placement.

## Key Responsibilities:

- Carry out the Engineering Design of GME's Light Commercial Vehicles, mainly through CAD, either working in partnership with other GM operations or working alone.
- Release Engineering data into the GM parts system. Parts designed in house can be released directly into the system; Renault part numbers can be translated into GM standard versions.
- Ensure compliance with national, European and Worldwide regulations and legislation, and monitor developments and trends to ensure that future vehicles meet regulations.
- Construction and maintenance of Digital Mock Ups (DMUs) for LCVs currently being developed to allow Designers and Engineers access to product data in a format that is easy to understand and manipulate.
- Checking clearances and fits within the DMU.
- Provide status reports at Project Reviews.
- Maintain and publish 'Vis Mockup' databanks.
- Assist in generating a plan for implementation of CAE simulation methods and techniques.

## Required Skills:

Understanding of the science of materials and their different uses, Familiarity with body vehicle structures and manufacturing processes. Knowledge of press tools and sheet metal pressings – body panel fabrication techniques. Knowledge of occupant safety criteria. Ability to read and understand technical drawings. Ability to write technical specifications and procedures. Familiarity with CAD packages such as Unigraphics or Catia. Skilled in use of software applications such as Word, Excel, PowerPoint, Project Manager etc

Preferred Area of Study: Mechanical or Automotive Engineering



# Undergraduate Placement Review – Undergraduate Design Engineer



|             |                                |
|-------------|--------------------------------|
| Name:       | Shaun Eldred                   |
| Year:       | 2008 - 2009                    |
| University: | Brunel University              |
| Degree:     | Product Design Engineering BSc |

## My role

As the design engineer, my primary focus is on maintaining a mockup of the entire Vauxhall Vivaro van and anything to do with the van, its also to assist the CAD designers with whatever vehicle they are working on. Another focus is to produce studies using the CAD data, for any requests given to us from any engineers, be this engine studies for America, corrosion studies for use in Sweden or just release data for engineers in Germany. The studies and projects we get are varied from week to week and each project helps develop a different skill. Working with the designers has allowed me to gain invaluable experience into this side of design which will help back at university.

## What have I gained from the placement?

Placement has shown me what it is like to work in a full time job, working to the routine and working to the set deadlines. It has given me better time management, and also taught me skills I wouldn't have developed at university. The main achievement would be the amount of new programs I can use which I hadn't even heard of before starting work. The year has given me a better understanding of how a large company works, and the process of a car's design concept through to actual manufacture and production of the vehicle. It has also helped to see how the designers produce their CAD models of each part as it's different to what is taught at uni, also how having an understanding of manufacturing methods is crucial as to what can and can't be designed.

## Highlight of my placement year!

The biggest highlight for me was when we finished the final design phase for the car that is being produced, and that all the parts are now being tooled up so that the first few vehicles can be made and tested. It would have been better if I could have seen the first few vehicles arrive at Millbrook for testing, as it's something that I have had some input into the design, and it's the first product I've worked on that has gone into production. Another highlight was knowing that some work I produced went up to the Vice President of product development for him to consider a new design proposal for a vehicle planned to be released in 2015, knowing that something I did this year may affect a decision for a vehicle so far away is pretty impressive.



# Job Description – Project Engineer (VEC)

**Title:** Project Engineer  
**Department:** VEC – Product Engineering  
**Location:** Vauxhall Engineering Centre - Millbrook  
**Brands** Vauxhall, Opel, Saab, Cadillac & others as required

## The Department:

Situated within the Product Engineering group within the VEC at Millbrook Proving Ground, you will work on a number of different automotive projects throughout your placement. The VEC is responsible for the product engineering of GME's Light Commercial Vehicles (LCV's). To achieve this there are close links with our Renault partners based at iDVU near Paris, ITDC in Russelsheim and the Nissan Plant NMISA, based in Barcelona, Spain. IBC Vehicles and NMISA are the producers of the Vivaro/ Trafic series of LCV's. You will work directly for the Engineering Managers and be assigned component responsibilities on vehicles.

## The Role:

Modify existing designs to meet customer needs. Design, test and validate the integration of new concepts into the vehicles. Provide technical support and component knowledge to assist in resolving manufacturing and quality issues. Develop root cause analysis for problems and recommended corrective action(s)

## Key Responsibilities:

- Work within the chassis group at the VEC:
  - To resolve current production issues that arise at GMM/Luton
  - On cost reduction ideas for X83
  - Each of these may require problem solving, line trials, organisation for tests of parts or assemblies, costing of the change, research of warranty data, tracking of progress to implementation, liaison with other engineering departments and looking at competitor solutions
- Work on Design for Six Sigma Projects for future GM vehicles
- Competitor vehicle assessments and review
- Ensure correct Engineering release of new concepts and features
- Tracking and reporting at the Engineering Meeting on production discrepancies
- Working with other departments to resolve production discrepancies by identifying the root cause and finding a solution. Liaison with other engineering centres and manufacturing plants

## Required Skills:

Understanding of the science of materials and their different uses. Familiarity with body vehicle structures and manufacturing processes. Familiarity with application of materials to trim vehicle/interiors exteriors. Knowledge of press tools and sheet metal pressings – body panel fabrication techniques. Knowledge of occupant safety criteria. Ability to commission engineering tests and interpret resulting data. Ability to read and understand technical drawings. Ability to write technical specifications and procedures. Skilled in use of software applications such as Word, Excel, Project Manager etc

## Preferred Area of Study:

Mechanical and Electrical/Automotive Engineering



# Undergraduate Placement Review – Project Engineer



|                    |                                                  |
|--------------------|--------------------------------------------------|
| <b>Name:</b>       | Harry Schneider                                  |
| <b>Year:</b>       | 2008 - 2009                                      |
| <b>University:</b> | The University of Nottingham                     |
| <b>Degree:</b>     | MEng Hons Mechanical Engineering<br>(Automotive) |

## My role

Working within the Vehicle Systems Group on the Chassis Team, my main responsibility lies with the chassis components of the Vauxhall Vivaro built at General Motors Manufacturing Luton (GMML). One of my jobs is to facilitate engineering changes between our colleagues at Renault, the Manufacturing Engineers and the Quality Department. In addition, I support new build introductions and help with the solution finding to problems and quality concerns.

Apart from this, my role has been very varied as I have also worked on many other projects. At the beginning of my placement I was part of a major CO2 reduction project. With much research and our own testing, we were able to make recommendations for next generation vehicles. Other work included the evaluation of a wiper system, supporting vehicle dynamics activities, as well as the new Astra build at Ellesmere Port.

## What have I gained from the placement?

I have learned a great deal about the workings of the automotive industry and automotive engineering. Regular visits to GMML allowed me to practice my root cause problem solving skills in a more practical way and let me experience the manufacturing side of engineering, as well as learning about the development and validation side of the industry at the VEC.

## Highlight of my placement year!

The highlight of my placement was being taken around the Millbrook Alpine Route in a Vauxhall Astra VXR by our vehicle dynamics specialist, and getting all four wheels off the ground in the same place they jumped James Bond's Aston Martin!



# Job Description – Validation and Special Vehicle Engineer

**Title:** Validation and Special Vehicle Engineer  
**Department:** GME – Product Engineering  
**Location:** Vauxhall Engineering Centre – Millbrook Proving Ground

## The Department:

Situated within the Product Engineering group within the GME Engineering Centre at Millbrook Proving Ground, you will work on a number of different automotive projects throughout your placement. The centre is responsible for the product engineering of GME's Light Commercial Vehicles (LCV's). To achieve this there are close links with our Renault partners based at IDVU near Paris and with ITDC in Russelheim. You will work directly for the Engineering Managers and be assigned component responsibilities on vehicles.

## The Role:

Bring customer needs into the Engineering development. Support design, test and validate the integration of new concepts into the vehicles. Provide technical support to assist in resolving issues. Develop planning and implementation for product specification, validation and launch preparation

## Key Responsibilities:

- Develop Plans and Schedules
  - Establish validation plans to meet validation requirements
- Develop Criteria and Requirements
  - *Analyze customer studies, warranty data and published media to improve current and future products*
- Prepare & Conduct test
  - Evaluate vehicle subjectively (Customer requirements)
- Report
  - Ensure that validation is completed in time
  - Track, monitor and report part/system/ vehicle validation status in project gates
- Liaison with other engineering centres
- Ensure product meets marketing and quality requirements
- Understand and ensure compliance with GM Quality, Environmental and other applicable standards

## Required knowledge & experience:

Familiarity with body vehicle structures and manufacturing processes. Familiarity with application of materials. Knowledge of press tools and sheet metal pressings – body panel fabrication techniques. Knowledge of occupant safety criteria. Ability to commission engineering tests and interpret resulting data. Ability to read and understand technical drawings. Ability to write technical specifications and procedures. Skilled in use of software applications such as Word, Excel, Project Manager etc

## Preferred Area of Study:

Mechanical and Electrical/Automotive Engineering



# Undergraduate Placement Review – Special Vehicles and Validation Engineer

Name: Anna-Kristina Perry  
Year: 2008 - 2009  
University: Loughborough University  
Degree: Automotive Engineering (MEng)

## My role

I am responsible for assisting the Special Vehicles & Validation Group at the VEC. I have worked on many different projects throughout the year, including Ride&Drive Development days, Special Vehicle conversions and vehicle testing.

My main project has been to develop a Vehicle Assessment Procedure into a mainstream activity. This has involved carrying out the process on several different vehicle classes and reporting the results and progress to my counterpart engineer in Germany. This project developed my understanding on Whole Vehicle Assessment as well as my knowledge of the vehicle design process.

My other main project was to work on the Verification Testing of the Insignia Optical System, focusing on the need for "In-Country" Verification. This work involved planning and organising UK Test Trips, conducting the UK Testing and creating reports to be sent back to Germany and the supplier.

Throughout the year my role has been varied and challenging, providing me with a great deal of industry knowledge for me to use and help with my degree course during my final 2 years.

## What have I gained from the placement?

This placement allowed me to improve all of my skills, particularly in areas of communication. I had never communicated purely through e-mail before or used call conferences as a communication method, without ever meeting people face-to-face. I have improved my problem solving skills, which is a skill that will directly impact on my degree.

My placement year has also allowed me to see how my theoretical degree is applied within the industry and given me several ideas for coursework and projects.

## Highlight of my placement year!

Working on developing and testing real systems, and seeing my work having an impact on current and future vehicles.



# Job Description – Home Plant Team Engineer

|                    |                                               |
|--------------------|-----------------------------------------------|
| <b>Title:</b>      | Home Plant Team Engineer – GME Engineering UK |
| <b>Department:</b> | Home Plant Team Luton (GMML)                  |
| <b>Location:</b>   | General Motors Manufacturing Luton (GMML)     |
| <b>Brands</b>      | Vauxhall, Opel                                |

## The Department:

The Home Plant Team is responsible for giving proactive engineering support to GMML on a wide spectrum from ensuring smooth engineering changes to providing support on plant problems. Home Plant Team are also responsible for ensuring Engineering Quality targets are met for the Vauxhall and Opel brands.

## The Role:

Provide engineering support on plant problems, management of investigation projects, communicate progress to Plant Executives, liaise with Renault – Nissan Alliance colleagues, and liaising with all respective plant business units.

## Key Responsibilities:

- Investigate, implement and resolve issues assigned to Engineering in Global Customer Audit. These issues vary from body fit issues i.e. gaps and flushness to manufacturability concerns.
- Manage major investigations. This involves drafting timing plans and running meetings with colleagues in concerned departments.
- Provide feedback to Plant Management on high profile problems. This is carried out in the form of verbal briefs and presentations respectively.
- Ensuring engineering targets are met for issues picked up in warranty. This involves guiding parties' involved using internal problem solving processes.
- Support Component Engineers when a design change is required. This involves carrying out a functional analysis of a component and supplying relevant data to quantify an issue outright.
- Liaise with Renault – Alliance colleagues on all Engineering issues.
- Participate in Safety Protection Check process. This involves co-ordinating plant/engineering resources to focus priority on potential high risk warranty concerns.
- Support plant on pilot builds and new variant models.

The student will gain an encompassing understanding of engineering as a multitude of topics are covered. Particular focus will be on problem solving.

## Required Skills:

Excellent communication skills are required as there is a need to develop fruitful relationships with respective business units and in addition explain technical concerns to varied audiences. Also, familiarity with CAD packages. Computer literacy (App packages and MS Project) is essential and a good understanding of Automotive Engineering is beneficial i.e. ability to read and understand technical drawings, specifications, manufacturing processes, industrial tooling, vehicle structures etc.

## Preferred Area of Study:

Mechanical/Automotive Engineering



# Undergraduate Placement Review – Home Plant Team Engineer (GMML)



|             |                                               |
|-------------|-----------------------------------------------|
| Name:       | Greg Da Santos                                |
| Year:       | 2008 - 2009                                   |
| University: | Brunel University                             |
| Degree:     | Mechanical Engineering with Automotive Design |

## My role

My role is to assist the Home Plant Team in providing the plant (GMML) with all encompassing and proactive engineering support. This support manifests itself in a number of ways; it can be a co-ordinating role or it can be a hands on practical role. The role has allowed me to experience a wide spectrum of Manufacturing Engineering from Press Shop to General Assembly (final vehicle assembly). In addition it has given me experience of engineering from initiation of a design/design change to the implementation of it. Furthermore it has given me invaluable skills in problem solving. During the initial stages of the placement (First 4 months), I spent most of my time familiarising myself with the plant environment. In addition to this I was assigned projects that I would have overall responsibility for. In one of the projects, I assumed a co-ordinating role, where I drew up a timing plan and arranged meetings to discuss progress. It has been an enjoyable challenge presenting to more experienced colleagues and engaging them in debates, on a number of issues. The rest of the placement is spent continually investigating plant problems and trying to resolve them in the most feasible and cost-effective manner.

## What have I gained from the placement?

During the placement I have exercised and improved upon a number of skills, especially communication skills when I have had to negotiate and present. In addition I have learnt the importance of time management and organisational skills. The group I have been working with are very supportive and have contributed greatly to the entire learning experience.

## Highlight of my placement year!

Towards the start of my placement, I was assigned a project to improve the perceptual quality of a certain area of the vehicle line. The quality targets were to be achieved through improvements to the vehicle component fitments. The changes implemented as a result of the investigation work done over the past 9 months have seen a 59% improvement to the area in question.

