

A Student's Perspective on Working on a University Project Linked with Industry

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This case study highlights why a student opted to work on an industry related project rather than develop their own group design project in Part C of the Automotive Engineering programme.

Reasons for engagement

As part of the Automotive Engineering degree, students are expected to engage in a group design project called 'Vehicle Design' which is assessed in Part C of the course. As the title suggests the objective of the module is for each group to design/develop a vehicle of some sort. The module is conducted as a follow up to a series of lectures, delivered by external lecturers who have a wide range of experience in the automotive design industry. At the start of the module the automotive engineering year is split up into design teams averaging 5-6 students per group. The groups can then suggest their own type of vehicle to design and develop, or choose one of the projects linked with industry.

In my case there were two available projects suggested by the company, but it is my understanding that each year the company and/or vehicle type can change. The project I worked on addressed issues with the current vehicle range, with a focus on improved safety and visibility. I could say that my 'reasons for engagement' with the project were 'to get the marks,' however the reason I chose a project linked with industry were a little less blunt. It was clear that working with a company to try and come

up with innovative solutions to real issues the company currently faced, would be a much more meaningful project, and may not just get added to the archives of 'I want to design a race car!' style vehicle design projects.

The engagement

We were told that if we undertook the project we would go on a tour of the plant, be given access to data from the design office and have questions answered by a contact based there. This was a draw to the group, as it would mean we would be getting answers and advice from current industry specialists as opposed to the usual student project practice of read about it, hope the assumptions you have made are correct and generate a solution, with the only indication of whether your assumptions were correct in the final marks.

Our deliverables in addition to the standard requirements of the module would be that we give a presentation to 3 members of staff at the end of the year. It actually turned out that 2 of the 'members of staff' were the current directors! If that doesn't motivate a student to do some good work and avoid looking a fool at the presentation then I don't know what would.

Everything that was promised to us in terms of support was delivered, and the answers to our technical questions came in the form of email contact with a young graduate employee, who was keen to be involved. We kept the numbers of questions sent to him to a minimum by appointing a team leader who filtered out some of the questions and passed on the emails. Even so, I think he found the time required to find the answers to some of our questions quite demanding.

Issues

As mentioned above, the only real issues were delays in replies to our emails. I can't really offer a solution to this, but I would say that I am sure it would have been even worse if we didn't use the team leader as the point of contact to filter our questions. I think the way the company appointed a graduate engineer helped, as he had an understanding of when and what we needed to hand in to the University, as he had been in our position not so long ago.

Benefits

The benefits for the students were that we had the chance to work on a project that had real meaning, and issues we were trying to solve were of current interest to the company. As we were the only group working on the challenge at hand, we had good exposure to the staff to answer questions. If the whole year group was working on the same design challenge and split into different groups, I am sure the number of questions thrown at the company would have been unmanageable. Working in this way a group can end up with a solution that could be more applicable to the company's current design ethos and manufacturing methods and even possibly be used in the future. However from a company point of view it could be seen as a gamble whether or not you get a competent group of students.

Unintended outcomes

Our design, which was intended to improve safety and visibility, actually encouraged the company to look at a new style of suspension system which could improve stability and manoeuvrability.

Student perspective

From this project students gain knowledge of working with industry, drive to deliver a first class solution, and possibly even a job. I know of one vehicle design project in the past, linked with industry which has ended up in a student being offered a job with the company before he walked out of the final presentation! Industry can expect to get development work at a low cost, with access to people who are not tied down by corporate deliverables, and can 'think out of the box'. They could also even gain employees.

Reflections

In all I think the project was well run. The obvious interest in what the students have to offer is backed up by sending two directors of the division to the final presentation, which acts as a massive motivator for the students. It is of note that the external lecturers acted as a go between, continually briefing the company with what the students had to deliver as part of the course requirements, and letting students know from the start what the company expected of them. Without this, expectations from either side may not have lined up.

Context

Rob Littlewood is currently a PhD student at Loughborough University having graduated in 2007 from Loughborough with a 2.1 MEng Hons (DIS) degree in Automotive Engineering. As part of the degree course he completed one year in industry, which led to the award of the Diploma in Industrial Studies (DIS), working jointly with Land

Rover and Denford CNC Machines Ltd. The case study describes a project undertaken as part of his part C undergraduate course which took place in 2005.

Rob was also a student representative on the engCETL board for just over a year where he attended meetings with academics, fellow students and industry specialists to discuss a range of pedagogical issues in the engineering higher education system. He was also involved with the Formula Student competition from the start of his degree in 2003 to his final year in 2007. During 2005-2007 he was the team leader of the Formula Student team and in his final year of the Automotive Engineering course Formula Student formed part of another group design project, within which resulting designs go on to be manufactured and tested.

