

Enhancing the employability of Brunel students:

Assessment and evaluation of a Level 1 multidisciplinary project based teaching activity in the School of Engineering and Design

Multidisciplinary Project Survey Analysis

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1. Introduction

The Level 1 Multidisciplinary Project (MDP) is a weeklong project that takes place in the last week of Term 1. It involves first year undergraduate students from across the School subject areas of Electronic and Computer Engineering, Mechanical Engineering, Civil Engineering and Design. The project is designed to be a teaching activity that removes the barrier of academic ability by involving a non-discipline technical element, the primary emphasis being on the development of key transferable skills and the utilisation of problem solving skills that students have begun to develop in their first term at university.

Each year around 450 students take part in MDP and they are put into mixed discipline groups of 8 or 9 students tasked with designing, building and demonstrating Lego Mindstorms and BASIC Stamp micro-controlled vehicles to tackle an obstacle course. More detailed information about the MDP can be found in [1].

This report presents an analysis of responses from students to an online survey set up to evaluate the MDP. The survey was created using the online 'SurveyMonkey' website and was made live on 30th March 2011. The survey consisted of 15 questions, including tick box style quantitative questions along with some text based qualitative questions. There was also a request for contact details to be provided, if students would be happy to be contacted for a follow-up discussion.

The aim of the survey was to obtain feedback from students in each subject area, in each academic year group that has taken part in the MDP in the School of Engineering and Design. The survey was designed to try and assess student experiences and recollections of the project activity, to evaluate how the MDP has evolved over the four years it has taken place and inform the continued development of the MDP in future academic years.

Information about the survey was sent by email to all students that have participated in the MDP since it was introduced in the 2007/2008 academic year (approximately 1700 students). The emails were written by Dr David Smith who is responsible for the running of the MDP and Dr Jo Cole who is involved in the co-ordination of the MDP, inviting students to complete the online questionnaire.

This report is broken into sections, giving an overview of the survey results as a whole, before looking at key observations in the data by year and by subject area. The survey questions are given in Appendix A with summary charts of the tick box responses given in Appendix B and the raw data from all questions provided by SurveyMonkey in Appendix C. Key points raised in the follow-up one-to-one email and phone discussions are then presented, with full transcripts of the questions and answers from these discussions given in Appendix D, along with feedback from the professional bodies that accredit the different undergraduate courses taking part in the MDP and the view of the Brunel Placement and Careers Office. A list of conclusions is then given, drawn up to reflect the aspects of the MDP that need improvement, to be used as input to the development of the MDP for the coming academic year.

Collation of the survey data, follow-up discussions with students and initial preparation of this report were conducted by Dianna Reid, with funding provided by the Brunel Academic Practice and Development Unit as part of a 2011 Learning and Teaching Innovation Fund award under project code 2LA026.

[Please note that in some of the figures presented, data labels 'Series2' and 'Series4' indicate answer selections between the answer categories on either side].

2. Survey Response Overview

This section presents key observations and findings from selected survey questions. Summary charts of the responses to all tick box questions are given in Appendix B while raw collected data from all questions is given in Appendix C.

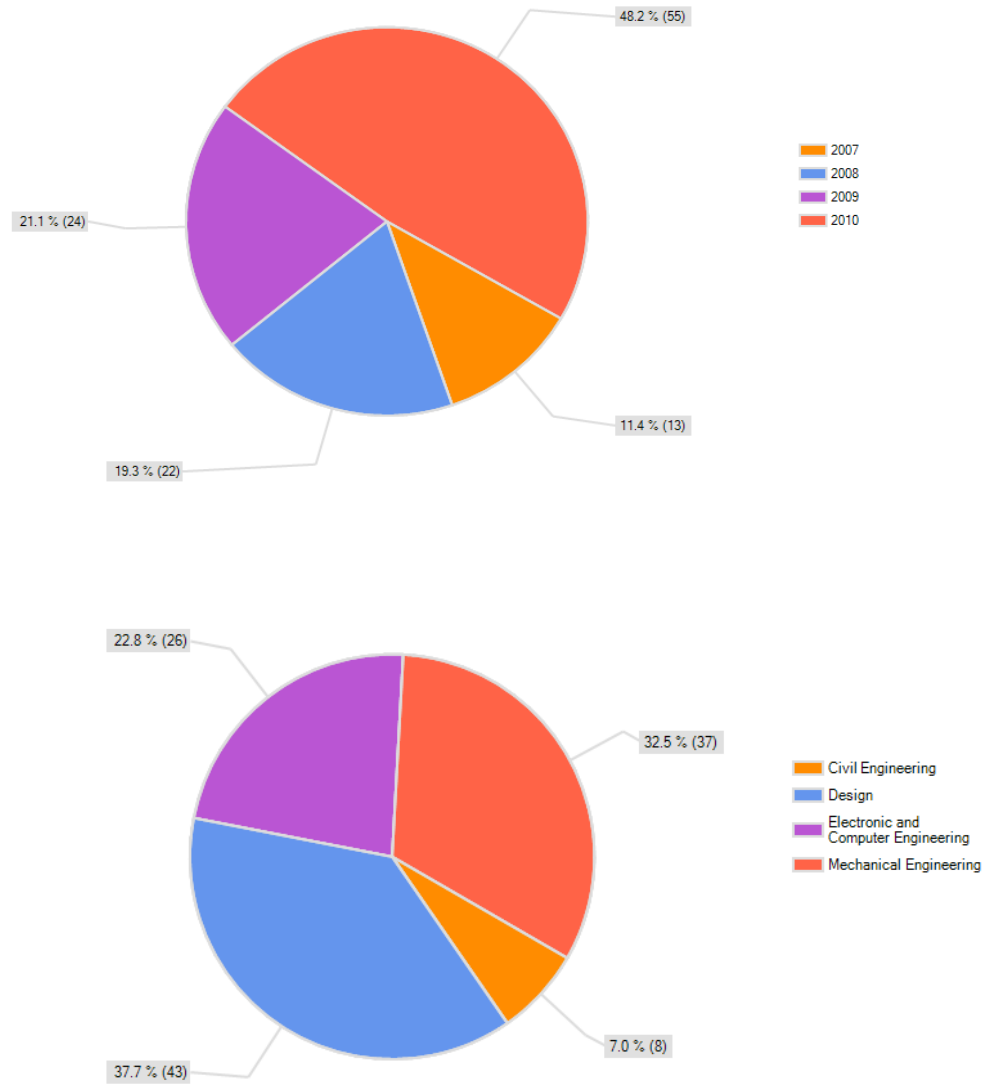


Figure 1: Question 1 ‘In which year did you participate in the MDP?’ (top) and Question 2 ‘In which subject area were you studying when you participated in the MDP?’ (bottom)

In total there were 114 respondents. The two plots in Figure 1 show the breakdown of these responses by year and by subject, respectively. Almost 50% of the responses came from students in the 2010 cohort, making the findings of the survey much more recent and valid. Responses were received from 8 Civil Engineering students, 43 Design students, 26 Electronic and Computer Engineering students and 37 Mechanical Engineering students, these numbers being roughly proportional to the corresponding percentage of students from each subject area that take part in the MDP.

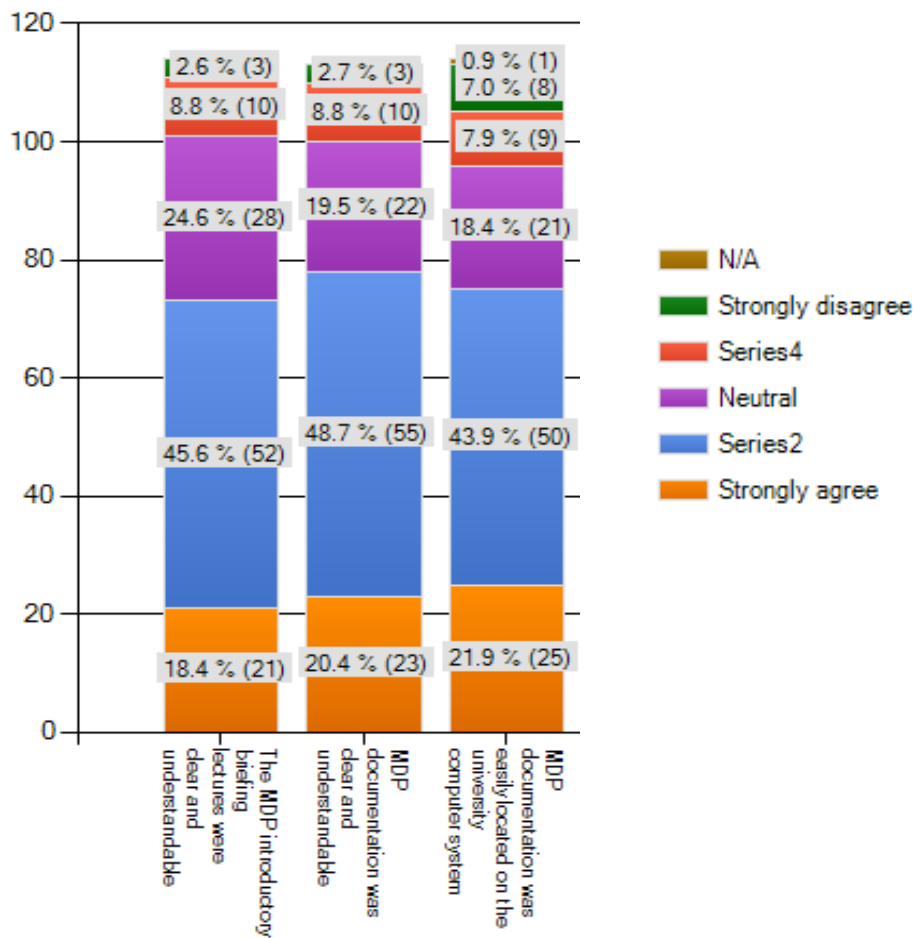


Figure 2: Responses to parts of Question 3 'Please rate the following statements about the organisation of the MDP'

Figure 2 shows that overall, the MDP documentation and the introductory MDP briefing are consistently very clear and understandable to the students each year. Students are made aware of the MDP from their very first week at Brunel via a short presentation and are then given further information in the build up to the project week. This proves to be a great help in preparing the students for the MDP week.

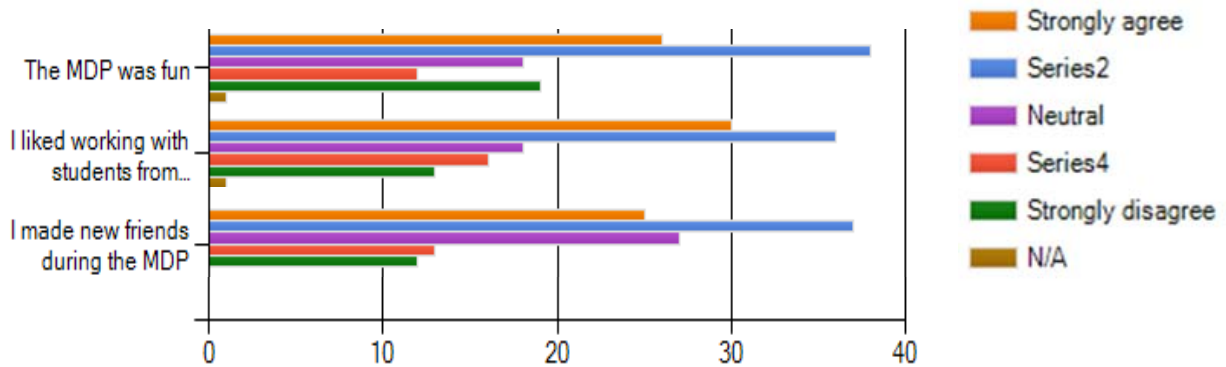


Figure 3: Responses to parts of Question 5 'Please rate the following statements about the value of participation in the MDP'

Throughout the four years that the MDP has taken place, one thing that stands out quite clearly across the whole School is the success of the social side of the project. One of the main elements of the project is the 'Multidisciplinary' aspect of the students working together in mixed discipline teams to gain an appreciation for the other branches of engineering that are outside of their field, as they will need to work with other engineers and designers once they have completed their degrees and obtained jobs in industry. Figure 3 shows a very positive response, with students responding that they liked working with students from other subject areas and that they made new friends during the MDP, in addition to finding it fun. Many of the text responses from the qualitative questions in the survey also reflected these results.

However, despite the fact of the students enjoy working together, a complaint that was made by a number of students was that the project groups are too large. The issue of group size was addressed in Question 6 on the survey and the question responses are shown in Figure 4. The data show there is a strong preference for the optimum number of students in an MDP project group to be much lower than the actual 8 – 9 students. This is clearly something that can be addressed in future project weeks, but it does have implications on the required equipment, available work space and project assessment schedule.

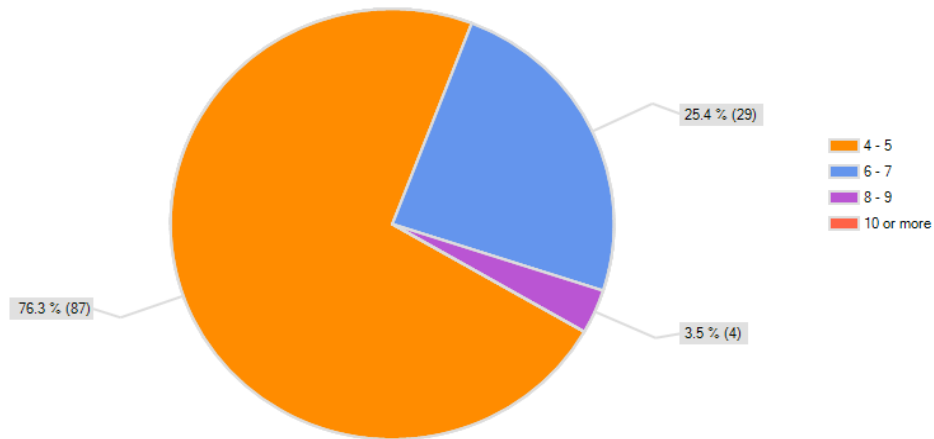


Figure 4: Question 6 ‘In your opinion, which of the following would be the optimum number of students in an MDP project group?’

The MDP was well organised						
	2007	2008	2009	2010	Weighting	Response count
Strongly agree	1	2	4	13	1	
	3	9	7	16	2	
Neutral	2	2	5	19	3	
	1	4	5	7	4	
Strongly disagree	6	5	3	0	5	
N/A	0	0	0	0	0	
					Average score	
Weighted score	3.62	3.05	2.83	2.36	2.74	114

Table 1: Responses to Question 3 regarding the organisation of the MDP
(the weighted scores are calculated from the category weightings of 1 – 5 from ‘Strongly agree’ to ‘Strongly disagree’, respectively, the closer the value of the weighted score to 1 the better)

From the text feedback obtained, it was evident that a common issue the students had was the organisation of the MDP. Quite a few students complained about this, but mostly in 2007 and 2008. Table 1 shows the student responses to Question 3 regarding the organisation of the MDP. The data clearly highlight the gradual progress made in the perception of the MDP organisation each year, the view of the students improving each year, with only 7 students disagreeing with the statement that the MDP was well organised, from a total of 55 responses in the 2010 cohort.

It was found that more students complained about there not being enough organisation within the project groups themselves, rather than in the running of the MDP as a whole. A common complaint was some students not participating as much as others in a given group, yet claiming the credit when it came to the project assessments. Some students suggested role allocations should be made explicit as part of the project task, which may be very useful in terms of participation as responsibility can be given to every group member. Currently the MDP requires project groups to organise themselves and this is clearly not working in all cases.

3. Survey Responses by Year

This section discusses some key trends in the survey results over the four years the MDP has taken place. One topic that arose frequently in the survey results across each subject area in each subject year was the issue of feedback. Out of all 83 text responses to Question 7, none of the students mentioned anything positive about feedback. In Question 8 however, which is another text response question, a few students commented that they did not remember receiving any feedback at all.

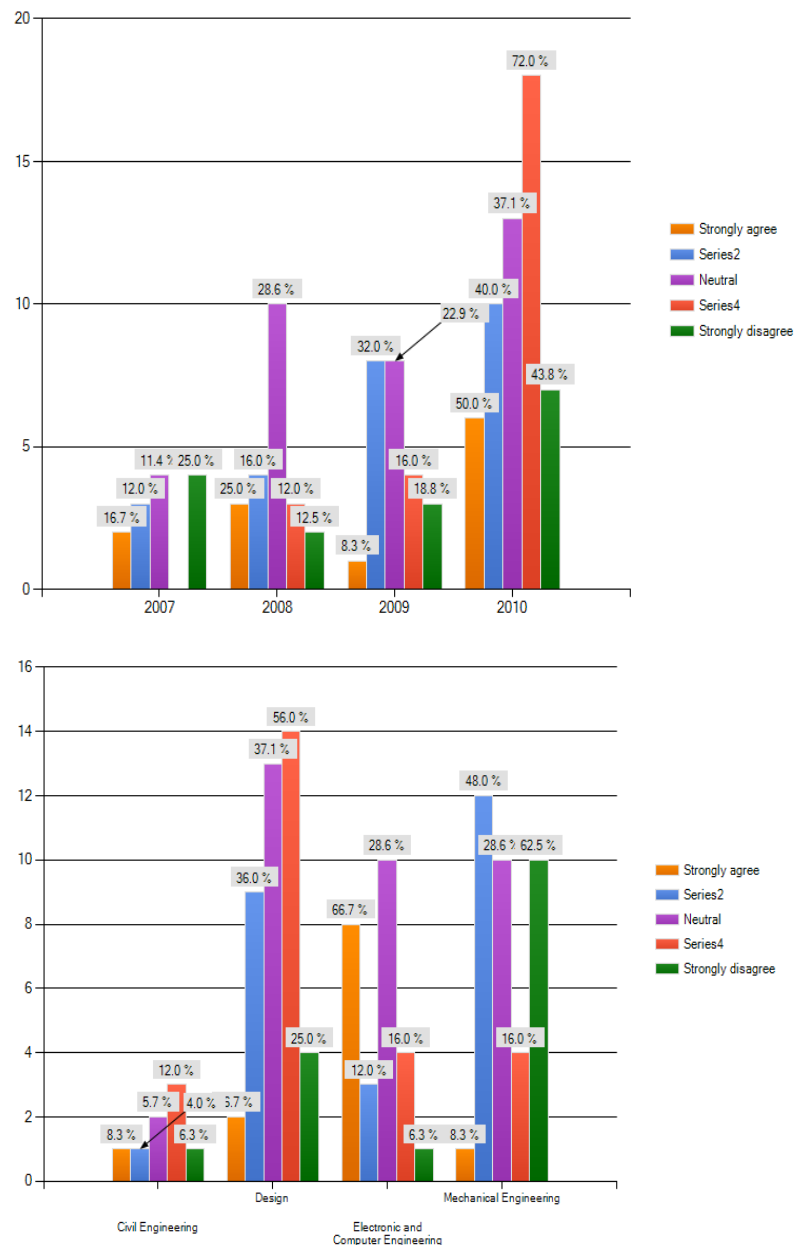


Figure 5: Responses to Question 4 when asked if 'Feedback on the MDP group demonstration was informative and constructive'. By academic year (top) and by subject area (bottom)

Figure 5 shows responses to Question 4 which asked if feedback on the MDP group demonstration was informative and constructive. The data clearly mirror the negative text comments about MDP assessment feedback. It is known that MDP demonstration feedback could be greatly improved and this is to be addressed in the coming academic year.

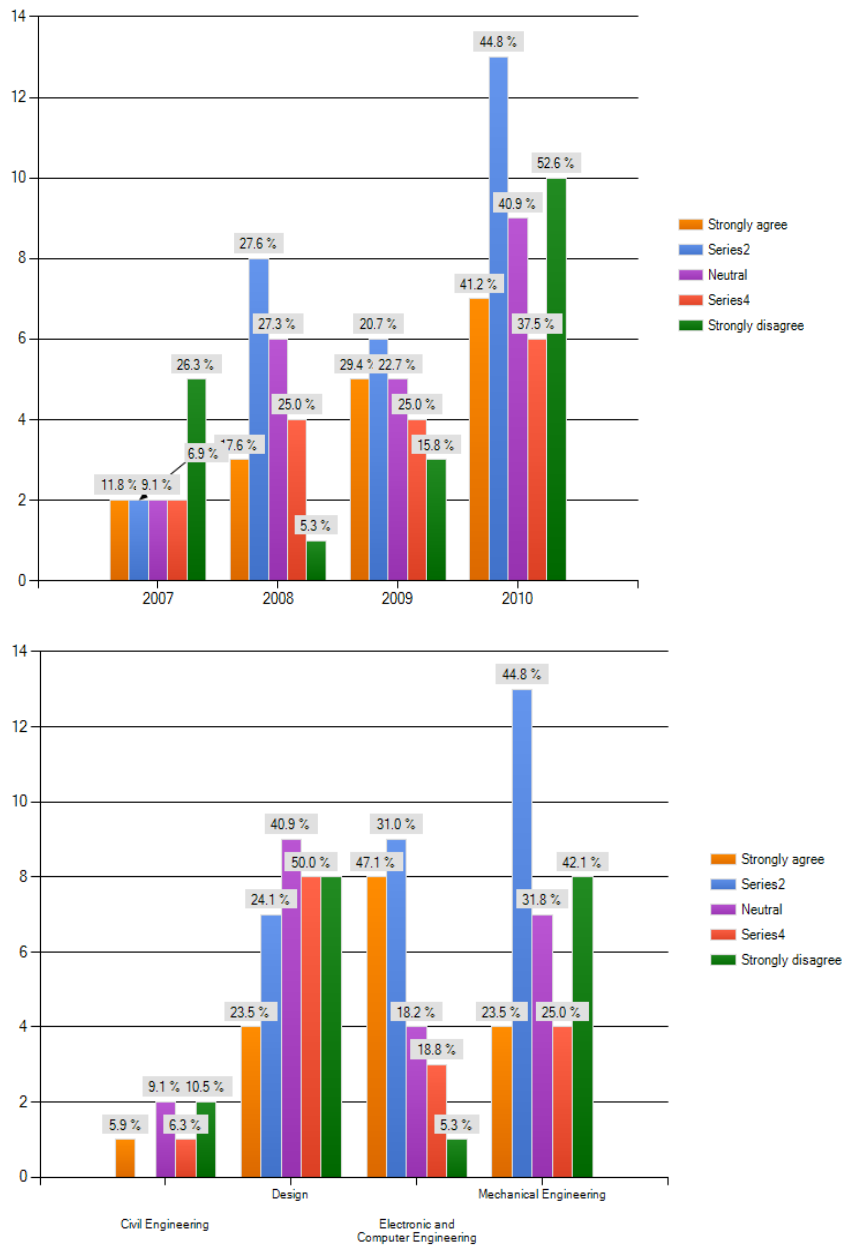


Figure 6: Responses to Question 4 when asked ‘Feedback on the MDP individual report was informative and constructive’. By academic year (top) and by subject area (bottom)

The data shown in Figure 6 also relate to feedback, this time the responses are to Question 4 regarding feedback on the MDP individual report being constructive and informative. Looking at the results, students from Electronic and Computer Engineering seem most happy with their report feedback, while there is room for improvement in the other participating subject areas.

The top plot in Figure 6, showing the results from each academic year, indicates that the students’ perception of feedback on the MDP individual reports has been very varied over time. In 2008 it seemed to have made a dramatic progress, dropping from 26.3% of students disagreeing that the individual report feedback is informative and constructive, to only 5.3% of students disagreeing. However, by 2010, students are clearly not satisfied with this aspect of the MDP in Design and Mechanical Engineering, a point that is backed up by individual student responses about feedback in the text answers to survey questions. Feedback is a key area which needs to be addressed in future MDP weeks.

There was adequate time to complete the project build and testing in the project week						
	2007	2008	2009	2010	Weighting	Response Count
Strongly agree	2	3	10	18	1	
	5	8	9	20	2	
Neutral	3	5	0	8	3	
	2	3	4	6	4	
Strongly disagree	1	3	1	3	5	
N/A	0	0	0	0	0	
					Average score	
Weighted score	2.62	2.77	2.04	2.20	2.32	114
There was adequate time to complete the individual report						
	2007	2008	2009	2010	Weighting	Response Count
Strongly agree	3	4	8	16	1	
	3	13	11	19	2	
Neutral	3	4	0	7	3	
	2	1	1	7	4	
Strongly disagree	1	0	4	6	5	
N/A	1	0	0	0	0	
					Average score	
Weighted score	2.58	2.09	2.25	2.42	2.34	114

Table 2: Responses to Question 4 regarding the time available for the MDP
 (the weighted scores are calculated from the category weightings of 1 – 5 from ‘Strongly agree’ to ‘Strongly disagree’, respectively, the closer the value of the weighted score to 1 the better)

Table 2 shows responses to the statements about the amount of time available to complete the project build and individual report aspects of the MDP. The data show that students were predominantly happy with the allocated time, although this is not representative of all students’ views, as evidenced by some of the text responses on this issue were some students felt that there was not enough time to complete the individual reports.

One student commented that the grade weighting towards their course was too much, considering the project only took place over a single week. Students are expected to spend a full working week on the project activity and in many cases this is certainly true, while in others there are students that are clearly not contributing enough or participating at the expected level for the full project duration. Trying to maintain engagement from all students in each group for the full project duration is clearly difficult and could be better monitored during the project week in future.

4. Survey Responses by Subject

4.1. Design

The Design students from 2007 generally felt that the MDP was not applicable to them. They noted that they felt like they “hadn’t learnt anything” as they felt there was not much of a design technology element to the MDP. This opinion has changed a little over the four years, but Design students still do not see the MDP as being of much value, even in the 2010 cohort.

5. Please rate the following statements about the value of participation in the MDP:								
	Strongly agree		Neutral		Strongly disagree	N/A	Rating Average	Response Count
I made new friends during the MDP	15.0% (3)	50.0% (10)	20.0% (4)	5.0% (1)	10.0% (2)	0.0% (0)	2.45	20
I learnt new technical skills during the MDP	5.0% (1)	5.0% (1)	30.0% (6)	40.0% (8)	20.0% (4)	0.0% (0)	3.65	20
The MDP developed my communication skills	5.0% (1)	10.0% (2)	30.0% (6)	30.0% (6)	25.0% (5)	0.0% (0)	3.60	20
The MDP developed my project management skills	5.0% (1)	15.0% (3)	25.0% (5)	30.0% (6)	25.0% (5)	0.0% (0)	3.55	20
The MDP developed my time management skills	5.0% (1)	10.0% (2)	35.0% (7)	30.0% (6)	20.0% (4)	0.0% (0)	3.50	20
The MDP was fun	30.0% (6)	15.0% (3)	25.0% (5)	10.0% (2)	20.0% (4)	0.0% (0)	2.75	20
I liked working with students from other subject areas	20.0% (4)	30.0% (6)	25.0% (5)	10.0% (2)	15.0% (3)	0.0% (0)	2.70	20
The MDP was a valuable part of my Level 1 studies	10.0% (2)	15.0% (3)	10.0% (2)	35.0% (7)	30.0% (6)	0.0% (0)	3.60	20
Participation in the MDP has been valuable in my subsequent studies	5.0% (1)	5.0% (1)	20.0% (4)	30.0% (6)	40.0% (8)	0.0% (0)	3.95	20
Participation in the MDP has been valuable outside of Brunel	5.0% (1)	5.0% (1)	15.0% (3)	35.0% (7)	40.0% (8)	0.0% (0)	4.00	20
Participation in the MDP has enhanced my employability	0.0% (0)	5.0% (1)	25.0% (5)	25.0% (5)	40.0% (8)	5.0% (1)	4.05	20
answered question								20
skipped question								0

Figure 7: Question 5 responses about the value of the MDP from Design students who took part in 2010

Figure 7 shows the responses to Question 5, about the value of the MDP, from all Design students that took part in the MDP in 2010. This year provided the highest response rate to the survey and the students’ answers tend to lean towards strongly disagreeing that the MDP is valuable to them and their future vocation. Enhancing the employability of students is one of the main aims of the MDP and therefore this is an important area to try and address in future MDP sessions, particularly for Design.

4.2. Civil Engineering

Although this is the subject yielding the fewest responses, Civil Engineering being the smallest subject area cohort taking part in the MDP, the Civil Engineering students that did respond, like those in Design, did not feel as though the MDP had been particularly relevant to them.

5. Please rate the following statements about the value of participation in the MDP:									
	Strongly agree		Neutral		Strongly disagree		N/A	Rating Average	Response Count
I made new friends during the MDP	20.0% (1)	0.0% (0)	20.0% (1)	40.0% (2)	20.0% (1)	0.0% (0)	3.40	5	
I learnt new technical skills during the MDP	0.0% (0)	0.0% (0)	40.0% (2)	40.0% (2)	20.0% (1)	0.0% (0)	3.80	5	
The MDP developed my communication skills	0.0% (0)	0.0% (0)	60.0% (3)	20.0% (1)	20.0% (1)	0.0% (0)	3.60	5	
The MDP developed my project management skills	0.0% (0)	20.0% (1)	40.0% (2)	20.0% (1)	20.0% (1)	0.0% (0)	3.40	5	
The MDP developed my time management skills	0.0% (0)	20.0% (1)	80.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)	2.80	5	
The MDP was fun	0.0% (0)	60.0% (3)	0.0% (0)	20.0% (1)	20.0% (1)	0.0% (0)	3.00	5	
I liked working with students from other subject areas	20.0% (1)	40.0% (2)	0.0% (0)	20.0% (1)	20.0% (1)	0.0% (0)	2.80	5	
The MDP was a valuable part of my Level 1 studies	0.0% (0)	0.0% (0)	20.0% (1)	20.0% (1)	60.0% (3)	0.0% (0)	4.40	5	
Participation in the MDP has been valuable in my subsequent studies	0.0% (0)	0.0% (0)	20.0% (1)	40.0% (2)	40.0% (2)	0.0% (0)	4.20	5	
Participation in the MDP has been valuable outside of Brunel	0.0% (0)	0.0% (0)	0.0% (0)	60.0% (3)	40.0% (2)	0.0% (0)	4.40	5	
Participation in the MDP has enhanced my employability	0.0% (0)	0.0% (0)	0.0% (0)	60.0% (3)	40.0% (2)	0.0% (0)	4.40	5	
answered question								5	
skipped question								0	

Figure 8: Question 5 responses about the value of the MDP from Civil Engineering students who took part in 2010

Figure 8 shows the responses from the Civil Engineering students in the 2010 cohort. This is the year which generated the highest number of responses in this subject area and shows a very neutral opinion of the value of participating in the MDP.

4.3. Electronic and Computer Engineering

In contrast to the other subjects, the Electronic and Computer Engineering students tend to have found participating in the MDP very beneficial, with more 'agree' and 'strongly agree' responses to statements about the value of participating. This subject area seems to be the most satisfied with the running and objectives of the MDP, however, data from the 2010 cohort, which are shown in Figure 9, indicate that there is still plenty of room for improvement.

5. Please rate the following statements about the value of participation in the MDP:								
	Strongly agree		Neutral		Strongly disagree	N/A	Rating Average	Response Count
I made new friends during the MDP	41.7% (5)	16.7% (2)	41.7% (5)	0.0% (0)	0.0% (0)	0.0% (0)	2.00	12
I learnt new technical skills during the MDP	25.0% (3)	16.7% (2)	25.0% (3)	0.0% (0)	33.3% (4)	0.0% (0)	3.00	12
The MDP developed my communication skills	16.7% (2)	41.7% (5)	25.0% (3)	0.0% (0)	16.7% (2)	0.0% (0)	2.58	12
The MDP developed my project management skills	8.3% (1)	41.7% (5)	33.3% (4)	8.3% (1)	8.3% (1)	0.0% (0)	2.67	12
The MDP developed my time management skills	16.7% (2)	25.0% (3)	33.3% (4)	8.3% (1)	16.7% (2)	0.0% (0)	2.83	12
The MDP was fun	33.3% (4)	25.0% (3)	25.0% (3)	0.0% (0)	16.7% (2)	0.0% (0)	2.42	12
I liked working with students from other subject areas	25.0% (3)	50.0% (6)	16.7% (2)	8.3% (1)	0.0% (0)	0.0% (0)	2.08	12
The MDP was a valuable part of my Level 1 studies	33.3% (4)	16.7% (2)	33.3% (4)	0.0% (0)	16.7% (2)	0.0% (0)	2.50	12
Participation in the MDP has been valuable in my subsequent studies	8.3% (1)	33.3% (4)	25.0% (3)	8.3% (1)	25.0% (3)	0.0% (0)	3.08	12
Participation in the MDP has been valuable outside of Brunel	16.7% (2)	33.3% (4)	16.7% (2)	8.3% (1)	25.0% (3)	0.0% (0)	2.92	12
Participation in the MDP has enhanced my employability	16.7% (2)	16.7% (2)	41.7% (5)	8.3% (1)	8.3% (1)	8.3% (1)	2.73	12
answered question								12
skipped question								0

Figure 9: Question 5 responses about the value of the MDP from Electronic and Computer Engineering students who took part in 2010

5. Follow-up Feedback Overview

In response to Question 12 of the survey, 16 students provided contact details and agreed to participate in follow-up discussions or answer additional questions that arose following initial analysis of the survey results.

Of these students, 10 were contacted by email and 6 were contacted by telephone, with 8 students providing additional feedback. Of the students that provided follow-up data, 3 were from Electronic and Computer Engineering, 1 was from Mechanical Engineering and 4 were from Design. Although not all of the students contacted provided a response, the most feedback came from the 4 Design students, who also happened to be in each of the respective MDP cohorts over the four years the project has run. Their feedback was very valuable and provided some insight into the survey responses obtained from Design and their low appreciation of the value of the MDP.

Full transcripts of the follow-up question and answer sessions are given in Appendix D. Below is a summary of the key points made about different aspects of the MDP by students that participated in this part of the study.

5.1. Employability:

All the students who replied to follow-up questions were asked questions about employability and for suggestions of ways to enhance the MDP, to make students more appealing to employers, for example when going to placement interviews. The vast majority of the students contacted said that the project was good to mention at interviews but would have been better if there were more defined roles for the individuals to have, so that at the interview they can explain in much more detail what their specific contribution to their project group was.

5.2. Value:

The Design students felt that their skills were not tested or put to use in the MDP. They mostly spoke about changing the focus of the activity to be more on how the robots looked rather than on how it functioned and being able to create their own robot as opposed to following a structure. This is one of the ways in which they felt the project could be of more value to them. These aspects of the MDP design and build are emphasised and encouraged each year in the MDP mid-term presentations, to try and engage Design students more in the project week, but this is clearly not feeding through into the group work carried out in the week itself. One way to address this would be to consider including an element of the project assessment specifically in this area so Design students feel they have more to contribute.

5.3. Material:

There was some debate with students about the use of material such as Lego and its simplicity. As a result, the students were asked if they thought the use of Lego Mindstorms kits for the MDP was good and if not, what material or kits would they recommend. It was a balanced outcome as two students thought that Lego was ideal for the MDP, taking place so early in their degree programmes, while two other students recommended the use of Meccano as a possible substitute or addition.

5.4. Group Control:

From the follow-up discussions it was evident that group size was a major issue for students. The majority of the students felt that the MDP group sizes should be much smaller, to allow better participation from all members, and roles and tasks to be better allocated. Students also believed smaller group sizes would be a way to ensure all group members remained engaged in the activity, without some students able to freeload or feel they have nothing to do.

6. Feedback and Suggestions from Accrediting Bodies

A few of the institutions that accredit the various undergraduate courses of the subject areas that participate in the MDP were contacted during this study, with the aim of getting some further ideas to aid in the development of the MDP. The institutions contacted were: The Institution of Engineering and Technology, The Institution of Mechanical Engineering (both contacted by email) and The Institution of Civil Engineers who were contacted by telephone. Below are the responses obtained from each of the institutions.

6.1. The Institution of Engineering and Technology:

Gareth James was contacted at the Institution of Engineering and Technology (IET). He provided an account of another vehicle-based group project activity that he was aware of called a '4 × 4 challenge'. This involved building 4 × 4 vehicles to tackle a course that Landrovers are tested on before they are put on show for sale. The whole process of building the vehicle, testing it and marketing it, brings a business element into the process and can be applicable to all the subject areas of engineering and design. Adding a marketing element to the MDP may be something to consider for the future, possibly even spreading the subject area involvement beyond just the School of Engineering and Design.

Gareth also said that he had a network of technicians and professionals at the IET and would be willing to arrange for a volunteer to be an adviser to the MDP and to give a talk about their real life experiences as an engineer, as well as to offer some advice to the students or answer questions.

As the MDP involves the task of designing, building and demonstrating Lego Mindstorms kits, Gareth also mentioned his own relationship with contacts at Lego and that he would be willing to talk to Lego about the issues the MDP faced and ask for some suggestions in making the project more challenging and applicable to all the participating subject areas.

6.2. The Institution of Mechanical Engineering:

The marketing team at the Institution of Mechanical Engineering (IMechE) provided contact details for Claire Maycock, who was subsequently sent an email to try and make contact. Claire replied to the email and copied her response to Chris Kirby who is the Theme Manager for Education at the IMechE and may be in a better place to give advice on the MDP.

A response from Chris Kirby is still pending.

6.3. The Institution of Civil Engineers:

Andrew Stanley was contacted at the Institution of Civil Engineers (ICE) by telephone and gave some suggestions on how to bring a more Civil Engineering element to the project. He talked about involving bridges and building objects like a train and tracks to get over the bridge. He also suggested bringing a load bearing aspect into the project. Andrew recommended a colleague named Susan Clements to be spoken to for further discussion, as she goes to schools and universities to help develop engineering activities. He also mentioned that the University of Warwick and Durham University may be doing similar projects to the MDP and to contact them for some further information.

When Susan Clements was contacted, she was asked to contribute some ideas and suggestions towards making the MDP more useful for Civil Engineering students. The activities and the length of the project were explained to Susan and she thought that a whole week was quite a long period of time to complete the MDP project tasks. Susan also mentioned the idea of building a bridge, but made out of lollipop sticks over a gap, to introduce a theme of force, as the students would have to get the object over the bridge. She also suggested about bringing competition into the project; that those with the least amount of sticks used to build an efficient bridge wins.

7. Feedback from the Brunel Placement and Careers Centre

A meeting was held at the Brunel University Placement and Careers Centre with Mike Grey and Raj Sidhu. During the meeting a variety of matters were discussed, primarily focusing on how the MDP can be adapted to better improve the transferable skills of participating students and ensure that the students think about the activity with the development of their employability in mind.

One idea suggested was to bring in multiple employers for the MDP, each linked to a different participating subject area, to give a concise and informative talk to the students as part of the MDP mid-term briefing talks. Example companies suggested included Dyson, to give a talk applicable to the Design students, 3M to give a talk applicable to Mechanical Engineering students and companies like Cundall and Lend Lease to also give more general presentations. Along with a talk by representatives of the Placement and Careers Centre about placement interviews and what employers are looking for, the idea of the mid-term briefings would then be to better prepare students for fully engaging with the MDP, making them think about the roles they will play in the project groups and what they need to get out of the project week to best complete the reflective individual report assessment component of the MDP and prepare them for the future.

As well as talking about ways to improve the MDP and making it more relevant to the students with regard to their subsequent studies and career opportunities, there was also a discussion about empowering the students and creating an atmosphere of enthusiasm about the project. One suggestion was to invite in managers/directors, as well as new recruits, from companies that were formerly Brunel students, giving the MDP students valuable role models to enhance their focus on the project activity and make it applicable to the world outside academia. There was also the suggestion of bringing in individuals who have had to work their way up in the industry and struggled but still managed to be very successful, as a point of inspiration for the students.

8. Conclusions

There are many positive comments about the MDP evidenced in the collected quantitative and qualitative survey data and follow-up discussion transcripts. However, the purpose of this report is to identify areas for improvement and highlight the key negative issues that the students participating in the MDP have experienced when taking part. A number of these issues have already been addressed over the years the MDP has taken place, the survey data being collected from students that have taken part in each of the four years the MDP has been a part of the School of Engineering and Design Level 1 teaching programme.

The bullet point list provided below summarises the remaining issues that need to be taken into consideration for the continued positive development of the MDP over the coming academic year. The points are not presented in any particular order. These points will be discussed with the MDP coordinators from across the participating subject areas in advance of the 2011-2012 academic year.

- The MDP group sizes are currently too large. The ideal suggested group size is around 4 – 5 students, although 6 – 7 is likely more practical given equipment, staff, space and schedule constraints.
- Design students felt particularly unattached to the project. Suggestions to improve the engagement of Design students include giving more emphasis to the design and presentation aspects of the project, possibly changing the assessment criteria for the group demonstration or individual report to better reflect these required components of the work.
- The project task seems to not be very challenging when it comes to enhancing technical skills. Although this is not a key aim of the MDP, there is some scope for making the challenges of each theme more difficult to try and improve student engagement. Making all project builds autonomous, rather than some being controllable in real-time, is one possible way of addressing this issue.
- The students talked about the possibility of being allowed to have a choice of what vehicles they constructed and which challenges they wanted to try and achieve. To date, MDP themes have always been allocated to groups but if all groups were to receive identical kit, there could be scope for allowing groups to choose a theme.
- Suggestions have been made to better engage the Civil Engineering students taking part. Project groups featuring Civil students could be tasked with creating a structure, such as a bridge, or building tracks for their vehicle to get across certain obstacles. Thought needs to be given to how such a proposal could be implemented in terms of cost, assessment and the need to get all the other group members to engage with the 'Civil' activity and vice-versa.
- Students are not really clear what role they should be playing during the MDP, some noting that when they went to placement interviews, they did not know what to talk about in terms of their own contribution to the project. One suggestion to address this issue is for specific roles within a project group to be allocated prior to the start of the project week so that students can more easily manage themselves throughout the week and know who is responsible for what. This does go against the way the MDP currently works, where groups are left to organise and manage themselves, this actually being an assessed part of the project activity in the individual report. Implementing roles in advance may lead to issues if a key role is not being carried out and the whole group stalls its activity or starts to blame specific members of the group for not doing what they are supposed to do.

- A vast majority of the students currently feel that the MDP does not enhance their employability. Following the meeting with representatives from the Placement and Careers Centre, they have happily agreed to contribute some time to help bring in contacts from different companies and also give a talk to the students about what employers are looking for and how the MDP can help make their CV look attractive to employers as part of the MDP mid-term briefings. These sessions would aim to get the students in the right mindset for participating in the MDP and to get them thinking about how to best reflect on their project experience prior to writing and submitting their MDP individual reports.
- There is feeling amongst some students that the MDP does not develop their time management, organisational or communication skills. The inclusion of a debriefing session after the conclusion of the MDP may ensure students are more aware of the skills they have put into practice and developed over the course of the project week, perhaps without really noticing. This session could include a seminar style discussion, with students being invited to share their experiences of the MDP and how they tackled the technical aspects of the work along with how they decided on roles within their team and how they dealt with organisation and communication problems that arose.
- Some students said that they had other work to be done during the MDP, even though all teaching is expected to be suspended throughout Week 12 and assignment deadlines are expected to be by the end of Week 11. There is a need to check this is the case across all participating subject areas to clarify this situation. Some student also took the opportunity to work on assignments due in after the winter break rather than concentrate on the MDP.
- There were a number of comments received regarding students that do not contribute to the activities of a group during the project week. One suggestion for improving student engagement throughout the MDP is to register student attendance on the Tuesday and Wednesday, in addition to Monday, Thursday and Friday for the kit collection and demonstration sessions where students are already registered, to monitor engagement throughout the project week. Stronger emphasis on all students being present until the very last day of term also needs to be made to ensure students do not book flights and leave the University before the end of the MDP.
- The survey results show that there is a strong need to address the quality and promptness of feedback following the group demonstrations and the submission of individual reports. Feedback on individual reports must be returned within the School required three week feedback deadline across all participating subject areas. The return of more detailed feedback following the group demonstrations also needs to be considered as to date this has only consisted of a grade and the award of prizes based on vehicle performance.
- There was some confusion from a few students regarding use of the individual report template in the last MDP. Use of the template is required to ensure all students have the same word limit for each section of the report so that the marking is fair across all submissions. This needs to be emphasised with a statement on the report template and in the MDP documentation to ensure it is used by all.
- A number of comments referred to the seemingly higher difficulty level of the 'Vehicle' MDP theme when compared to the Lego Mindstorms based project themes. Currently the Vehicle theme kit is more complicated to get working than the others, although the obstacle course challenges are reduced to compensate. Ensuring all groups are given the same project kit across all themes will reduce this disparity and instil a feeling of fairness.

9. References

- [1] D. R. Smith, J. Cole, "Development of an Undergraduate Multidisciplinary Engineering Project", *Proc. Constructionism*, (2010).

APPENDIX A: The MDP survey

*** 4. Please rate the following statements about MDP assessment and feedback:**

	Strongly agree		Neutral		Strongly disagree		N/A
The MDP assessment criteria were clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feedback on the MDP group demonstration was informative and constructive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Feedback on the MDP individual report was informative and constructive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There was adequate time to complete the project build and testing in the project week	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There was adequate time to complete the individual report	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*** 5. Please rate the following statements about the value of participation in the MDP:**

	Strongly agree		Neutral		Strongly disagree		N/A
I made new friends during the MDP	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I learnt new technical skills during the MDP	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The MDP developed my communication skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The MDP developed my project management skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The MDP developed my time management skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The MDP was fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I liked working with students from other subject areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The MDP was a valuable part of my Level 1 studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participation in the MDP has been valuable in my subsequent studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participation in the MDP has been valuable outside of Brunel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participation in the MDP has enhanced my employability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*** 6. In your opinion, which of the following would be the optimum number of students in an MDP project group?**

- 4 - 5
- 6 - 7
- 8 - 9
- 10 or more

7. List three positive aspects of the MDP.

8. List three negative aspects of the MDP.

9. From your memory or participating, is there anything you would like to add or change about the MDP?

10. How do you think the MDP can be improved to better prepare you for life after university?

11. Do you have any other comments or suggestions regarding your MDP experience?

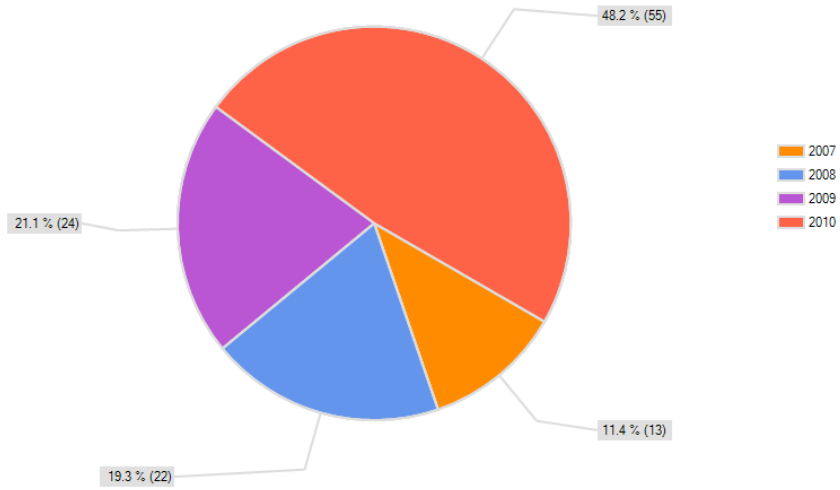
12. If you would be able to participate in an interview about the MDP by phone, or in person at Brunel, please enter a contact name and email address or telephone number in the box below. Your contact details will only be accessed by the researchers carrying out this study for the purpose of inviting you for interview.

Any personal information submitted will be kept confidential. All data collected will be secured against unauthorised access. No individual will be identifiable in any published results from this survey without his or her explicit consent. All personal data from which an individual is identifiable will be destroyed when no longer required.

APPENDIX B: Summary charts

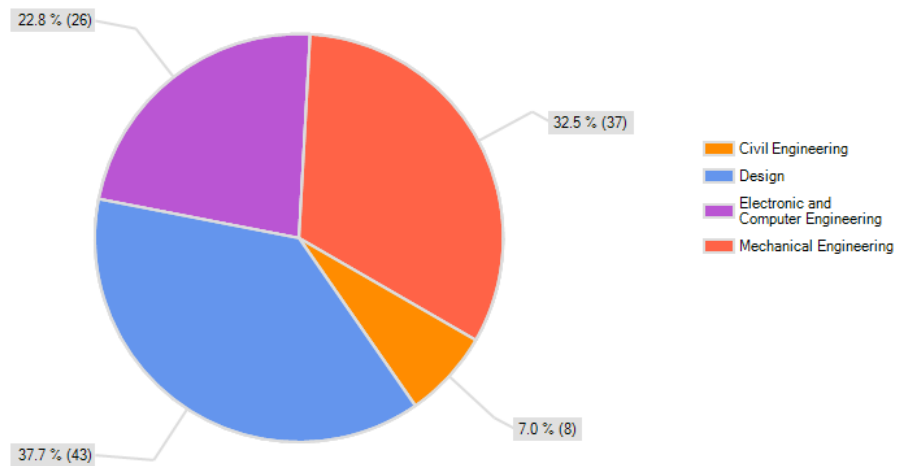
Question 1

The MDP takes place in the last week of the first term at Level 1. In which year did you participate in the MDP?



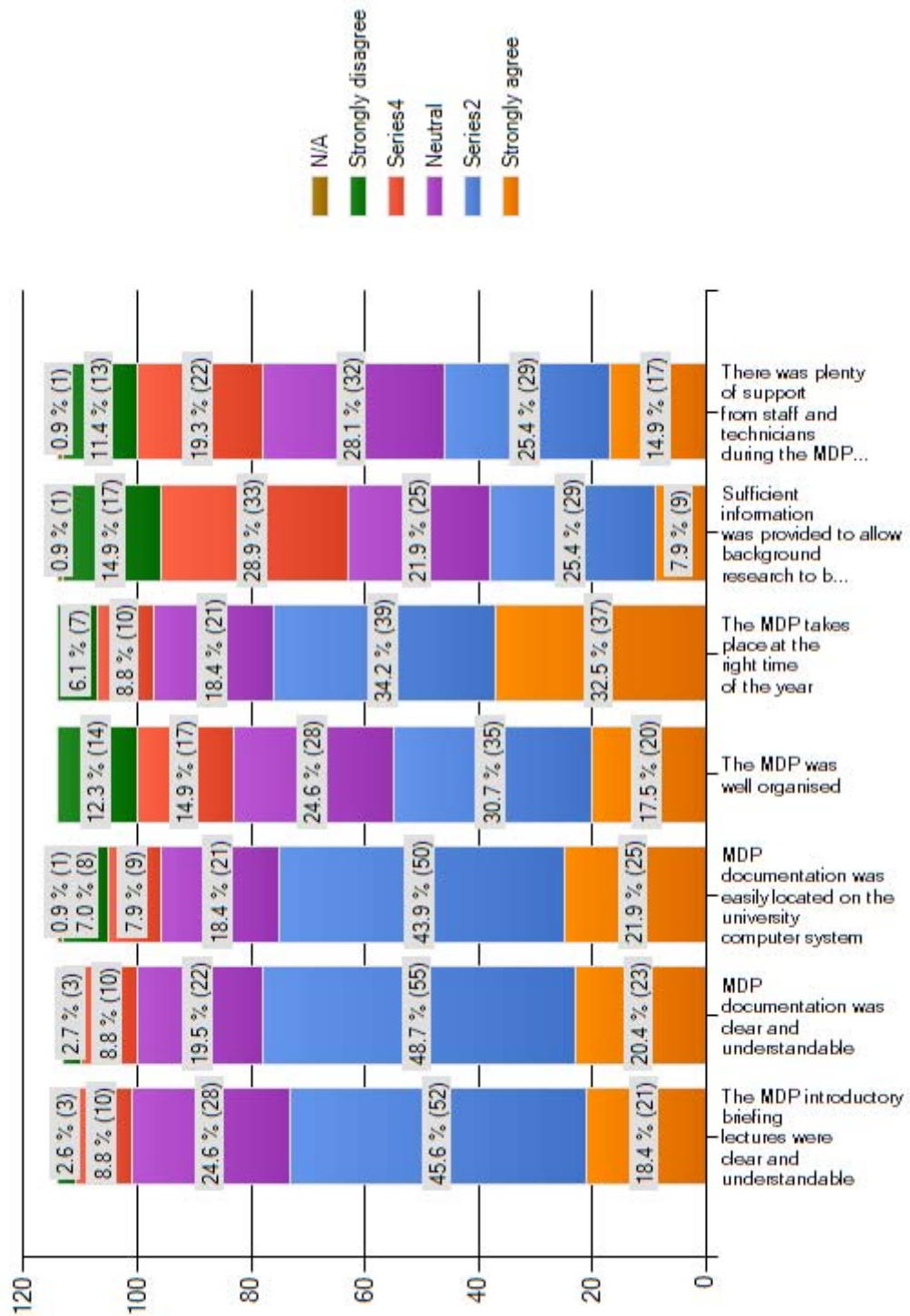
Question 2

In which subject area were you studying when you participated in the MDP?



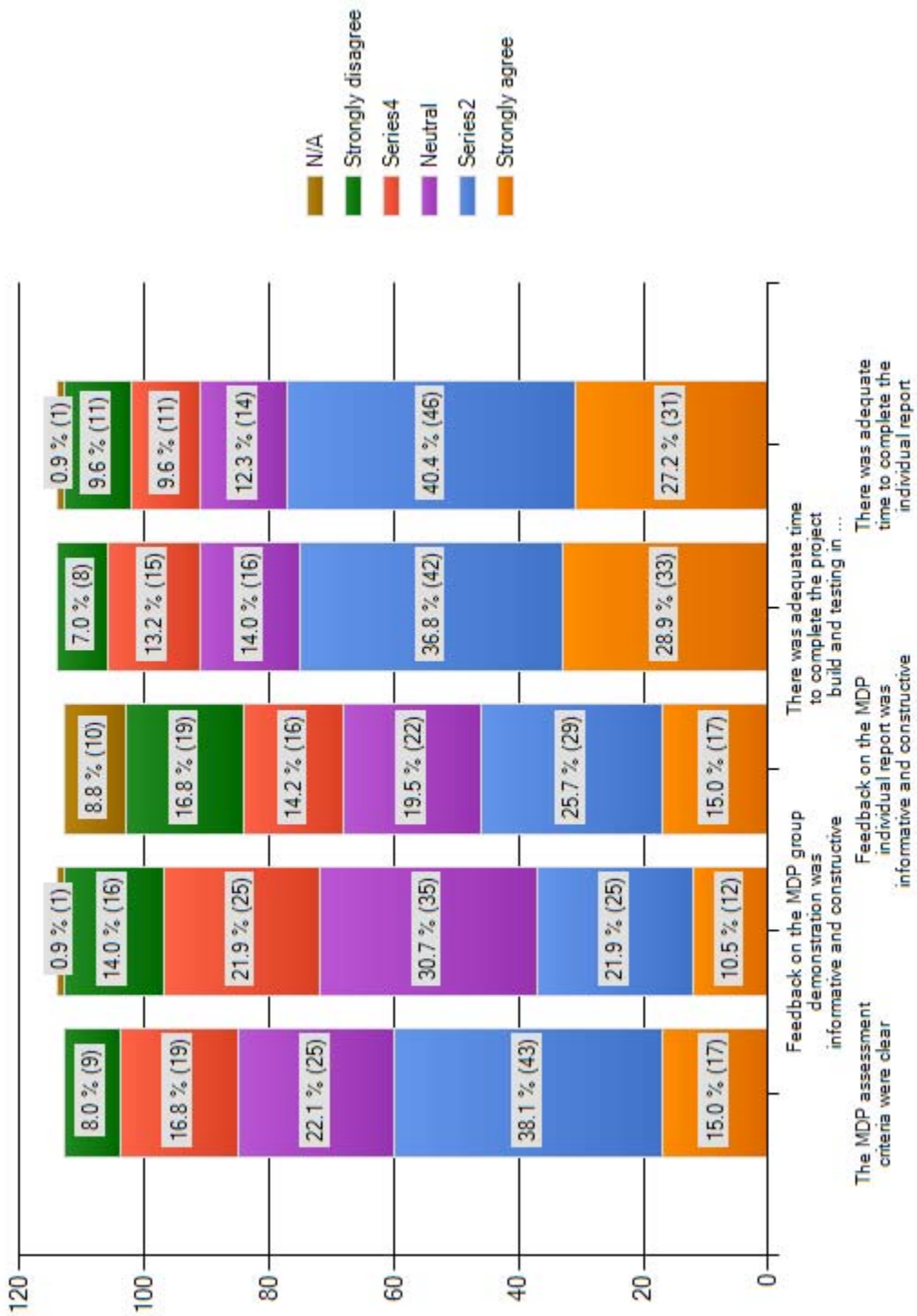
Question 3

Please rate the following statements about the organisation of the MDP:



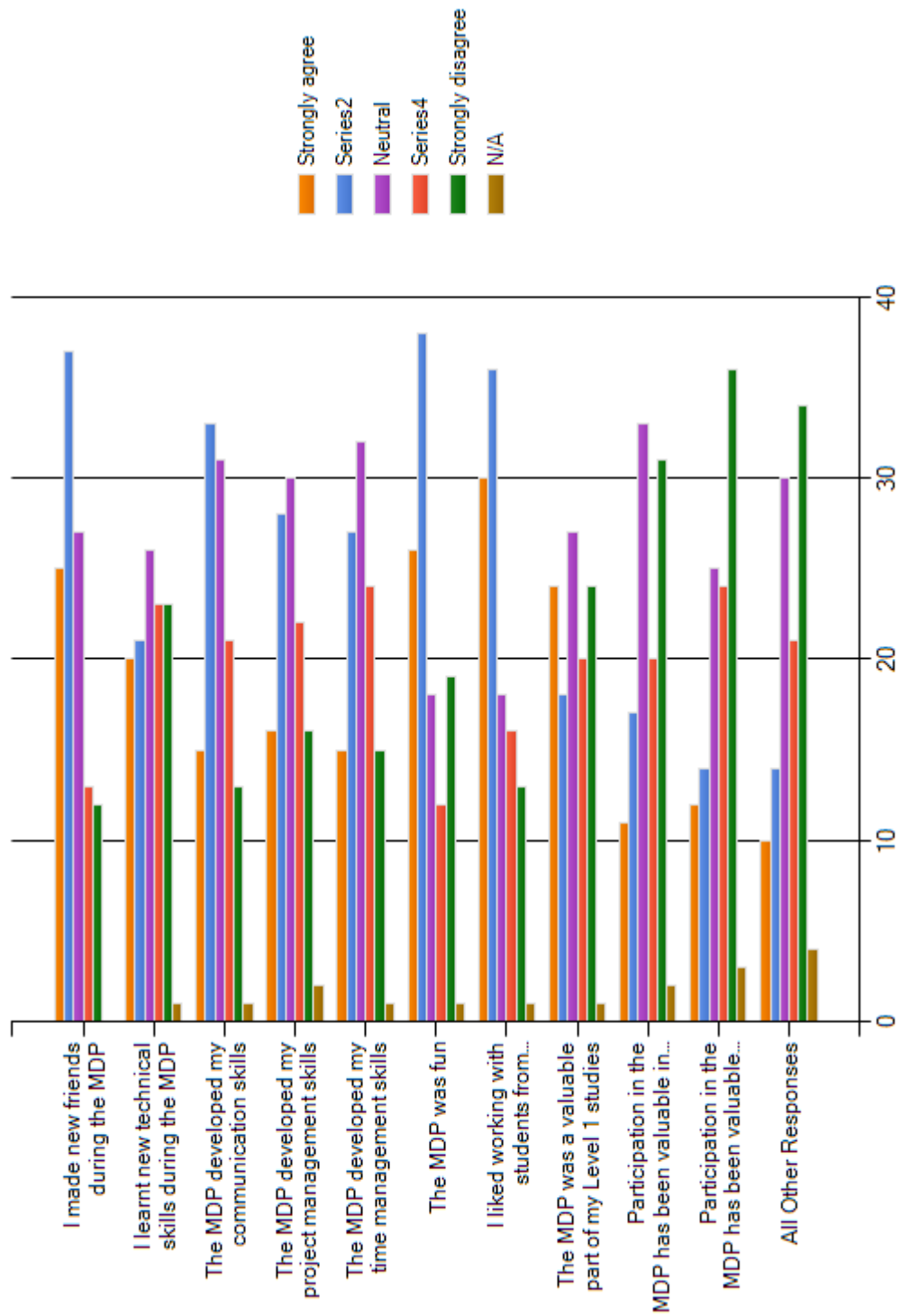
Question 4

Please rate the following statements about MDP assessment and feedback:



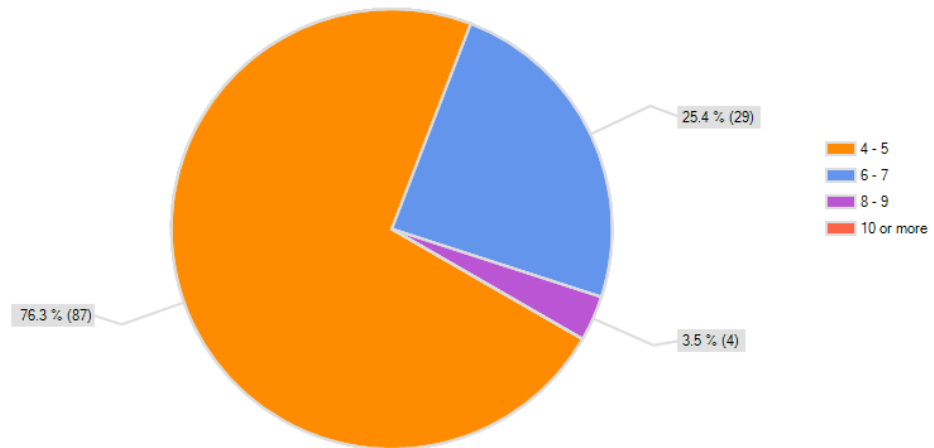
Question 5

Please rate the following statements about the value of participation in the MDP:



Question 6



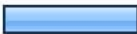

In your opinion, which of the following would be the optimum number of students in an MDP project group?







APPENDIX C: Full survey data

(This appendix presents all the collected survey data as provided by Survey Monkey but with student contact details in Question 12 removed and any names given in the text comments covered with black boxes for privacy).

1. The MDP takes place in the last week of the first term at Level 1. In which year did you participate in the MDP?

		Response Percent	Response Count
2007		11.4%	13
2008		19.3%	22
2009		21.1%	24
2010		48.2%	55
answered question			114
skipped question			0

2. In which subject area were you studying when you participated in the MDP?

		Response Percent	Response Count
Civil Engineering		7.0%	8
Design		37.7%	43
Electronic and Computer Engineering		22.8%	26
Mechanical Engineering		32.5%	37
answered question			114
skipped question			0

3. Please rate the following statements about the organisation of the MDP:

	Strongly agree		Neutral		Strongly disagree		N/A	Rating Average	Response Count
The MDP introductory briefing lectures were clear and understandable	18.4% (21)	45.6% (52)	24.6% (28)	8.8% (10)	2.6% (3)	0.0% (0)	2.32	114	
MDP documentation was clear and understandable	20.4% (23)	48.7% (55)	19.5% (22)	8.8% (10)	2.7% (3)	0.0% (0)	2.25	113	
MDP documentation was easily located on the university computer system	21.9% (25)	43.9% (50)	18.4% (21)	7.9% (9)	7.0% (8)	0.9% (1)	2.34	114	
The MDP was well organised	17.5% (20)	30.7% (35)	24.6% (28)	14.9% (17)	12.3% (14)	0.0% (0)	2.74	114	
The MDP takes place at the right time of the year	32.5% (37)	34.2% (39)	18.4% (21)	8.8% (10)	6.1% (7)	0.0% (0)	2.22	114	
Sufficient information was provided to allow background research to be carried out before the project week	7.9% (9)	25.4% (29)	21.9% (25)	28.9% (33)	14.9% (17)	0.9% (1)	3.18	114	
There was plenty of support from staff and technicians during the MDP week	14.9% (17)	25.4% (29)	28.1% (32)	19.3% (22)	11.4% (13)	0.9% (1)	2.87	114	
answered question								114	
skipped question								0	

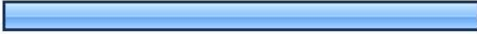


4. Please rate the following statements about MDP assessment and feedback:

	Strongly agree		Neutral		Strongly disagree	N/A	Rating Average	Response Count
The MDP assessment criteria were clear	15.0% (17)	38.1% (43)	22.1% (25)	16.8% (19)	8.0% (9)	0.0% (0)	2.65	113
Feedback on the MDP group demonstration was informative and constructive	10.5% (12)	21.9% (25)	30.7% (35)	21.9% (25)	14.0% (16)	0.9% (1)	3.07	114
Feedback on the MDP individual report was informative and constructive	15.0% (17)	25.7% (29)	19.5% (22)	14.2% (16)	16.8% (19)	8.8% (10)	2.91	113
There was adequate time to complete the project build and testing in the project week	28.9% (33)	36.8% (42)	14.0% (16)	13.2% (15)	7.0% (8)	0.0% (0)	2.32	114
There was adequate time to complete the individual report	27.2% (31)	40.4% (46)	12.3% (14)	9.6% (11)	9.6% (11)	0.9% (1)	2.34	114
answered question								114
skipped question								0

5. Please rate the following statements about the value of participation in the MDP:

	Strongly agree		Neutral		Strongly disagree	N/A	Rating Average	Response Count
I made new friends during the MDP	21.9% (25)	32.5% (37)	23.7% (27)	11.4% (13)	10.5% (12)	0.0% (0)	2.56	114
I learnt new technical skills during the MDP	17.5% (20)	18.4% (21)	22.8% (26)	20.2% (23)	20.2% (23)	0.9% (1)	3.07	114
The MDP developed my communication skills	13.2% (15)	28.9% (33)	27.2% (31)	18.4% (21)	11.4% (13)	0.9% (1)	2.86	114
The MDP developed my project management skills	14.0% (16)	24.6% (28)	26.3% (30)	19.3% (22)	14.0% (16)	1.8% (2)	2.95	114
The MDP developed my time management skills	13.2% (15)	23.7% (27)	28.1% (32)	21.1% (24)	13.2% (15)	0.9% (1)	2.97	114
The MDP was fun	22.8% (26)	33.3% (38)	15.8% (18)	10.5% (12)	16.7% (19)	0.9% (1)	2.65	114
I liked working with students from other subject areas	26.3% (30)	31.6% (36)	15.8% (18)	14.0% (16)	11.4% (13)	0.9% (1)	2.52	114
The MDP was a valuable part of my Level 1 studies	21.1% (24)	15.8% (18)	23.7% (27)	17.5% (20)	21.1% (24)	0.9% (1)	3.02	114
Participation in the MDP has been valuable in my subsequent studies	9.6% (11)	14.9% (17)	28.9% (33)	17.5% (20)	27.2% (31)	1.8% (2)	3.38	114
Participation in the MDP has been valuable outside of Brunel	10.5% (12)	12.3% (14)	21.9% (25)	21.1% (24)	31.6% (36)	2.6% (3)	3.52	114
Participation in the MDP has enhanced my employability	8.8% (10)	12.4% (14)	26.5% (30)	18.6% (21)	30.1% (34)	3.5% (4)	3.50	113
answered question								114
skipped question								0

6. In your opinion, which of the following would be the optimum number of students in an MDP project group?

		Response Percent	Response Count
4 - 5		76.3%	87
6 - 7		25.4%	29
8 - 9		3.5%	4
10 or more		0.0%	0
		answered question	114
		skipped question	0

7. List three positive aspects of the MDP.

	Response Count
	83
answered question	83
skipped question	31

8. List three negative aspects of the MDP.

	Response Count
	87
answered question	87
skipped question	27

9. From your memory or participating, is there anything you would like to add or change about the MDP?

	Response Count
	79
answered question	79
skipped question	35

10. How do you think the MDP can be improved to better prepare you for life after university?

	Response Count
	57
answered question	57
skipped question	57

11. Do you have any other comments or suggestions regarding your MDP experience?

	Response Count
	40
answered question	40
skipped question	74

Page 2, Q7. List three positive aspects of the MDP.

1	Was something different to lectures	May 30, 2011 4:07 PM
2	playing with lego, meeting new people, something different - hands ons	May 29, 2011 6:14 AM
3	fun,interesting,time management	May 27, 2011 7:42 AM
4	Fun An oppertunity to meet other people See how creative other people can be	May 27, 2011 5:28 AM
5	developed communication skills applications of skills learnt in first year	May 27, 2011 4:03 AM

Page 2, Q7. List three positive aspects of the MDP.

	enjoyable	
6		May 26, 2011 1:21 PM
7	Team Work Practical Work Break from routine lectures	May 26, 2011 3:04 AM
8	Teamwork Challenging	May 25, 2011 5:53 AM
9	No lectures, lack of timetable and out of ordinary.	May 24, 2011 3:26 PM
10	1. Cooperation between distinct areas of studies 2. Good opportunity to gain/improve technical skills 3. A challenging project that points out necessary skills for future career in engineering	May 24, 2011 2:56 PM
11	Makes new friends Help international students to communicate more It was instructive	May 24, 2011 2:38 AM
12	Good to work with students from other Engineering courses.	May 14, 2011 6:19 PM
13	Meeting new people Working in groups	May 13, 2011 5:28 PM
14	1. Met a new friend who had since been helpful in one of my projects helping me create an electric circuit. 2. Was a nice way to finish term	May 3, 2011 3:00 AM
15	Good Development of team working skills. Great for inspiring one to think outside the box. Good working with students of other subject areas.	Apr 17, 2011 11:01 AM
16	The project, Time given, and the people that were in my group	Apr 17, 2011 9:07 AM
17	Meet new people Team work across varying disciplines Fun	Apr 16, 2011 11:19 AM
18	good introduction to group/team work Project management	Apr 13, 2011 5:59 AM
19	~ Met others in other departments ~ Different end to the term and worked well balancing it with the egg race icebreaker ~	Apr 11, 2011 9:18 AM
20	It was fun. It was good to meet new people. It was new too me	Apr 11, 2011 2:53 AM
21	fun week got to know people from other courses learnt to work in a group	Apr 10, 2011 1:26 PM
22	i met new people it was fun	Apr 8, 2011 1:49 PM
23	- meet new people - much more interesting than assignments - legos	Apr 8, 2011 8:31 AM
24	Fun team spirit \Lego!!	Apr 8, 2011 5:56 AM
25	Improve communication skills Get a chance to know more people in other subjects A chance to learn new skills	Apr 7, 2011 2:15 PM
26	Teamwork Meeting people from other subjects The project	Apr 7, 2011 9:55 AM
27	Team of students from various courses	Apr 7, 2011 9:30 AM
28	Working in a multidisciplinary team	Apr 7, 2011 4:59 AM
29	I enjoyed working with students from other courses.	Apr 7, 2011 3:01 AM
30	Good fun. Met other people within the school. Wasn't too hard work.	Apr 6, 2011 8:42 AM
31	1. The work was less intense for that one week.	Apr 6, 2011 2:11 AM

Page 2, Q7. List three positive aspects of the MDP.

32	easy work met new people fun	Apr 5, 2011 6:21 PM
33	someone to get drunk with after no more	Apr 5, 2011 5:27 PM
34	Meeting new people, seeing the new lego tech, working in a team	Apr 5, 2011 3:42 PM
35	Fun, different, collaboration	Apr 5, 2011 3:37 PM
36	as an assesment it was more relaxed, more enjoyable and was good to meet students from other areas of engineering/design	Apr 5, 2011 3:14 PM
37	Chance to build a robot learn new skills from other people enough time to build the robot	Apr 5, 2011 2:45 PM
38	Has good intentions Good aim to collaborate different university sectors	Apr 5, 2011 1:24 PM
39	Fun Improved communication Different to regular design activities	Apr 5, 2011 12:37 PM
40	Working with students from other areas of the School. Great break from normal studies. Good to develop team work.	Apr 5, 2011 11:18 AM
41	1. Working in a team with people from different courses, all of us had something different to offer to the project. 2. Having a set time constraint with a demonstration at the end forced us to plan the project efficiently, which made us think about project management. 3. Lego is a fun thing to work with, making the project feel enjoyable and light-hearted.	Apr 5, 2011 10:42 AM
42	fun, cool projects, Excellent to have a finished product at the end of it	Apr 5, 2011 10:14 AM
43	Quite fun Quite a relaxing end to the term	Apr 5, 2011 9:54 AM
44	It's now over It was only a week and didn't count for anything Taught me how to effectively waste my time	Apr 5, 2011 9:45 AM
45	I honestly can't think of any. Although the requirements were clear, nobody was interested and it was a terrible week for me. The percentage weighting was huge compared to the amount of work needed (we have six week projects which are worth half the percentage and require insane amount of work compared to this which was a task which tested none of my skills!)	Apr 5, 2011 9:37 AM
46	- A chance to work with other studnets from other courses - Was a good activity and allowed me to learn how to work with people i didnt know and work towards a common goal - Was a unique and different project to undertake and the timing meant that it was a nice project to end the term.	Apr 5, 2011 9:30 AM
47	-	Apr 5, 2011 9:16 AM
48	hand on heart i genuinely cannot see any positives to this week	Apr 5, 2011 7:52 AM
49	team working with students from different courses Stimulating brief Legos are cool	Apr 5, 2011 7:50 AM
50	No Lectures	Apr 5, 2011 7:39 AM
51	Group Work Mixing of types of engineering Making friends	Apr 4, 2011 8:20 AM
52	making friends learning new subject areas learning about project process	Apr 4, 2011 4:28 AM
53	Encourages communication. Promotes research Enables people to manage their time accordingly	Apr 1, 2011 1:02 PM

Page 2, Q7. List three positive aspects of the MDP.

54	"Lego", it was interesting seeing all the different designs being made for each theme and it allowed me to meet new people from the other engineering course.	Apr 1, 2011 9:13 AM
55	Analytical,constructive,and active teamwork participation	Apr 1, 2011 8:43 AM
56	Met new people in the same school as me for the first time.	Apr 1, 2011 8:03 AM
57	working with other disiplins	Apr 1, 2011 5:24 AM
58	A chance to meet other people from level 1. A chance to complete a project which has not been encountered before.	Apr 1, 2011 5:23 AM
59	1. Made new friends. 2. Get to build something cool rather than just circuit boards. 3. It was funny at the same time.	Apr 1, 2011 5:19 AM
60	1. Get to know about other disciplines. 2. Team work skill is practiced.	Apr 1, 2011 5:15 AM
61	Experience of teamwork Experience of working to deadlines Exposure to other disciplines	Apr 1, 2011 5:15 AM
62	Great time to use the skills learnt during the first term.	Apr 1, 2011 5:12 AM
63	Met new people Improved my manual engineering skills Competition between groups was fun and refreshing	Apr 1, 2011 3:53 AM
64	Builds teamwork, communication skills Allows demonstration of self-learning Breaks up the usual course content (theory, individual work)	Apr 1, 2011 3:50 AM
65	interactive intresting	Apr 1, 2011 3:22 AM
66	Fun Good way to test bits from what youve learnt A break from your studies	Apr 1, 2011 3:21 AM
67	-interesting -fun -developing new skills	Apr 1, 2011 3:20 AM
68	meeting students from various aspects in engineering. making engineering fun with a good challenge putting knowledge learnt into practice.	Apr 1, 2011 3:02 AM
69	gained new skills learned to work under time constraint pressure	Apr 1, 2011 2:43 AM
70	CV developement	Apr 1, 2011 2:27 AM
71	Fun Simple Great way to meet new people	Apr 1, 2011 2:07 AM
72	because it was at the begining of the year it was a good chance for new students to find new friends but in my study field i dont think it helped me at all.	Mar 31, 2011 4:54 PM
73	broadend freind groups, comunicated with other subject areas, ended term 1 well	Mar 31, 2011 2:49 PM
74	Fun Prizes new experiance	Mar 31, 2011 12:42 PM
75	fun application of knowledge working with new people	Mar 31, 2011 9:35 AM
76	Good to work with other engineering disiplines as is the case in industry. Good blend of practical and theoretical aspects. Interesting and fun to get out of the lecture theatres.	Mar 31, 2011 9:15 AM
77	Using LEGO Practical demonstration was fun for everyone to watch Open access to everyone to see what was going on	Mar 31, 2011 8:10 AM

Page 2, Q7. List three positive aspects of the MDP.

78	Met Some Nice People Engineering Application Nice Competitive Atmosphere	Mar 31, 2011 6:02 AM
79	working with students from other departments, good end to the term competitive aspect of the test	Mar 31, 2011 3:09 AM
80	working in a group of people with different strengths	Mar 31, 2011 3:06 AM
81	Working with students from other departments. Working as a group to achieve a common goal. Working in a team. Hands on work.	Mar 31, 2011 3:04 AM
82	Meeting People, Having some fun, practical work instead of theory.	Mar 31, 2011 2:32 AM
83	Comping from a professional envirnment prior my studies it helped me to realise how different a student team is opposed to professionals in terms of involvement and determination.	Mar 31, 2011 1:12 AM

Page 2, Q8. List three negative aspects of the MDP.

1	Seemed completely irrelevant The kits were hard to use and unreliable	May 30, 2011 4:07 PM
2	different projects wre harder than the others,no everyone pulls their weight, can seem pointless	May 29, 2011 6:14 AM
3	not enough time	May 27, 2011 7:42 AM
4	Some projects were a lot harder than others Marking outline and feed back was not given at the time after testing was complete It did not appeal to all subjects, it was mainly focused on Electronic engineers	May 27, 2011 5:28 AM
5	not entirely specific to ones course - -	May 27, 2011 4:03 AM
6	Not made either serious or clear enough to students to make it an experience.	May 26, 2011 4:44 PM
7	Some tasks having more focus on one discipline and not balanced Final Course not being up on time To much concern on health and safety	May 26, 2011 3:04 AM
8	Lack of structure Insufficient equipment available Don't recall getting feedback	May 25, 2011 5:53 AM
9	Large group, lack of timetable and judging criteria unclear.	May 24, 2011 3:26 PM
10	A bit underspecified project themes	May 24, 2011 2:56 PM
11	Team got heavily penalised for doing the vehicle Put in at least 12 hours a day into completing the task and in comparison to other groups who were given an easier task finishing in a day.	May 24, 2011 3:55 AM
12	Too many people in a group Vehicle project was too far much difficult compare to the others Lack of support from lectures	May 24, 2011 2:38 AM
13	Was not relevant to my course.	May 14, 2011 6:19 PM
14	Is very subject specific - electronics Too easy	May 13, 2011 5:28 PM
15	It doesn't really have much to do with civil engineering.	May 13, 2011 11:40 AM

Page 2, Q8. List three negative aspects of the MDP.

16	1. Felt like design students in all groups were over looked and many engineering students seemed to presume that they would not have adequate ideas, I've heard this from other people as well and ,unfortunately, particularly the girls. 2. The brief didn't suit Product designers in the sense that where as Electrical and mechanical engineers could directly apply skills from there course, there didn't seem and obvious area for the design students to do. 3. Some of the projects were harder than others	May 3, 2011 3:00 AM
17	Too simple a device to design and build at our level. Too hard to run the course with a programmed vehicle. (Programming utility not complex enough to program well.)	Apr 17, 2011 11:01 AM
18	Not at the right time of studies, not too sure what to do at beginning of project, and lego.	Apr 17, 2011 9:07 AM
19	Could be more course specific for individual responsibiliti	Apr 16, 2011 11:19 AM
20	No clear idea of how to go about things	Apr 13, 2011 5:59 AM
21	~ Being a whole week, people lost interest by Tuesday and didnt turn up. ~ I dont know if other departments had work over the holidays but design had a couple of pieces we were expected to do, when most of us were exhausted from the term. ~ We found it difficult to seek help, as it was not always available. ~ Poor delivery of information during the week especially to do with the demonstrations.	Apr 11, 2011 9:18 AM
22	there were too many people in on group the time is bit too early to do the project It didnt learn anything from it.	Apr 11, 2011 2:53 AM
23	not very clear instruction hard to communicate with people in the group (might be good to meet as a group before on the day of brief or something)	Apr 10, 2011 1:26 PM
24	group sizes wer far too small from a design point of view there was very little for us to do, report seemed like a waste of time	Apr 8, 2011 1:49 PM
25	- lack of team organisation - lazy people - track turned out to be different to what we thought it to be	Apr 8, 2011 8:31 AM
26	If unsure how to use the software its crap arranging everybody the different groups of competitions were not even	Apr 8, 2011 5:56 AM
27	Design students are less expert on working out the robot and programming, this turns out the engineering students have done more in comparison throughout the project.	Apr 7, 2011 2:15 PM
28	Feedback for report	Apr 7, 2011 9:55 AM
29	Too many people in a group. The autonomous projects were much harder than those that could be directly controlled. It seemed to be more geared towards an engineer's skill set then a designers.	Apr 7, 2011 4:59 AM
30	Would prefer that the challenges did not have theme packs because they greatly vary in difficulty making it unfair.	Apr 7, 2011 3:01 AM
31	Not very interesting. Didn't learn much. Not really relevant to my course.	Apr 6, 2011 8:42 AM
32	1. When the project was initiated we were informed the test track would be available at the end of the first day. It was in fact not available until the day of our assessment. We therefore had no time to practice. 2. The entire week was poorly organised. 3. Many of the items needed to complete the	Apr 6, 2011 2:11 AM

Page 2, Q8. List three negative aspects of the MDP.

	assignment were not available or in short supply, our box was missing several key components.	
33	no time for the report, busy time of the year, no lectures	Apr 6, 2011 12:09 AM
34	not very interesting groups too large	Apr 5, 2011 6:21 PM
35	waste of time learnt nothing people did not value designers	Apr 5, 2011 5:27 PM
36	haven't recued feedback other than grade, the report seemed to have to be repetitive, the project didn't seem to have enough to do for all people	Apr 5, 2011 3:42 PM
37	Poorly organised, little support, not enough time	Apr 5, 2011 3:37 PM
38	not challenging, only took half allocated time to complete, only having one course to test on was time consuming for all groups and also frustrating.	Apr 5, 2011 3:14 PM
39	different people from different groups had other ideas many of the projects were similar needs to have another course to practice on	Apr 5, 2011 2:45 PM
40	Worst possible time of the year when people are demotivated and just want to go home to christmas MDP is too unorganised, some teams do want to succeed and do however achieve their goals but at such a early stage in the university career it is difficult.	Apr 5, 2011 1:24 PM
41	The variety of projects / groups Use of the chip group leads to heavy reliance on students from computer engineering Poor organisation lead to my group presenting after christmas	Apr 5, 2011 12:37 PM
42	Personal report is submitted too early in the week, should be thursday or friday so that we have more to write about.	Apr 5, 2011 11:18 AM
43	1. The obstacle course was not set up in advance, nor were its specifications entirely accurate. Our team did not perform as well as we could have done because we designed and built something based on the notes for the route we had to take, but the real course had elements that were different from the specification. As a specific example, the incline our robot was supposed to climb was described as "covered in sand", when in reality it was covered in a shiny, slippery plastic film. 2. The design of the obstacle course had one major flaw, anybody who has ever played with Lego outside will tell you that Lego and sand do not mix very well. We assumed that the course would be covered in sandpaper, with a minimal amount of sand on top. The real course was covered in a thick layer of wet sand, which clogged up the gears of our robot. 3. The placement of the obstacle course was not suitable for everyone to gather around and watch during the demonstrations, it would have been better positioned in the centre of the Michael Sterling building rather than at the edge under the stairs.	Apr 5, 2011 10:42 AM
44	the weighting is different between areas, Communication between different areas/people/language barrier. Assesment day felt unorganised	Apr 5, 2011 10:14 AM
45	Don't feel like I really learnt anything Hasn't really been useful to studies Was quite annoying that there weren't spare batteries	Apr 5, 2011 9:54 AM
46	Bad groups Too easy (with some students making it far too complicated) - do away with the pre-fab kits. They're designed for 12 year olds Pit schools against each other, engineers don't work well with designers and a better result would be had on both sides with a little competitive spirit	Apr 5, 2011 9:45 AM
47	Ridiculous course percentage weighting. No skill or anywhere you can take	Apr 5, 2011 9:37 AM

Page 2, Q8. List three negative aspects of the MDP.

	the project to make it more exciting. I just honestly think it was the worst thing about my year. One of the reasons I am changing course next year and to a course where i will actually have to do it again. hopefully i can use my grades from this year.	
48	- The project could have been more envolved and maybe allowed each person to contribute more - The project was good and interesting but it would have been more benefical if each person in the group could apply thier specific skills from their course to the project rather than just conducting generic tasks.	Apr 5, 2011 9:30 AM
49	-	Apr 5, 2011 9:16 AM
50	1.being part of the design course within our group those on design were ignored as people who can draw and nothing else, vastly demotivating the designers within the group. 2. instead of doing this week and extra week on the I-Design project that the design course was involved with would have been much more useful.	Apr 5, 2011 7:52 AM
51	It was a waste of time I had nothing to do with Design technology Hardly any of my team mates cooperated	Apr 5, 2011 7:50 AM
52	Not useful for design students. No design needed. Mechanic Engineers take over too much A waste of a week	Apr 5, 2011 7:39 AM
53	Some engineering types were not useful No register = less contribution	Apr 4, 2011 8:20 AM
54	lack of time	Apr 4, 2011 4:28 AM
55	Communication can be hard sometimes. Poor group management can be disastrous. Individual strenghts and weaknesses cannot be easily assessed.	Apr 1, 2011 1:02 PM
56	group members need to be more committed to the project.	Apr 1, 2011 9:13 AM
57	If it's actually possible to determine individual participation	Apr 1, 2011 8:43 AM
58	I didn't much to contribute	Apr 1, 2011 8:03 AM
59	groups are to big only one practise course	Apr 1, 2011 5:24 AM
60	working with others can be difficult. there is no advice on how to deal with lazy students.	Apr 1, 2011 5:23 AM
61	1. It was rather boring. 2. To build a robot based on an incomplete set of Lego is rather annoying. 3. Bad timing because everyone wants to have a break.	Apr 1, 2011 5:19 AM
62	1. Very simple MDP. 2. Not enough hard work was spent on the project. 3. Resources were limited.	Apr 1, 2011 5:15 AM
63	Not having the course available made completing the aims difficult Different materials given to different groups Rushed assessment of group demonstration	Apr 1, 2011 5:15 AM
64	Too many people in each group. Differing marks in different courses. This caused people to put less effort in if it was worth less to them.	Apr 1, 2011 5:12 AM
65	If only one cse student they are expected to know everything about code they have never used before. Helpful if more than one student or other students understand it is an unfamiliar code!!	Apr 1, 2011 4:52 AM

Page 2, Q8. List three negative aspects of the MDP.

66	Certain project themes were easier than others, felt like fortune affected final grades. Very tight on time, given that our project required demanding programming. Group members not pulling their weight, wasn't reflected in final grades.	Apr 1, 2011 3:53 AM
67	Individuals can sabotage the group's effort It could take up far more time than should be necessary	Apr 1, 2011 3:50 AM
68	stressful if others do not collaborate too little time for personal report need more technical help	Apr 1, 2011 3:22 AM
69	Have to get used to the programming language. Some people dont pull their weight in the group	Apr 1, 2011 3:21 AM
70	-not every group member gets involved equally -the course was not open for testing the vehicle -more lab rooms need to available	Apr 1, 2011 3:20 AM
71	none	Apr 1, 2011 3:02 AM
72	mechanical and design students were literally useless, all they could do was build the car (This is from the vehical group where most of it was technical work)	Apr 1, 2011 2:43 AM
73	inactive team mates	Apr 1, 2011 2:27 AM
74	Waste of time Nothing new learned Seemed quite childish	Apr 1, 2011 2:07 AM
75	i think it was good but needs some impovement	Mar 31, 2011 4:54 PM
76	not enough batteries, when batteried ran out (they did so quickly) the autonomous vehicles did not travel as intended, so every run was different during testing	Mar 31, 2011 3:50 PM
77	too laid back, lecturer participation was poor, half the students in the groups did not attend or contribute	Mar 31, 2011 2:49 PM
78	Some disiplins had little to offer the project, limited recources (lego etc) VERY limited control chips	Mar 31, 2011 12:42 PM
79	some people don't show up some of the robot projects where not as hard as others MDP was hidden away on u-link	Mar 31, 2011 9:35 AM
80	Management of the project absolutely awful and the actual MDP week was just chaos. The fact that motorsport students didnt get a proper kit was bad, we just had to pick bits out of a random box. The fact that we had to program our on PIC was fine but the fact that we had to make the connector was rubbish, wasted so much time.	Mar 31, 2011 9:15 AM
81	Had too many people in the project, not enough for everyone to do. Instructions and details of the practical demonstration were very unclear This survey was two and a half years too late to be as accurate as possible	Mar 31, 2011 8:10 AM
82	A lot of people were left angry and frustrated that as degree students the couldn't control LEGO. Design Students did nothing. More help needed	Mar 31, 2011 6:02 AM
83	difference in complexity between the different challenges, due to the difference in weighting for thier module certain students didnt really care or contribute, people who should have been doing certain tasks due to the course they are on didnt want to.	Mar 31, 2011 3:09 AM

Page 2, Q8. List three negative aspects of the MDP.

84	the vehicle project was extremely difficult	Mar 31, 2011 3:06 AM
85	Most students didn't pull their weight and still managed to get a grade. The robot project was too easy as we ended up driving it like a R/C car, therefore, it was boring at times.	Mar 31, 2011 3:04 AM
86	project difficulty was not consistent,	Mar 31, 2011 2:32 AM
87	Students are keen to avoid being an intergral part of the team, as there are way too many people in the team and it is easy to get away with not doing anything, if turning up to group sessions.	Mar 31, 2011 1:12 AM

Page 2, Q9. From your memory or participating, is there anything you would like to add or change about the MDP?

1	Every group has the same resources and kits	May 30, 2011 4:07 PM
2	make all projects the same difficulty, allow groups to pick which project to do	May 29, 2011 6:14 AM
3	more time	May 27, 2011 7:42 AM
4	no	May 27, 2011 4:03 AM
5	Groups of only 4 people.	May 26, 2011 4:44 PM
6	Change [REDACTED]	May 26, 2011 1:21 PM
7	Bring back the rocket project for aerospace students	May 26, 2011 3:04 AM
8	More structure and adequate equipment available	May 25, 2011 5:53 AM
9	Have a team of 4 and make projects more in line with each other.	May 24, 2011 3:26 PM
10	No	May 24, 2011 2:56 PM
11	monitor the task daily so effort can be recorded.	May 24, 2011 3:55 AM
12	Do not think the task was suitable for Civil students.	May 14, 2011 6:19 PM
13	More different project topics that would interest students in different subject areas	May 13, 2011 5:28 PM
14	Change the briefs slightly so there is something that is aimed at the designers	May 3, 2011 3:00 AM
15	More challenging obstacles/tasks for remotely controlled vehicles than the pre-programmed ones, More complexly designed systems to use for programmed vehicles.	Apr 17, 2011 11:01 AM
16	Move to term two so students enter with more experience in their discipline	Apr 16, 2011 11:19 AM
17	Make it just a couple of days instead of all week, as loads of people disappeared during the week and didnt turn up on the second day of demonstrations. Making people want to participate.	Apr 11, 2011 9:18 AM
18	make group smaller	Apr 11, 2011 2:53 AM

Page 2, Q9. From your memory or participating, is there anything you would like to add or change about the MDP?

19	more clear instructions needed	Apr 10, 2011 1:26 PM
20	smaller groups, majorly change the report, different questions for each subject. eg for design instead of filling to pages of writing have to hand in a couple of pages of ideas	Apr 8, 2011 1:49 PM
21	My main idea is in the next question, but you should also consider Arduino if you haven't already: http://www.arduino.cc/ 1st sentence from their wikipedia page: "Arduino is an open-source single-board microcontroller, designed to make the process of using electronics in multidisciplinary projects more accessible." I hope to personally play around with this a bit this summer.	Apr 8, 2011 8:31 AM
22	No	Apr 8, 2011 5:56 AM
23	Possibly more design elements can be involved.	Apr 7, 2011 2:15 PM
24	Better resource management from staff.	Apr 7, 2011 9:30 AM
25	Smaller groups	Apr 7, 2011 4:59 AM
26	I felt that MDP was mainly aimed at electronic students there wasn't much for 'design'.	Apr 7, 2011 3:01 AM
27	Make it not about electronics/programming/robotics. Should be more relevant to designers.	Apr 6, 2011 8:42 AM
28	have clear meeting times	Apr 6, 2011 12:09 AM
29	smaller group sizes	Apr 5, 2011 6:21 PM
30	get rid of it	Apr 5, 2011 5:27 PM
31	feed back for reports	Apr 5, 2011 3:42 PM
32	Clearer brief, aims and objectives of the course, area and time to practice, more tutor support, better organisation of final contest.	Apr 5, 2011 3:37 PM
33	construction and testing only requires two or three people maximum. It was extremely difficult for all group members to be doing something useful. As a result many people lost interest and did not come to some of the days during the week, but still took all the credit.	Apr 5, 2011 3:14 PM
34	There should be more tasks which give the team chances to choose what they like to do best.	Apr 5, 2011 1:24 PM
35	Less variety of groups, ie no or all chip based groups	Apr 5, 2011 12:37 PM
36	see above	Apr 5, 2011 11:18 AM
37	Get rid of the sand. The obstacles and challenges that we had to overcome on the course were fun and interesting problems to solve, but chucking a heap of sand all over them made them near impossible to successfully manoeuvre over. Sandpaper and pebbles are good, actual sand and dirt is not. Maybe it would be a good idea to build a permanent course on a big sheet of plywood that could be brought out for the event and reused each year. It would look much better to have a nicely built and decorated course, you could even have a space on it for the names of winning teams. Put on some miniature people, add some tiny trees, make it look nice. It could even be put on display somewhere as a talking point for prospective students.	Apr 5, 2011 10:42 AM

Page 2, Q9. From your memory or participating, is there anything you would like to add or change about the MDP?

38	groups should have been more structured, also the work should have been seperated into the different work areas, rather than decided upon between the group	Apr 5, 2011 10:14 AM
39	Get more batteries, had to wait for it to charge and during that time nothing could really be done Also make it a bit more relevant to design, not really sure how useful it was to make a lego robot, which was mainly from the instructions anyway	Apr 5, 2011 9:54 AM
40	Pit schools against each other, make it a genuine challenge - do away with the lego, its not complicates or interesting smaller groups - perhaps even let us choose our own How about a full-scale robot wars? EVERYONE was talking about it during the week	Apr 5, 2011 9:45 AM
41	everything - to not do it. It could be soooooo much better. why not present an individual problem to each group and ask them to come up with a solution splitting up into section disciplines? (presentation boards, portfolios) rather than rubbish lego kits.	Apr 5, 2011 9:37 AM
42	N/A	Apr 5, 2011 9:30 AM
43	Test course only assembled on the Friday afternoon, insufficient time for programming/testing.	Apr 5, 2011 9:16 AM
44	Have all groups as a single discipline, increasing the competeive element and also making it easier for each group	Apr 5, 2011 7:52 AM
45	Remove it? I did not gain any benefit from it	Apr 5, 2011 7:50 AM
46	No to do it. Particularly Design. Probably still interesting for Mech students	Apr 5, 2011 7:39 AM
47	the negative aspects above	Apr 4, 2011 8:20 AM
48	It was good fun and a very good platform to interact with others from different subject areas.	Apr 1, 2011 1:02 PM
49	no	Apr 1, 2011 9:13 AM
50	Aside the plastic parts,the type of wood used in mech should be allowed	Apr 1, 2011 8:43 AM
51	It should be done while everyone has their reading week not at the end of term when majority of us to really care.	Apr 1, 2011 8:03 AM
52	need a second practise course	Apr 1, 2011 5:24 AM
53	Slightly smaller groups	Apr 1, 2011 5:23 AM
54	The time and the duration.	Apr 1, 2011 5:19 AM
55	The project should be for 2 weeks, which should include a lot of work, like motion control, simple A.I. programming, etc. There should be more tasks to do like underwater robot competition, simple machines for lifting specific weights, aerial combat, etc.	Apr 1, 2011 5:15 AM
56	More access to course/reworking of aims to negate the need for this Greater access to materials More assessors on the final day	Apr 1, 2011 5:15 AM
57	Set up the course earlier in the week. There was no real testing time as the course was not set up until the last day. Sand caused alot of unforeseen problems for the autonomous car project.	Apr 1, 2011 5:12 AM

Page 2, Q9. From your memory or participating, is there anything you would like to add or change about the MDP?

58	Would like to have had understanding of basics of code before Mdp week	Apr 1, 2011 4:52 AM
59	Keep tabs on personal contributions.	Apr 1, 2011 3:53 AM
60	Ensure staff are able to set up equipment (e.g. assault courses etc) before the assessment to allow testing	Apr 1, 2011 3:50 AM
61	smaller groups of 5 people would have worked better. give more time for personal report	Apr 1, 2011 3:22 AM
62	More computers that can be connected to our projects when programming the Microchip	Apr 1, 2011 3:21 AM
63	less people in the group to be more effective.	Apr 1, 2011 3:02 AM
64	provide some background information on the programming aspect before MDP (for vehical group)	Apr 1, 2011 2:43 AM
65	more interesting problem	Apr 1, 2011 2:27 AM
66	Smaller group sizes More engineering based problems, not lego Better feedback	Apr 1, 2011 2:07 AM
67	when we were doing the project the weather was very cold and in the outside area and there were lack of management to get students together.	Mar 31, 2011 4:54 PM
68	Scrap the autonomous vehicle option	Mar 31, 2011 3:50 PM
69	no	Mar 31, 2011 2:49 PM
70	More preperation by way of chip programming etc.	Mar 31, 2011 12:42 PM
71	less people in a group, as some are left with no work to do	Mar 31, 2011 9:35 AM
72	We all had fun and overall it has been a good experience and I actually mentioned it in a couple of interviews for placements, but proper Lego kits need to be provided, it is also very heavily dependent on the fact that you need to get a group of students that actually want to do it and work hard, my group was wittled down from 13 ish at the start to just 5 of us because the first year is mainly full of wasters that dont come back in the second year.	Mar 31, 2011 9:15 AM
73	Conduct this survey no more than a month after the MDP. Improve access to the obstacle course for testing (it was too crowded). Team photographs with final robot	Mar 31, 2011 8:10 AM
74	Civil Engineering has no active participation in MDP's as there is not really a CIVIL section in the projects.	Mar 31, 2011 6:04 AM
75	Design students did nothing in more than 6 groups containing my friends. More of a Mech/Electric project.	Mar 31, 2011 6:02 AM
76	Give everyone a task of similar complexity, the people doing my task only just finished within the week, people doing some of the other tasks were virtually finished in the first day.	Mar 31, 2011 3:09 AM
77	allow all groups to do the projects using the lego mindstorms	Mar 31, 2011 3:06 AM
78	More challenging projects. A project where design, mech, civil and electronic, eng students can contribute with there respective skills.	Mar 31, 2011 3:04 AM

Page 2, Q9. From your memory or participating, is there anything you would like to add or change about the MDP?

79	Groups of 3, maximum 4 people would ensure better project work.	Mar 31, 2011 1:12 AM
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Page 2, Q10. How do you think the MDP can be improved to better prepare you for life after university?

1	gives a small view of what engineering maybe like once working fulltime	May 29, 2011 6:14 AM
2	none	May 27, 2011 4:03 AM
3	Introduce proper group reports and make students apply fundamental management skills to the project.	May 26, 2011 4:44 PM
4	More ambitious activities to be carried out with a longer time frame for completion	May 26, 2011 3:04 AM
5	Flying instead of ground.	May 24, 2011 3:26 PM
6	A short presentation could be carried by each team about their model. However, it should not take too long.	May 24, 2011 2:56 PM
7	Have a larger project over a longer period of time where all disciplines have a chance to use their skills and knowledge.	May 14, 2011 6:19 PM
8	More information on team working skills, to be given... Perhaps furthers seminars on this before start of week.	Apr 17, 2011 11:01 AM
9	Maybe by choosing a more applied project that would benefit all participants more. And setting the project at a later time of studies.	Apr 17, 2011 9:07 AM
10	Good for communication between co-workers of different specialised disciplines and team management	Apr 16, 2011 11:19 AM
11	I dont think there are any changes that can be made. I dont think it has hugely impacted on how I have contiuned my uni experience in my 2nd and 3rd years.	Apr 11, 2011 9:18 AM
12	I think you need to enforce that the team creates clear structure with a leader (PM) who could share a greater degree of responsibility. he either volounteers or is elected by other team members. you need to make sure every team member has a job title and list of responsibilities. teams could marked down for not producing a roles and requirements in time. provide them with a pool of role description examples. This would not only make it easier for you to mark their work but also prevent something I remember most clearly about my MDP: lack of structure, half of people not even showing up at all etc.	Apr 8, 2011 8:31 AM
13	No sure	Apr 8, 2011 5:56 AM
14	It would be really beneficial to have different challange every year. From my experiences, placement employers are tired of hearing about same project for years.	Apr 7, 2011 9:30 AM
15	Make the group sizes smaller and make it so it has parts that require skills that are more specific to the different areas of study so that the multidisciplinary aspect is more pronounced.	Apr 7, 2011 4:59 AM
16	no lego compounds or only the motor and control box	Apr 6, 2011 12:09 AM

Page 2, Q10. How do you think the MDP can be improved to better prepare you for life after university?

17	make it more relevant	Apr 5, 2011 6:21 PM
18	have people respect designers	Apr 5, 2011 5:27 PM
19	do it perhaps later in the year and then do a project where people specific course skills would be needed	Apr 5, 2011 3:42 PM
20	could teach new skills that would be relevant in industry, rather than being able to build a lego robot.	Apr 5, 2011 3:14 PM
21	the prizes, there were no prizes for each area of project	Apr 5, 2011 2:45 PM
22	moved to a later time in the university career. at the start of Level 1 it is pretty much useless	Apr 5, 2011 1:24 PM
23	everyone having a day being the project manager	Apr 5, 2011 11:43 AM
24	The whole teamwork and time-planning aspect was the thing that I took away from this event. Maybe as well as individual reports teams should submit a short logbook containing a brief record of what everyone did during the week. That would also have the benefit of making people more aware if they are not getting involved.	Apr 5, 2011 10:42 AM
25	more organisation, and more instructions, more recorded lab times to ensure participation by all group members. It doesnt matter how hard you work, if some people dont turn up it increases the work load dramatically.	Apr 5, 2011 10:14 AM
26	Maybe have a project which involves something a bit more challenging, and also something that incorporates our different skills. I felt we all knew as much as each other and there was nothing that really gave us an experience of what it would be like to interact with people from disciplines. This could also be due to the fact it is so early in the course, if it was in the second or third year we would have gained much more knowledge on our courses which could be applied and help to differentiate us.	Apr 5, 2011 9:54 AM
27	See above	Apr 5, 2011 9:45 AM
28	some sort of business twist on it....how you could market/produce the work in the real world. i felt like i was back in high school.	Apr 5, 2011 9:37 AM
29	The project could have been more involved and had more substance to allow a greater learning experience, with skills that can then be used after graduating.	Apr 5, 2011 9:30 AM
30	-	Apr 5, 2011 9:16 AM
31	n/a	Apr 5, 2011 7:52 AM
32	N/A	Apr 5, 2011 7:50 AM
33	For design students, have more of a design element	Apr 5, 2011 7:39 AM
34	some sort of "job" aspect	Apr 4, 2011 8:20 AM
35	giving more information, examples why it is so important	Apr 4, 2011 4:28 AM
36	More and rigorous individual reports and participation.	Apr 1, 2011 1:02 PM
37	I think it prepares the student for the outside world as they have to work with other people in different sectors such as engineering, admin and etc.	Apr 1, 2011 9:13 AM

Page 2, Q10. How do you think the MDP can be improved to better prepare you for life after university?

38	Simulation can be implemented in the project before the actual physical construction	Apr 1, 2011 8:43 AM
39	It gave use a chance to work with people who we would not normally chose.	Apr 1, 2011 8:03 AM
40	more technical skills could be learned.	Apr 1, 2011 5:23 AM
41	N/A	Apr 1, 2011 5:19 AM
42	Providing useful classes within MDP of 2 weeks, example, A.I. algorithmic,simple mechanics, kinematics, control theory,etc.	Apr 1, 2011 5:15 AM
43	Other than being a talking point in my interview for work placement, I cant see it being of any greater benefit as it only requires knowledge from the first term. Perhaps do a second MDP at level 3 as a replacement for 50% of workshop module?	Apr 1, 2011 5:12 AM
44	Change the MDP project so that all schools of engineering can have an equal contribution of skills, i.e. for the 2010 project, the vehicle theme felt like it had more content for the electrical engineers than for design.	Apr 1, 2011 3:53 AM
45	It developed some of my personal skills.	Apr 1, 2011 3:22 AM
46	Relate it to something we would do later in life.	Apr 1, 2011 3:21 AM
47	make sure every member gets involved and work is share equally.	Apr 1, 2011 3:20 AM
48	slightly longer to complete it.	Apr 1, 2011 3:02 AM
49	make it more challenging and give 2 weeks instead of 1 week.	Apr 1, 2011 2:43 AM
50	Seeing as it's first year, not much. It's not technically difficult or valuable enough to prepare a student for anything other than getting on well with random people. Even then if there is a conflict, the time that is needed to be spent together for the parties involved is minimal	Apr 1, 2011 2:07 AM
51	more project and time management to be involved (gantt charts and time managment)	Mar 31, 2011 2:49 PM
52	make people build it from scratch and not use lego, using things like wood and metal	Mar 31, 2011 9:35 AM
53	Not much could be improved in regards to this aspect, the difficulties faced with people management and different opinions are all representative of working in industry, or as much as they can be at this early stage of a degree.	Mar 31, 2011 9:15 AM
54	Include more commercial awareness/real world related discussions/practical tests.	Mar 31, 2011 8:10 AM
55	-	Mar 31, 2011 6:02 AM
56	innitially allocate roles within the team based on the corse they are on, to make sure students know that they are expected to do something.	Mar 31, 2011 3:09 AM
57	As mentioned above I worked prior university (as a professional for 4 years), therefore this may not be as relevant to me as others.	Mar 31, 2011 1:12 AM

Page 2, Q11. Do you have any other comments or suggestions regarding your MDP experience?

1	Many students don't turn up and contribute. Also the kits give to different	May 30, 2011 4:07 PM
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Page 2, Q11. Do you have any other comments or suggestions regarding your MDP experience?

	groups ranged in difficulty, for example remote controlable to programming chips which the battery ran out very quickly and was very hard to reproduce performances	
2	none	May 29, 2011 6:14 AM
3	none	May 27, 2011 4:03 AM
4	Weather was against us, heavy snow.	May 24, 2011 3:26 PM
5	I enjoyed it a lot.	May 24, 2011 2:56 PM
6	I did not feel I was able to contribute and felt that other members ignored my input.	May 14, 2011 6:19 PM
7	Very happy to win our group (class of vehicle; Explorer); more emphasis should be given to helping with team working skills advice.	Apr 17, 2011 11:01 AM
8	Should have at least one more	Apr 16, 2011 11:19 AM
9	Prizes, I cant remember whether there were any? Make everyone want to take part. I felt that I was at times a goody goody for being there and not bunking off.	Apr 11, 2011 9:18 AM
10	Future: Do other unis do similar thing? Maybe there could be another, inter-university stage? Motivation: Put winners in a display case somewhere near the TPO?	Apr 8, 2011 8:31 AM
11	some members had hand ins during the project week, which gave them an excuse to not participate	Apr 6, 2011 12:09 AM
12	fun but not very worthwhile	Apr 5, 2011 6:21 PM
13	get rid of it or finish term a week early, everyone sees it as a joke	Apr 5, 2011 5:27 PM
14	A project that is more challenging - e.g. Something similar to the 'egg challenge' at the beginning of the year, where greater engineering skill led to greater success in the task.	Apr 5, 2011 3:14 PM
15	It felt like a waste of a week	Apr 5, 2011 1:24 PM
16	great fun and huge sense of achievement when we completed the course!	Apr 5, 2011 11:18 AM
17	The MDP has the potential to become as fun and as worthwhile a tradition as the Egg Race, pretty much everything is perfect, it just needs a well built obstacle course.	Apr 5, 2011 10:42 AM
18	Just change it.	Apr 5, 2011 9:45 AM
19	it needs serious changes. i am trying not be harsh and i think that the intentions for it were good and some effort was put in to make it work but it was a seriously bad part of my year and i hated it. i didnt come to university to do activities like this - i learnt no skills of any use to me in the future,	Apr 5, 2011 9:37 AM
20	N/A	Apr 5, 2011 9:30 AM
21	-	Apr 5, 2011 9:16 AM
22	maybe keep it just for the school of engineering,	Apr 5, 2011 7:52 AM
23	-	Apr 4, 2011 8:20 AM

Page 2, Q11. Do you have any other comments or suggestions regarding your MDP experience?

24	Improves skills like management and dealing with pressure.	Apr 1, 2011 1:02 PM
25	no	Apr 1, 2011 9:13 AM
26	It was a challenge that strengthened my determination for engineering	Apr 1, 2011 8:43 AM
27	There should be more than one course so that it would be easier and quicker to test your design.	Apr 1, 2011 8:03 AM
28	Well organised.	Apr 1, 2011 5:19 AM
29	Apart from improving many useful personal skills, the project was very simple as if I were working with a team of primary level.	Apr 1, 2011 5:15 AM
30	MDP week coincided with assignment deadlines, quality/quantity of work suffered as a result.	Apr 1, 2011 3:53 AM
31	It was very interesting to work with different student from other subject areas, I really enjoyed it.	Apr 1, 2011 3:22 AM
32	no	Apr 1, 2011 3:02 AM
33	Either scrap it or make it a lot more engineering based and actually worth the effort put into it.	Apr 1, 2011 2:07 AM
34	no	Mar 31, 2011 2:49 PM
35	Our design was so good every year since I have seen someone coping it! This year a printed image was even provided of it. (Thats a legacy!)	Mar 31, 2011 12:42 PM
36	make the different types of project fairer, as some had to only build a robot and others had to build and program it	Mar 31, 2011 9:35 AM
37	It would be nice to complete another similar project in maybe the second year as well, because as mentioned above the first year is just dominated by total wasters who just end of lumping all the work on those that actually want to do the work, and more than likely those that are filling out this feedback.	Mar 31, 2011 9:15 AM
38	none	Mar 31, 2011 8:10 AM
39	-	Mar 31, 2011 6:02 AM
40	Maybe more in-depth supervision would help to get students involved, marking was way too generous. Out of 8 people only 2 of us did actually any work, however due to decent result everyone got an A. It's neither fair nor realistic. It suggest that students can "get away with it".	Mar 31, 2011 1:12 AM

APPENDIX D: Follow-up feedback from individual students by phone and email

Mechanical Engineering:

Questions:

1. What improvements do you feel should be made in relation to the organisation of the project?
2. How do think the project can be made more valuable to Mechanical engineering students?
3. Do you think having less people in a group would be more effective? If so Why?
4. Did you find the project difficult? If so which parts and how could that be altered?
5. What ideas/suggestions do you have towards making the project enhance employability?
E.g. Useful when applying for jobs or in placement interviews
6. How do you think support can be best given to students?
7. What tasks do you think can be added or improved on to enhance management skills?
8. How important is feedback to you? And which ones do you feel is important? E.g. individual report/group demonstration/both?
9. What type of information do you think should be included on the background research? And when do you think the background research should be given out?
10. How do you think the assessment criteria could be clearer?
11. Any further suggestions or comments?

Answers: (2007 student)

1. There was a late arrival of Lego kit, so making sure the equipment is in on beforehand.
2. MDP was quite valuable but to make it more relevant include Meccano with knots and bolts.
3. Give an equal amount of things to do to everyone. The good thing about large group size however was the sharing of knowledge as there was some things that one subject didn't know how to do that the other subject areas did.
4. The project itself was not difficult however, it was the actual state of organisation which made it difficult, e.g. trying to get everyone to participate. Overall the project was interesting and a good introduction to the course.
5. The project was very useful to mention at interviews as the project showed a good example of working with people from a broad subject area and not just in the one, which the interviewers liked to hear.
6. Support can be given to students by there being more lecturers that is enough to spread out across the whole project, as students were just being told what to do by lecturers for 1-2 days then were left to do the work all by themselves for the rest of it and that is where some students would lose interest and not participate.
7. Not too sure.
8. The group demonstration report is more important because the individual can just write up a lot of lies about all the work they had been doing, when in fact they was not doing anything or not participating as much as they claim to be. There should be some type of register.
9. There were not enough parts. Each group should be allocated a set amount of parts so everyone is not struggling to grab as much as they can get and it makes things more equal.

Civil Engineering:

Questions:

1. Was there enough time for students to do background research before the project?
2. What is the best time frame that you would recommend?
3. What information do you think should be given beforehand?
4. What would you recommended to be included in the MDP in order for it to be more relevant to Civil Engineering students and in their studies?
5. Do you think 1 week is enough for the project and why? Please state a recommended length if answer is 'no'.
6. What elements do you think should be added to enhance management skills?
7. Any other comments/suggestions?

Answers:

(No responses obtained)

Electronic and Computer Engineering:

Questions:

1. What type of information do you think should be included in the background research for the project? And when do you think is the right time to give the background research to students?
2. In what ways do you think the equality between each student's participation can be obtained?
3. Do you think Lego is a good material to use for the project? If not what materials would you recommend?
4. What tasks or improvements do you think should be added in order to enhance employability? E.g. Useful in job/placement interviews?
5. Did you find the project too easy? If so, what would you suggest to make it more challenging?
6. How do you think technical skills can be improved?
7. Any more suggestions or comments?

Answers: (2008 student)

1. Everything, about a few weeks ahead.
2. By giving out a division of labour and different roles. There should be a group director to report to, someone who oversees the project and regularly keeps an eye on what is happening and asks for updates of what is going on/progress etc. Individuals should be marked according to the part that they played in the group. There should a proposal about what each person's role is going to be.
3. For first year Lego is the right type of material to use for the project, as it is only an introduction into engineering and should not start with heavier or more complicated materials.
4. The project should be divided into subject fields or each with different roles, so that at interviews there can be a clear description of one's role and contribution which can be explained.
5. The project was challenging and helped me to improve on my skills.
6. Not too sure, could not really gain any technical skills because everyone was just rushing to get the job done.
7. The best thing that I have experienced, coming from City University, they never did anything like this. This convinced me to stay on my course as I wasn't too sure about it in the beginning.

Answers: (2009 student)

1. Not too sure.
2. To make participation more equal between students, there should be a division of labour, with each person having separate responsibilities to be accountable for. There should be more teachers around to monitor how well students organise themselves as there was some groups which had very dominating characters in there because they just wanted to get the job done, so not everyone had an opportunity to share a leading role.
3. Yes Lego is a good material to use. The programming language was a bit limited, but everyone knows and is familiar with Lego, so what else could be better?
4. If everyone has set responsibilities then at the interviews they can talk about what they specifically contributed to the team and what they were responsible for.
5. It was not hard to do a robot, what made it hard was getting the robot to complete the course because the course was not explained properly in time. There should be specific

descriptions. In of there being one course, there should different activities for testing different purposes.

6. Not too sure.
7. Right time of year. A very good project just needs to be expanded with more people and subjects involved, maybe art. The groups need to be smaller with more staff because ***** was doing most of the work.

Answers: (2010 student)

1. Background research was fine.
2. To make everyone participate there should be a selection of leaders. To make things more equal each subject should be given specific tasks according to their subject field, as the project was really for engineering students rather than design.
3. Meccano would be better to work with instead of Lego because everyone knows it already.
4. There should be more theoretical skills where students should derive a plan for the task they will be doing, like an experiment report, instead of the reports that had to be handed in.
5. It was easy but it did present enough to highlight some skills.
6. Instead of ropes on the scaffolding, it would be better to put something over the stream for example, to make it more imaginative and complicated.
7. Seemed to be the right time of year. Not much else to say really.

Design:

Questions:

1. Was there enough time for students to do background research before the project? What is the best time frame that you would recommend?
2. How can the MDP be more valuable to yours and other design student's studies?
3. What elements do you think should be involved in the MDP when it comes to employability? E.g. To be more appealing when going to a placement/job interview.
4. What specific design features do you think should be added to the MDP to help design students feel more involved?
5. During the MDP are there any other duties that you had to attend to? E.g. coursework deadlines, exams etc.
6. Do you think 1 week is enough for the project and why? (please state recommended length if answer is 'no')
7. How important is feedback to you and why? b. What type of feedback do you think students would appreciate, group individual or both?
8. What advice would you give about the group control and people contributing equally?
9. Any further comments or suggestions?

Answers: (2007 student)

1. Didn't really know about background research. Everything was just pretty much told to us on the day. 1 week before would be an ideal time, so that it is not just sprung across to the students and they know what it's about beforehand.
2. It was more to do with engineering and was not worth many marks for us so there wasn't any point of putting my effort into it. It should be a bit more for commercial use as all I did was design the rover and that was all.
3. Not too sure.
4. Features to be added to help make design students feel more involved is having more focus on how it looks rather than on how it functions as this is what the marks were mainly based on.
5. No.
6. Yes one week is enough, but it depends on how willing the group members are to participate and work together as a group, because if people don't turn up and co-operate then more time is needed to complete everything.
7. Feedback is quite important, both group and individual as you generally want to know how well you did, but the group report would be better to find out.
8. I think a group leader should be allocated at the start and there should be set regular meetings with everyone's contact details just in case students need to get in touch with each other.
9. There weren't enough parts and every group should be allocated a set amount of material.

Answers: (2008 student)

1. There was no project briefing until the morning of the first day. So there was no time for background work on the project. I do not feel that background research would have benefited anyone anyway.
2. The most valuable aspect was working in teams, however at this stage of a degree, no one is really that knowledgeable in their subject area to have a specific area of expertise. I feel it would be equally challenging to have teams within each course, and they compete against each other and then against the other courses.
3. No one I know has mentioned the MDP project on their CV or in an employment interview. At the stage of job searches for placement year hardly anyone shows first year work. No

matter what is added to the project, I still do not feel it will be good enough for those seeking jobs to mention. However I feel maybe that is just the discipline of Design, we are considered to be perfectionists. Any unpolished work rarely makes it into our portfolio.

4. I have no idea. I was the most involved person in my group. Most designers are assumed to be the people who make things look pretty, when in fact they could outshine many of the mechanical and electrical engineers who worked on the project. But each person's level of involvement is at the discretion of the group, if any person feels they were undervalued, or not involved enough, then clearly they understated their skills, or were not willing to work.
5. No extra work, the majority of deadlines were the week before. Although some people decided to boycott the project and work on deadlines they had due for after Christmas, allowing them to enjoy their holiday more. Whether their work benefited from this or not I have no idea.
6. 1 week was plenty of time for the project. The general approach to the project was laidback and meant people could relax while working. The entire project could be completed in one day if people were asked! With all vehicles handed in that evening, and the tests conducted the next morning. Anyone who did not hand in their vehicle would be disqualified automatically.
7. Feedback is very important. But I feel the feedback I received when I got my report back was sufficient for the weight of the project. I think it would be difficult for staff to assess each team on its team working ability etc.
8. In my experience at university, I can with 100% guarantee that no single group project at university will ever have every person working equally hard. A huge number of people at university are only there for something to do and many do not care about their grades, so long as they pass, they therefore have no motivation. People who are stuck working with these people are always annoyed and often their grades suffer in group assessment because of these underachievers. The only way around this is to allow people to choose their own groups.
9. N/A.

Answers: (2009 student)

1. Can't really remember getting any background information but 3 weeks is around the right time to give it to the students as there was a deadline to meet a week before the project started.
2. There should be less of the kit aspect and more about the students designing the robots and that more the way they want to instead of following a structure, so that students can bring in their own concept and be more creative.
3. It was really simple and literally took design students like 1 and a half day to complete. There should be bigger projects involved and more things to do as I didn't even mention the project in my placement interview because I had nothing to say that I did.
4. I think it should not just be about a kit but more about the group making their own robot.
5. No there were no deadlines or exams to complete during the project but there was around 1 or 2 to complete for after the holidays.
6. Yeah one week is enough; in fact there should more things involved to fill the whole week.
7. The group feedback would have been more appreciated, but I think they are equally valuable.
8. I think if there should be an individual feedback form that is anonymous so people can speak their minds about others. It didn't really count for the module so no one was really bothered.
9. More designer friendly.

Answers: (2010 student)

1. I think some more time/information released beforehand would have been useful. Also the project could be longer to make it more appealing for placement jobs.
2. There could of been marks on the aesthetics of the project, e.g. if more time a casing could of been built.
3. It looks good already that we have worked with different professions.
4. Making a casing, while the mechanical engineers and electrical engineers look at making it move.
5. No the week was dedicated to MDP which is good.
6. No, I would recommend 2 weeks, then we would have a better understanding of working with each other and what everybody does.
7. Very important so we know how to improve on the next project, an individual feedback on the report but then a generic feedback form for all the groups on the project.
8. Was very unfair it would end up being the engineers doing all the assembling and creating the parts whereas I would try and organise.
9. Feedback for the report took months and months to receive.