

The University  
of Manchester

MANCHESTER  
1824

School of Computer Science  
Faculty of Engineering and Physical Sciences  
The University of Manchester

The  
'with Industrial Experience' and MEng

Student Placement Handbook

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## **1. Introduction**

For students registered on a 'with Industrial Experience' (wIE) degree programme or the MEng degree programme, an industrial placement is a formal part of their studies. Each 'wIE' student will spend between nine months and a year in industry between the second and third years of University study, while a (four year) MEng student spends at least two eight week periods in an industrial placement at the end of their second and third year. During the second year of study students on this programme must

- a) Achieve a minimum second class degree performance by the end of the second year of study.
- b) Attend and pass the COMP20910/20 Practical and Transferable Skills module, two days of which, during freshers week, is run by the careers service and is designed to help the student to successfully apply for placements.
- c) Find a university approved placement at which to undertake their work experience. The placement tutors in the School assist with finding this place but the primary responsibility rests with the student.

Where industrial experience is formally recognised within a degree programme, students must remain registered with the University during their year in industry. As a result, all industrial placement students are required to pay tuition fees at a reduced rate. UK and EU students pay approximately half tuition fees, whilst overseas students pay one-third tuition fees.

Since July 1999, overseas students are able to undertake industrial experience - integral to their degree scheme - without having to seek extensions on their UK entry visa nor do overseas nationals require work permits to undertake a work placement within the UK, where that placement is part of their degree programme.

The School is happy to encourage these programmes because they provide students with a number of benefits, such as experience of applying the knowledge and skills gained in the two or more years at University to real world situations. It is also usual that students obtain many transferable skills that cannot be taught as part of the degree curriculum. Students who have spent a time in industry often return with a much clearer idea of the way they see their career progressing, and are highly motivated during their remaining years of study.

## **2. Conditions for obtaining a ‘with Industrial Experience’ degree or MEng degree**

### ***2.1 Academic performance***

It is necessary to achieve at least a second class performance in each year of study to be allowed to undertake a placement. If this is not achieved then the student is transferred onto a three-year programme.

Such transfers take place after the January examination results of their second year; at this time students that will be unable to achieve the required standard by June will be notified and transferred to the three year programme. Students who have fallen below the level but could retrieve the situation with better results in end of year examinations will receive a warning. Any student that subsequently falls below the required level after the end of year examinations in June will be transferred to the three year programme.

UK or EU ‘wIE’ students who fail to meet the academic criteria but have been offered an approved placement may put forward a case to the placement tutor for School support to interrupt<sup>1</sup> their studies, however, the School will only be able to support such a request if –

- a) the placement providing company are willing to take the student on placement in the knowledge that it is no longer a compulsory part of the students degree programme.
- b) when the student has resit examinations, either the placement does not commence until the resit examinations are completed or a leave of absence for revision and sitting the examinations is agreed with the company.

Overseas ‘wIE’ students who fail to meet the academic criteria but have been offered an approved placement are unable to interrupt<sup>1</sup> their studies unless the placement company is willing/able to obtain a work permit or the placement company was in their country of origin; this would be a very rare occurrence.

Having obtained an approved placement the student must finally ‘successfully complete’ the placement to be awarded a wIE degree. (see Section 5 ). For MEng students, their placement managers are asked for a short report after each placement period.

### ***2.2 COMP20910/20 - Preparation of Students for placement***

Within the compulsory second year module COMP20910/20 – Practical and Transferable Skills; the Careers Service provide a preparation programme where input is provided on various aspects of the recruitment procedures by major placement providing companies. The ‘Career Management’ part of the module takes place as a two day workshop during Freshers Week. An example syllabus for this part of the

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<sup>1</sup> Interruption of studies – take a year out (not registered) from studies, in these cases to gain work experience, however, the student will not obtain a ‘wIE’ degree, and will not receive any support from the School during their time in industry.

module is included as Appendix A. It is a condition of the 'wIE' programme that students must PASS this part of CS2910/20 in order to be permitted to remain on the 'wIE' programme.

### ***2.3 An approved Industrial Placement***

Before the School will grant permission they must be convinced that the job will complement your degree studies. So, jobs which involve a degree of systems analysis, a chance to learn about design, development or implementation of systems, or maintenance of systems - in short, anything that provides a good opportunity to learn about some aspect of computing which is likely to be beneficial to subsequent studies and career – would qualify. Getting a job as a data preparation or telephone help desk person, or working in a totally unrelated area will not. If you are applying for posts and are uncertain about acceptability then seek advice from the placement tutor. The earlier you do this, the better.

All students registered for a 'wIE' or MEng degree, must obtain approval from the School for any placement before accepting any placement offer. Individual placement offers have to be scrutinized by the appropriate placement tutor, who will authorise the placement if it is acceptable.

**N.B. An overseas summer project placement will only be approved in exceptional circumstances, where we are confident of the support being provided for the student and there is a suitable level of communication from the company.**

Students who are successful in obtaining a position, need to fill in a placement form obtainable online on the CSwIE Site. On the form there is space to indicate the company, location, and to give a contact person within the company who will act as the placement manager, in addition there is a section to be completed with a brief description of the nature of the placement job, the start date and the duration of the placement. The form can be submitted online or should be returned to the External Affairs Office for an authorisation signature from the appropriate Placement Tutor.

A database of suitable providers is maintained by the School, in addition the Careers Service also maintain information about providers. New providers are scrutinized by the placement organizers. Letters are sent to the providers with the degree syllabus in early Autumn of each year.

Information about the providers and links to their recruitment sites are published on the Industrial Placement and Summer Placement sections of the CSwIE Moodle Site, links are also provided to other websites that publish placement opportunities.

Some providers send details about their opportunities directly to the School; details about these placements are published through the CSwIE Moodle Site and any further hard copy information is placed in the student resource centre. Students will be notified individually about these opportunities through the School email system. There is also a notice board for placement information in the main School lobby. In addition companies will come to the campus, several to the School exclusively, to give talks about placement opportunities, students will be notified of these events with posters on notice boards and through the email system and CSwIE Moodle Site.

Students are not confined in their search for a placement to the information provided by the School, students are also encouraged to find a placement from other sources

The School needs to know which students are spending a time in industry by the 31<sup>st</sup> May each year. Students who require an extension beyond the 31<sup>st</sup> May deadline must notify the Placement Tutor and are required to maintain contact with the School once the vacation period commences.

### **3. Pastoral Care during placement period for 'wIE' students**

The placement period is an integral part of your degree programme and the School has a responsibility to make sure that you are adequately supervised on the placement and are gaining appropriate experience. The School does this in a number of ways, one of which is the CSwIE Moodle site, this has discussion forums, enabling you to keep in touch with the School and other students on placement. On a person to person level, perhaps the most important, although least formal, is by telephone calls, e-mails. If there are any problems at all (or even if you just wish to say how wonderful everything is!) please phone the placement tutor, your personal tutor or programme director.

#### ***3.1 Formal Reports***

Formally students must complete and submit reports at three stages in the year (September, December and June). In December and June the placement manager is also asked to complete a short report on your progress. Copies of the report forms and examples of student reports are in Appendix B.

Recording achievements - you should record any achievements made, any particular successes and any skills you have gained. This will provide a useful tool when applying for jobs after graduation. This should be done by maintaining a log book of your activities.

The reports produced just after Christmas nearly always describe the work done, the new technologies encountered and the expectations for the immediate future. They tend to be a catalogue of events, however, it is expected that in your final report, in addition to recording your technical progress and work completed, you will express a reflective view of the experience and its effect on you as a person.

Managers also complete reports, these vary in 'insightfulness' in a way that is probably indicative of the organisational culture surrounding them. It is quite normal in the industrial environment for you to be involved in this assessment process discussing your progress with your manager and agreeing a personal development plan for the next working period.

### **3.2 Tutor Visits**

Every student has a tutorial visit in the second semester, this visit is either carried out by the placement tutor or a second year tutor (where practicable). The tutor completes a report about student progress. The format of the visit would normally be -

Tutor and Student –30 minutes discussion

Tutor and Manager - 15 minute discussion

Tutor, Manager and Student – 15 minute Discussion of any issues raised

Guidance for visits by tutors; Whilst work experience is usually useful, it can be made even more valuable through planning and reflection. The tutor visits are an important part of this process, which is why they should take place around the halfway point in your year out. The visit is an important point of contact for the student, a reminder, if you like, that this placement is part of their study program.

The tutor visit should serve two purposes. On the housekeeping side it is an opportunity for the student to talk about third year project and course unit selection; this serves as a reminder that it is time to become aware and prepare for the return to academic study in September; Also students quite often find their return to study after a year out disorientating. The second more immediate purpose is to provide an opportunity to make both the student and the placement manager reflect on the placement, to raise issues and to plan how to address any issues in the time remaining in the placement.

The visit should aid and encourage you to reflect on your experience - recognise your achievements and understand the problems faced and how you may be better equipped to deal with them in the future.

The visit is also an opportunity for you to discuss with your tutor any gaps in the experience you have had so far. In the subsequent discussion between your tutor and manager they explore the possibility of addressing those deficits. For example, if you feel that you have not been stretched technically, the discussion should look at the work you are being tasked with to see if this can be made more challenging.

The visiting tutor will also make sure that a student is gaining experience in the transferable skill areas, communications (oral and written), problem analysis, decision making, using initiative, gaining in self-confidence, team working, adaptability and reliability. Again a student should try to negotiate a plan with their manager that will work on any weaknesses.

### **3.3 Informal Contact**

Informally the student is able to maintain two way contact with the placement tutor, the placement scheme administrator and any other member of staff in the School, for



example many of the students keep in touch with their second year tutor during their time in placement.

### **CSwIE Moodle Site**

Discussion Forums: there will be discussion forums available for both students on placement and students looking for placements. It is hoped that returning students, and students on placement will act as mentors to the students starting out looking for placements, by answering questions and sharing their experiences.

Notices and deadlines: The site will also be used as a means to communicate with all CSwIE students by the Placement Tutor and administrators.

Placement Opportunities: there will be a database of placement opportunities accessible through the Moodle Site, new opportunities will be posted as and when they arrive with the school

### **3.4 NUS information**

NUS cards can be obtained (after 3rd September) from:

Mrs L Devesa  
Deputy General Manager  
University of Manchester - Students' Union  
Oxford Road  
Manchester  
M13 9PR

Tel: 0161 275 2950

Write to Mrs Devesa requesting an NUS Card informing her that you are on a placement year away from the University (as part of your course). State your student registration number, a passport size photograph and a self-addressed stamped envelope for the return of your card. You should receive your card soon after you have sent in your request. Please let the placement tutor ([alex@cs.man.ac.uk](mailto:alex@cs.man.ac.uk)) know if you do not hear anything.

## **4. Summer Placements for MEng students**

### **4.1 Reports**

Students will write a short report of their work experience on their return from their placement. The project work at the end of their third year counts 30 credits towards the fourth year mark. A report from the employer at placement completion will be worth 5 credits, the students' (formal) project write up(handed in at the start of term) will be worth 15 credits and the students will give a seminar during Freshers week which will be worth 10 credits.

Prior to commencing the report write-up, students should email a copy of their proposed abstract and report contents (chapter and section headings) in plain text to the MEng tutor ([lbrackenbury@cs.man.ac.uk](mailto:lbrackenbury@cs.man.ac.uk)) for comments.

#### ***4.2 Pastoral care during placement***

Due to the relatively short period of the placement, it is not feasible to make visits to a student's placement. However, contact with the School will be maintained by a progress report emailed to the MEng tutor ([lbrackenbury@cs.man.ac.uk](mailto:lbrackenbury@cs.man.ac.uk)) two weeks into the placement.

In addition, students experiencing problems should email the MEng tutor or the placement scheme administrator ([placement-secretary@cs.man.ac.uk](mailto:placement-secretary@cs.man.ac.uk)) as soon as possible if they are unable to resolve the difficulty.

### **5. Re-orientation (for wIE students)**

The School will contact placement students about their return to final year, normally, during March of the preceding academic year. This contact will contain information about the publication of the Project Book and how to manage the administration of making project selections. At around the same time students will be reminded about selecting your final year course units. Both project and course unit selection can be carried out on-line through the School web pages. Projects will normally be selected before the easter vacation.

#### ***5.1 How to choose a project***

A web page will be published that contains a list of the projects available to third year students. The main selection and initial allocation of students to projects is normally made before the easter vacation and students on placement will be notified by email when the selection process is due to start. A further selection and allocation will be made in September to deal with residual cases. It is possible for students to propose their own projects, in which case, they should follow the instructions regarding submitting OWN project proposals on the project web pages. Students inventing their own projects should carefully read the guidelines for projects on the School web pages.

Students make their selection using an online form and are expected to provide five choices in order of preference. No preference is given to people who provide fewer than five choices. Students on industrial placement are encouraged to email members of staff offering to supervise projects to arrange either a meeting or a telephone discussion about the projects in question prior to making their choices. The deadline for selection will be published on the web pages each year. If a student successfully negotiates a project outside the book with the Final Year Laboratory Manager, Dr Pratt-Hartmann, and possibly a prospective supervisor, it is still necessary to give 5 choices, one of which is 0, the code for OWN; this is likely to be your first choice, but it does not have to be. Anyone thinking seriously of an OWN should contact the Final Year Laboratory Manager, Dr Pratt-Hartmann([ipratt@cs.man.ac.uk](mailto:ipratt@cs.man.ac.uk)), by the deadline for making project choices..

Further detail about how to browse the project options and how to make a selection will be available on the relevant web pages.

Generally students out on placement are not in a position to see the associated members of staff for projects they are interested in, to find out more about them. Therefore it is important that you make initial contact with the member of staff through email. It is important that you make very clear in your email that you are currently in a work placement and returning in September for your final year. This is especially important for projects classified as challenging (grade C). Students should avoid projects which are clearly designated as being unsuited to their expected degree level and should also consider the relationship between project and choice of Third Year courses. For general questions on the Third Year Laboratory you should contact Dr Pratt-Hartmann, the Laboratory Manager.

The fallback interface for communication if you are having difficulty with contacting a staff member through email would be to contact either Dr Pratt-Hartmann, the Laboratory Manager or the Placement Tutor.

## ***5.2 Selecting your final year course units***

The detailed requirements for course unit choices for each degree programme are set out in your student handbook. An update to course units that are available will be e-mailed to students in August/September. There will also be a copy of the updates included in the School registration pack. An initial choice can be made on-line through the University Registration system, before returning for the final year. After that changes can be made as follows:

- a. The deadline for changing course units in each semester is two weeks after lectures start. Normally, no changes of course unit will be permitted after these dates.
- b. In the first instance, you should discuss any plan to change course units with one of your tutors. You must check that the new course unit you wish to take is a valid option for your degree programme and find out if there are likely to be any timetable problems. If there are timetable clashes this will probably prevent you from changing course unit.
- c. An on-line Web page is provided to register changes of course units. This is accessible from the undergraduate home page. If there is any problem with your registration you will be contacted by email. If you wish to register for an external option from another School you must consult your year tutor. In case of difficulty please contact the year tutor (Toby Howard - [toby@cs.man.ac.uk](mailto:toby@cs.man.ac.uk)).
- d. Your examination entry will be derived from your course unit choices recorded in the School office. If you fail to update course unit changes on Campus Solutions you will be entered for the wrong exams.
- e. Details of final year registration will be sent to your home address during the summer.

## **6. Successful Completion of your placement**

Students must complete the following criteria to be considered as ‘successfully completing’ the placement –

### ***6.1 For ‘wIE’ students***

- i. Reports throughout the year from managers, students and from visiting tutors are used to check that the placement has been completed satisfactorily. If you fail to return any of the required reports in a satisfactory form then you will not be considered to have ‘completed your placement successfully’.
- ii. You must complete the minimum nine months of approved work experience

Any student that fails to fulfill the above criteria may not be allowed the ‘with Industrial Experience’ addition to their degree title.

### ***6.2 For MEng Students***

For satisfactory completion of the placements

- i. You must complete a minimum period of an eight week approved placement at the end of your second and your third year
- ii. You must submit a progress report after two weeks and a report at the end of each placement. The report for the placement at the end of your third year will be formally assessed as previously detailed.

Failure to satisfactorily complete a placement may lead to the withdrawal of the MEng registration.

## **7. Placements Overseas**

There is no problem from an academic viewpoint if the approved placement is outside the UK. However, when working overseas in a company or university you must seek advice on local requirements - and, you are advised to follow the same general standards which operate here.

### ***7.1 Special Points***

***Due to possible VISA requirements it is important that -***

One year ‘wIE’ placement students are advised that they should consult with the placement tutor throughout the application process for overseas placements. The approval procedure needs to be initiated very early, failure to do this could lead to disappointment.

For Overseas students, as the placement is part of your study programme you do not require a work permit to take up a placement in the UK. However, you may need a work permit for other EU countries.

It is your responsibility to find out about the local laws and regulations and to seek advice from your employing company in this respect. It is the responsibility of the student to obtain the necessary work permits and visa's for working overseas, if they are required.

## ***7.2 Health insurance***

If you are working overseas (including the EU) you should obtain an appropriate health Insurance Policy (e.g.: Endsleigh).

## ***7.3 International Student Industry Card***

You are advised to obtain one for overseas travel.

## **8. Health and Safety**

Companies in the U.K. operate under the same health and safety legislation that operates in the University. You must follow the instructions and guidelines, which are given to you by the company.

If you are working overseas you must seek advice on local requirements.

## **9. Student responsibility to**

### ***9.1 The University***

It is absolutely essential that you give us details of your placement. For 'wIE' students this is particularly important when it comes to arranging for staff to visit you (see Section 3). We need a contact address and telephone number along with some details of the type of work you are doing. We will put the information onto a database for ease of access. We need you to complete an on-line form when your placement has started to confirm the contact details of your placement and placement manager/supervisor. It is your responsibility to ensure that any changes to your circumstances are notified to the School immediately.

On the informal side, you are ambassadors from the School and University - your performance will reflect on both and will affect the chances of placing future students in the company and your potential future employment prospects. To date the feedback on our students has been excellent - please make sure it continues to be so! You must observe any compulsory restrictions on e-mail or web site use.

### ***9.2 Placement provider***

While away from the University on a placement you will normally be an employee of a company. It is vital that you behave in a sensible manner and abide by all the rules and regulations of your employer. This applies to all aspects of your placement, but

pay particular attention to aspects of Health & Safety, confidentiality and computer use.

In some cases the company will require you to produce an internal report in a different format to that expected by the School - if that is the case we may be happy to accept a copy (subject obviously to the agreement of the company) if it is appropriate rather than making you produce two separate reports. If this is the case you should contact the placement tutor first to ensure that the format of the report will be acceptable. Remember also that in industry you will be subject to confidentiality arrangements and so you should not release information without consent. Companies normally examine the report which you submit - make sure to allow time for this.

## **10. Complaints procedures**

The University has no formal complaints procedures to deal with placement problems but we would advise the following steps should be taken. First and foremost you must remember that during your placement year you are a registered student in the School of Computer Science, therefore the School has a responsibility related to your welfare whilst you are in your placement. If you are facing problems in your placement that you feel uncertain or unable to deal with or if personal issues are affecting your placement. Contact the placement tutor and/or your second year tutor immediately, it is better to address any issues as quickly as possible. The School staff will help you to work through the problem and find ways to address the difficulties.

## **11. Useful contact details**

<b>Name</b>	<b>email</b>	<b>Telephone</b>
Alex Walker Placement Tutor (wIE)	<a href="mailto:alex@cs.man.ac.uk">alex@cs.man.ac.uk</a>	0161 275 6127
Linda Brackenbury MEng Tutor MEng Placement Tutor	<a href="mailto:lbrackenbury@cd.man.ac.uk">lbrackenbury@cd.man.ac.uk</a>	0161 275 6118
Mabel Yau Placement Secretary	<a href="mailto:placement-secretary@cs.man.ac.uk">placement-secretary@cs.man.ac.uk</a>	0161 275 0140
Dr Ian Pratt-Hartmann 3 <sup>rd</sup> Year Projects	<a href="mailto:ipratt@cs.man.ac.uk">ipratt@cs.man.ac.uk</a>	0161 275 6223
Mr Toby Howard 3 <sup>rd</sup> year Tutor	<a href="mailto:toby@cs.man.ac.uk">toby@cs.man.ac.uk</a>	0161 275 6274
Dr Len Freeman 2nd Year Tutor	<a href="mailto:lfreeman@cs.man.ac.uk">lfreeman@cs.man.ac.uk</a>	0161 275 7910

## **Appendix A**

### **Example Syllabus : Careers Workshop - Career Management Skills Programme for Second Year Students**

**This Programme is organized by the Careers Service**

#### **Aims**

- To introduce students to key career management skills which will contribute to their future career success
- To help students to search for placement opportunities for their IE year
- To give students the skills and knowledge to succeed in the recruitment process

#### **Learning Outcomes**

A student completing this workshop should:

Focus on getting the job or placement they want, by:

Be able to produce an up-to date CV and covering letter tailored for a variety of career paths, showing an understanding of what selectors want from applicants, preparing effectively for interviews and other selection events, and by giving employers real evidence of key skills developed. (D8)

#### **Module Assessment:**

75% of this course unit is formed from laboratory exercises associated with the other course units taken in the second year.

5% by monitored attendance at the workshop, which is compulsory.

5% for production of a CV and covering letter. CVs should be one or two pages long and accompanied by a covering letter. CVs and covering letters must be word processed, with accurate spelling and appropriate language, well laid out, easy to read, with a clear structure. This is a compulsory element for students on 'wIE' programmes.

5% for technical essay (during reading week)

5% for group presentation (during 2nd year tutorials)

5% for participation in 2nd year tutorials.

Contribution to Programme Learning Outcomes

### Sample Timetable - Practical and Transferable Skills for Computer Science

<b>Day One</b>	<b>Subject</b>	<b>Presented By</b>
9.00--9.15	Arrival and registration	
9.15- 9.20	Introduction	Director Undergraduate School
9.20-9.30	Course Introduction - explanation of Programme and Assessment	Fiona Christie - Careers Service
9.30-10.30	What Do Computer scientists do? Some of the options after your degree and/or experiences of doing a placement	Speakers: Panel of recent graduate and/or those having completed a placement
11.00-12.30	CVs and written applications	IBM
1.30-3.00	The IT job market/Tactics for looking for work experience: Student workplace	Careers Service
3.00	Day concludes	
<b>Day Two</b>	<b>Subject</b>	<b>Presented By</b>
9.15- 9.30	Introduction to Day 2	Careers Service
9.30-12.30	Teamworking/ Assessment centre activity	PWC
	Interviews and selection centres	Accenture
2.00-2.30	Action Planning your next steps Review and course evaluation	Careers Service
2.30 -4.00	Second Year Tutors welcome talk	Steve Pettifer – Head of Year Alan Williams – Lab Manager Alex Walker – Placement Manager



**Appendix B - Forms**

**APPLICATION FORM**

**INDUSTRIAL PLACEMENT**

**or**

**M.Eng.SUMMER PLACEMENT**

When submitted this form will be passed either to the Industrial Placements Tutor or the M.Eng. Tutor for formal approval.

**Your Name:**

**Your E-Mail:**

**Stream:**

**Manager's Name or  
Contact Person:**

**Company's Name  
& Address**

**Brief outline of what  
you expect to be doing**

**Date Placement Starts**

**Expected Length of Placement**

**SUBMIT**

**PRINT**

### **New/Update Details**

Could we just remind you that it is a requirement of the Industrial Placement programme that reports are provided during the course of the placement. Therefore, we will be contacting you periodically during the year, reminding you about report deadlines for completion by yourself and your manager, and therefore it is imperative that we have up-to-date contact details.

Please ensure that as your placement progresses, you keep us acquainted of any change of address or change of manager by completing the form below this form as with all others is available electronically through the website, you just complete and submit electronically.

Please remember that the reports contribute an integral part of your degree and the University reserves the right to withhold the degree in the absence of these reports.

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#### **Change of Address/Manager Notification change as appropriate:**

**Student's Name:**

**Student's Email:**

**Student's New Phone Number:**

**New Manager's Name:**

**New Manager's Phone Number:**

**Manager's Email:**

**New Company Name  
& Address**

**SUBMIT**

**PRINT**

## MANAGER'S INDUSTRIAL PLACEMENT REPORT

**Student's Name:**

**Manager's Name:**

**Company's Name  
& Address**

### Major Objectives During Placement

Objective	Met	Not Met	Exceeded

### Skills and Characteristics. Please grade from

1. (very poor)
2. (below average)
3. (average)
4. (good)
5. (excellent)

or N/A if not applicable:

Technical Competence		Initiative	
Communications-Written		Persistence	
Communications-Oral		Ability to Work with Others	
Problem Analysis		Adaptability	
Decision Making		Persuasiveness	
Interest in Work		Self-Confidence	
Quantity of Work		Judgement	
Reliability		Creativity	
Administrative Skills		Timekeeping	

What specific strengths/weaknesses did the student display which affected his/her job performance and acceptability within your company?

-----

Please write any additional comments here:

-----

Poor Average Good Excellent  
Overall Performance Rating

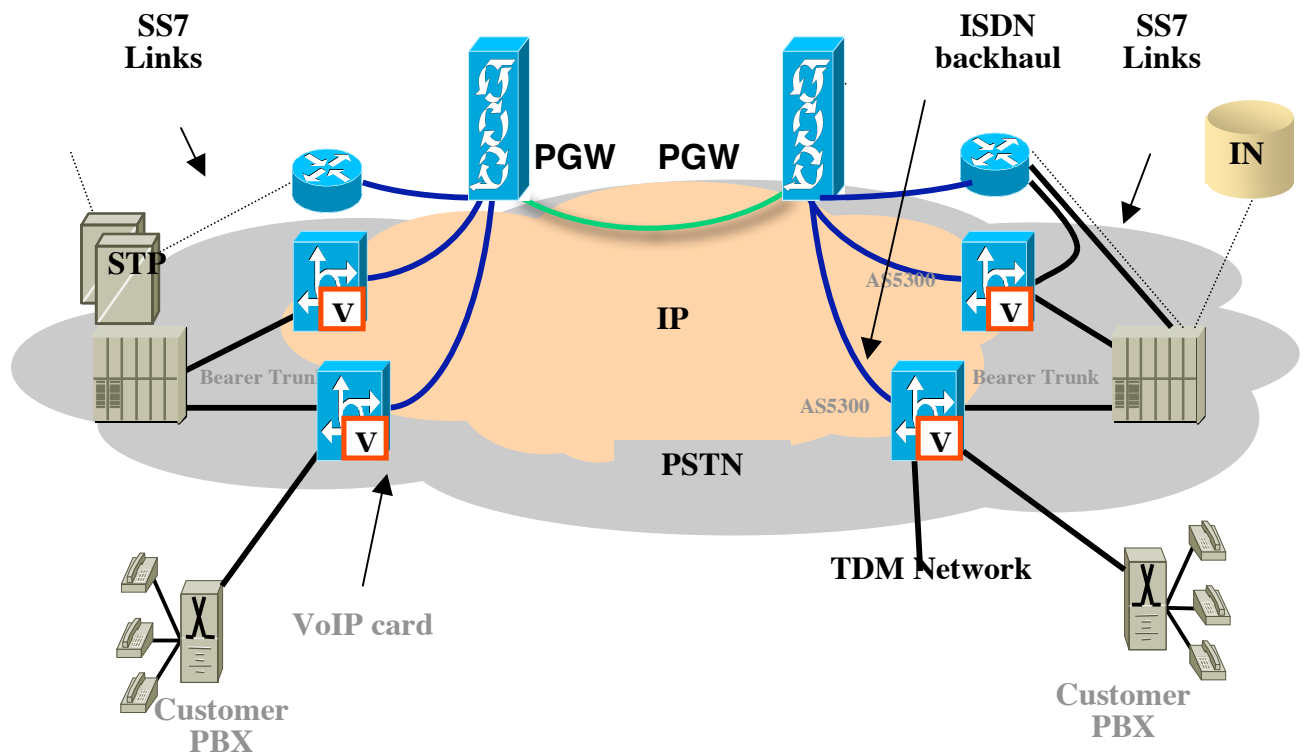
## Appendix C Example Student Reports

### Initial Placement Review - January

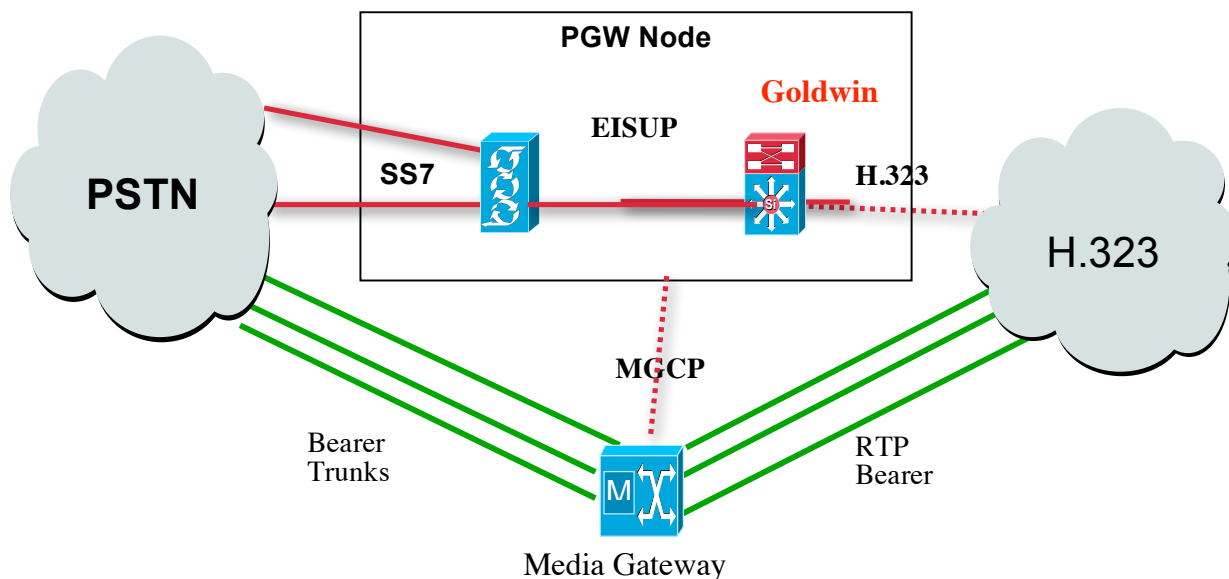
**What products, systems, services are you involved in developing/supporting?  
Briefly describe the work of the company, or the section within which you are working.**

#### Packet Telephony Call Control (PTCC):

PTCC develops software telephony products that interwork traditional Packet Switch Telephone Network (PSTN) protocols (e.g. SS7, PRI etc.) with data networks protocols such as IP and vice versa. One of such a product is the **PSTN Gateway (PGW)** as shown in the figure. The diagram below represents a transit-tandem solution, in which voice traffic is routed through IP network. PTCC consists of six sites around the world, Reading UK being one of them. The UK team is responsible for specialising the product to meet the requirements for EMEA (Europe Middle East and Africa) clients. Also we are actively involved in the on-going development on the product across the Atlantic.



Please also attach the equivalent of 2 pages of A4 describing in some detail what you have been doing and learning. This can be done either by filling in the text box below or by attaching a file to an email sent from [here](#).



**Goldwing** is an H.323 adjunct for the PGW, as depicted in the above figure. It allows PGW to interwork PSTN protocols with H.323 protocol. H.323 is a standard set by International Telecommunications Union (ITU) that lays out Infrastructure of audiovisual services over Packet Based networks.

#### Major Objectives achieved so far:

- Understanding the group's product and its application.
- Developed Viewer toolkit for Goldwing. The toolkit consists of three units: Log Viewer, Alarm and Measurement Viewer, and Call Trace Viewer. The toolkit has a Graphical User Interface and has been implemented in Tcl/Tk. Upon joining The company, I was assigned to debug Log Viewer which had already been developed but had problems. I debugged the log Viewer, performed black box testing and developed any incomplete functionality. After that I moved on developing the Alarm and Measurement Viewer. I designed and developed Alarm and Measurement Viewer, and reused much of the code from PGW viewer toolkit. Call Trace Viewer still needs to be developed and may be developed if flagged as a high priority task. However, Log Viewer and Alarm and Measurement Viewers are being shipped to clients in industry.
- Also developed a structure for the compliance document for Goldwing. Furthermore, I filled it with the appropriate requirements. As H.323 is an umbrella protocol i.e. it refers to other protocols, this involved looking into different ITU specifications (e.g. h.225, h.245 etc.) extracting the right material. The document was filled in by an engineer and handed over to the marketing School.
- I was actively involved in helping engineers with Goldwing performance testing while also dealing with other projects, viz using multi-tasking approach. This testing involved generating calls at Goldwing using 16 servers and actively monitoring traffic on Call generators, Goldwing, PGW, and Call terminators.
- Currently, I have been assigned to develop features on Goldwing. To achieve this, I am being exposed to versioning controlling system and C++.

**Learning + Training:**

- Tcl/Tk
- Debugging large amount of code
- Black Box testing
- SC2200(one of the group's product) training
- Corporate Defect Tracking System on-line training
- GEM (Great Engineering Methodology) describing the engineering-related processes and requirements for product development and maintenance that are followed by all engineering organizations.
- Intermediate Unix Training
- Working under pressure
- Presentation Skills
- Time Management Skills
- Appreciate the difference between academic and industrial world

**Major Initiatives achieved so far:**

- Started contributing positively towards The company soon after joining
- Identified potential technical areas of improvement and read on them
- Suggested different possible formats of a compliance document for the group's product
- Reused most of the code in Viewer toolkit to develop Alarm and Measurement Viewer Toolkit for Goldwing (group's product).
- Added additional functionality to the Alarm Viewer and Log Viewer

**Company Success Factors established:**

- Establish Plans
- Work Hard with Drive and Commitment to results
- Solve Problems and Make Decisions
- Innovation and Learning

## **Appendix C**

### **Example Student Reports**

#### **Final Placement Review – June/July**

**What products, systems, services are you involved in developing/supporting?  
Briefly describe the work of the company, or the section within which you are working.**

Note: This report contains an overview of the placement. However, treat this document as a follow on from the last Placement Review Report. This final report should include your personal reflections on the year and what, outside of technical skills, you have gained personally from taking a year out from your studies and how you think this will be of benefit to you personally in the coming year.

There are three reports following that cover placements in diverse situations, an global investment bank, a global telecoms company and a university research project.

#### **STUDENT'S INDUSTRIAL PLACEMENT REPORT**

**Name : Anonymous**

**Placement : Technology Division, Investment Bank**

In the final six months of my placement I worked on several projects. To start with I was assigned to work on a new trading application for the Program Trading desk at the start of January 2006. As part of this I spent a week on the trading floor analysing what the traders actually did, how they used the existing system and what their main grievances were with it. This was a global project being driven out of Tokyo, and I was the only developer in my team actively working on the project. The initial specification for the project had been broken up into logical segments of work, and I had been allocated to work on two parts that were inter-related. I got both of these parts up and running quickly, and produced the first workable parts of the project.

I got the opportunity to meet a few of my colleagues from New York who came over to work with me which I found much more productive than communicating over the phone. Since the project was being worked on in all our offices around the globe, we had regular meetings with everyone to keep up to date on how everyone was doing and discuss any issues that needed to be addressed. The opportunity to work in a large global team where communication was of vital importance really helped me improve my communication skills. This was mainly out of necessity, but also because this was the first instance where I began to feel that my input to discussions was actually worthwhile and therefore became more confident in contributing to the meetings.

The code that I produced featured a number of generic helper classes that were utilised by the rest of developers, and I was also responsible for coming up for the design pattern that all of our GUI components would use in order to make the code more maintainable. This was something that surprised me in that everyone was willing to use my code and follow the design pattern I had come up with, and I think displayed how much my programming skills had improved

in the first six months. However, by the end of February I was pulled off the project to work on something else.

Midway through January our team had taken on a new member, XXXXXX, and whilst working on the project described above I was tasked with introducing him to the C# framework that the majority of our applications were developed in. This also involved introducing him to the existing applications that we had written and supported, and give him a general overview of how Equities Technology was divided. I was glad that this was entrusted to me by my manager, as it showed that he thought I had gained a sufficient understanding of how everything fit together to teach someone else. It also provided me with an opportunity to test my knowledge and learn more when I couldn't answer a few of the questions that XXXXXX would ask, so we tracked down the answers together by looking through the code and asking the relevant people.

Once XXXXXX had a solid grounding, we both began working on a program for our Direct Market Access (DMA) business. This is where the firm provides clients with direct access to the financial markets via our systems as we are registered on the exchanges whereas our clients typically are not. Effectively this allows our clients to trade themselves remotely. We receive millions of trades a day this way, and the majority pass through our systems with no problems and are executed automatically. What we were tasked with developing was a tool for the traders on the desk to use to monitor those trades that for whatever reason had become stuck in our systems and had potentially not been filled on the market. A tool for this had already been developed specifically for Single Shares in London, and we were initially responsible for making it generic enough to also be used for Futures contracts and also as a technology monitoring tool that support staff could use to monitor trades that are supposed to be executed automatically in some of our other flows.

Initially XXXXXX was responsible for removing the existing monitoring component from its current project and moving it into a new shared area, making the code generic enough to support any type of trade, not just Single Shares. The existing monitoring tool also had a server that provided it with the trades that were stuck in our order management system, and another member of our team Mark was responsible for making this generic at the same time. During this phase I was acting more as an advisor to XXXXXX, where we would sit down and examine how the existing one worked, what would need to be changed and how we should change it to ensure the new one was suitably generic to support everything we had planned for it. I also spent time with Mark understanding how the server worked so I had a full understanding of the flow of data through the systems. Once this was complete we began to look at implementing the new generic one to monitor Futures contracts.

We released the first cut of the Futures Exception Monitor to the desk a few weeks later, and once the desk were happy with it we replaced the Single Shares one they were using currently with the new generic one as well, removing the old code entirely. From this point on I spent the rest of my time at the firm working very closely with the traders on the desk getting new requirements for the tool and implementing them. Firstly we began adding some basic transactional capability to the tool, so that the traders could examine the trade stuck in a particular state, and either cancel it or resend it to the system that would attempt to automatically execute it on the market. There was also the odd bug fix, showing more information on each trade like real-time market data, and



some GUI updates to make everything more cohesive based on feedback from the traders.

During my penultimate quarterly review at the end of March I expressed an interest in getting involved in more of the server side work that our team was doing. As part of my work on the Exception Monitor I got this opportunity. A requirement came from the desk that they were also interested in seeing what trades our systems were automatically rejecting, as sometimes this was indicative of a problem internally or with a particular market. Mark and I were assigned the responsibility of coming up with a way of getting this information to the traders. We sat down with the traders to understand exactly what they wanted, and then decided on writing a new GUI for rejection monitoring that would have its own server. Since potentially we could see thousands of rejected trades popping into our GUI if a large market was to go down unexpectedly, which would obviously have an adverse effect on the GUI's performance when you need it most, we came to the conclusion that for the most part the traders were only really interested in seeing aggregate information about rejections. The server was responsible for coming up with these numbers, and we designed it in a way that it was generic enough to aggregate based on any criteria. These numbers were published by our server, and on demand the user could then request from the server the actual trades themselves to also be displayed in the GUI if they wanted to see the details of why each trade was rejected. This gave us excellent performance but with the flexibility to allow the user to get all the trades if they chose to.

We rolled this Rejection Monitor out to the Futures and Single Shares traders and they were very happy with it. We also demoed it to several other teams and got a great deal of positive feedback. One team in New York decided they wanted to implement both the Exception and Rejection Monitors over there and I spent some time discussing with them what they would need to do in order to get their data into the GUIs. As a result of this, Mark and I were again teamed up immediately to work on getting profit and loss statistics into the Exception Monitor, which was the main feature the traders were now pushing for. This required a large amount of analysis on my part, first understanding the different ways P&L could be calculated, what figures we would need to perform the calculations, and then how to get these numbers. In the end this was a significant undertaking that required us to write 2 servers to get the market data we needed from when we had received the order and match it the orders in the GUI, and then the different P&L calculations were added to the GUI code. This was a major piece of work and when released to the traders a few days before I left was a big help to them.

In my last couple of weeks there was real need for me to handover the knowledge I had accumulated over the year to the rest of the team. On one particular project that I had done back in September 2005, I had written all the code myself and was the only one who understood the entire flow. As part of the handover process for this I had to give a series of presentations on the application to other technology teams and support staff, and had the opportunity to again update the code in order to bring it in line with changes to the framework that had occurred in the last year. I managed to cut down the amount of code significantly and made the changes in under a week, which demonstrated how much I had learnt over the year as I spent 5 months developing it at the start of my placement.

One of the other notable things that I had the opportunity to do was interview applicants for a role within our team, which I found to be an eye-opening and slightly surreal experience. I found it slightly uncomfortable questioning people who in most cases were twenty years my senior, but at the same time was flattered that my team were happy for me to do this as they respected my opinion on who we should hire. It made me feel very much a full part of the team even though I was only an intern.

In looking back on my time in placement I think that I have learnt so much both in terms of my professional life and my life outside of work. Within the first three months of work I feel I had learnt the equivalent amount as the entire of my first two years at university and I think this was largely a result of the work being 'real' so to speak. At the start of my placement I think that what I had learnt at university gave me at least somewhere to start, but I was still thrown in where everything was an order of magnitude more complicated even than the hardest work we had covered. There were also many things that I hadn't even considered would be part of my daily routine that we hardly touch on in the department. Things like time management, teamwork, meetings and general communication skills I think are the most important of these, and all of them I picked up on the job from experience. These are all skills I think are as essential in the real world, and are of equal importance to academic results.

Outside of work I think that I've grown up a great deal, becoming far more confident than I ever used to be and have also learnt a lot from the new people I met over the course of the year. Moving to London I think was the main reason behind this, since after the first year in university I more or less had a set group of friends who I spent most of my time with whereas at work I met a diverse group of people with whom I got on very well and they all had very different experiences and points of view. I have also found myself more motivated and active than before, and I think this is shown by the fact that I have helped out with campus recruiting for the firm and this is something I want to get involved in when I go back in July of next year.

**Company : Telecommunications**

**Student: Anonymous**

### **PRODUCTS, SYSTEMS AND SERVICES**

Throughout the year I have moved from project to project, however over the year I have been involved in two major projects. For the last six months I have joined the team responsible for creating new features for a network management flagship program, XXX. In the past I have been involved with another team that create support for new devices in XXX, this is an ongoing effort but I only worked on it for a month or so at the beginning of my placement.

I have also been responsible for a couple of smaller projects, one to automate SNMP testing and another to simplify the creation of advert configuration files for XXX.

### **MAJOR JOB ASPECTS**

Requirements gathering

Systems design

Software development

Writing documentation (formal requirements/design/test specs)

Testing

End user support (I helped the people that used my tools with any problems they encountered)

### **JOB DETAIL**

Since my last report half way through the year, I have continued to develop the SNMP testing utility that I wrote about in the previous report. It has been used extensively by the lady that liaises with Huawei (a company part-owned by XXXX that provides the hardware that XXXX sell). Among other things she uses the tool to demonstrate to them weaknesses in their products. She has also used data gathered from it to illustrate some of the reasons why people were buying competitors' kit instead of ours, to people within XXXX. The tool has been used by several other members of the team to automate parts of their testing.

The other tool I have written since the last report was for marketing, it simplifies the creation of the advert configuration files for network management's flagship program, XXXX Network Director (XXX). The old method of creating adverts for XXX was done via text file and was time consuming and error prone. I wrote an application in java that extracted information from an Excel spreadsheet checked all the information and then created the text files.

I also learnt some rudimentary visual basic script so that I could call my java code from within Excel. I created a new menu item in the Excel spreadsheet that when clicked would generate all the configuration files from the current spreadsheet. This version of the tool was well received; however the first version that required the user to run the Java program from the command line was not. It was decided by the end user to be too complicated and not what they expected – even though it met all the requirements. From this I learnt that it is very important not to listen to what the user is asking for but what they really want to do. This is something I took to the next project I was involved in, and I think will be the one of the most important things I will take from my time at XXXX. I also learnt that usability and the user interface can play a massive role in determining a products success. Even if the code behind the scenes does what it's supposed to, if the user can't see what they want/need to then they won't like using the product.

After the advert tool project I became part of the team that is introducing a new feature into a network management application that provides many useful features such as network monitoring, multiple device configuration, centralized management etc. The new feature to be included is called Quarantining. XXXX recently purchased a company; whose devices provide security to the network they operate on. These devices sit in a network and inspect every packet that is sent – if anything looks suspect i.e. viruses, unauthorized use of network facilities etc. then it stops the

devices that sent the packets from being able to talk to the rest of the network. It quarantines them.

I've been on the team since the very beginning (5-6 months) and it's only now starting to reach the first testing phase (also known as alpha testing), and so recently I've been writing test specifications for some of the new features and traps for the tool that pretends to be a point box. A trap is simply some information sent to XXX from a device on the network, devices tell XXX when they have a problem, configuration changes etc. In the case of a quarantine trap the information provided informs of the device causing the problem, what to do with it etc. The active directory (AD) MMC snap-in that I mentioned in my previous report plays a part in the new quarantine feature release. It allows certain devices to be put in certain AD groups or apply certain rules to particular users. It's been really interesting to see this snap-in independently and how it has been integrated into the application.

Being involved in a project as big as this, has given me an appreciation of the timescales and organization involved in large projects. The AD snap-in was being created at the beginning of my placement and only over the last few months has it become of use for one of the teams applications, it's just another piece of the jigsaw that is software development. I think this is what I've enjoyed most as my time as a software engineer, everyone does their own sections and gradually they all start to become more and more integrated and then finally you have a fully featured project that wouldn't have been possible without everyone playing their part. It has been nice being part of a team rather than always working independently as you do at university.

It has been valuable to see the whole development life cycle in progress for a release of this scale. At the beginning there were numerous meetings about what XXX should do and how it should do it, even once the coding had started the requirements hadn't been finalized. Consequently there were changes to the code just written but thankfully nothing major. The main thing I didn't realize before this project started was the large role marketing has at the beginning of a project. They were responsible for what goes into the project above anyone else. Engineers could suggest things but the final say as to what is included was given to the marketing team. This seems to have both its advantages and disadvantages. It means that good ideas are sometimes left out as they are not explained well enough by the engineers – or are maybe not 'marketable' enough. However it does mean that good features are put in that engineers may have liked to have altered to make them easier to implement – or even left out entirely.

This year has been very eventful, I've learnt a huge amount, have moved office 3 times due to an oil explosion destroying the original office, met lots of new people and experienced working life properly for the first time. I'm glad I changed my course at the last moment to include the industrial placement this year; it has proved to be an invaluable experience and definitely one I could not have gained by going straight into my third year. Although I'm looking forward to coming back for the final year, I'll be sad to leave and would consider working in the software industry again. I think they appreciated my contributions as I was asked to stay on in the summer for as long as I would like to. This is something that I would have considered if my tenancy agreement wasn't due to finish the day after my last day at XXXX. Still it proves promising for the future, I may even get offered a job when I graduate, but at the very least I should get a good reference for my first job once I have graduated.

**Placement report : IMG Research Group.**

Student : Anonymous

Period of Placement: Oct 2005 – July 2006.

When joining the University of Manchester's IMG Group I was placed onto the myGrid project under the supervision of Prof Carole Goble. The myGrid project builds services for data and application resource integration using grid technology with a particular interest in e-Science. The flagship system of the myGrid project is the Taverna Workbench which provides a work flow editing and orchestrating environment for Web Services. The System is targeted at Biologists who wish to exploit powerful tools and data stores available to them via the web by abstracting away the layer of interaction which can often present itself as difficult and tedious to an non computer science minded user. The interaction between these services is simply presented as a work flow allowing the user to build and executed previously difficult ,sometimes impossible, experiments in a much smaller time.

During the orchestration of these work flows there is a vast amount of knowledge that can be explicitly or implicitly gleaned from the system. It was my job to firstly , assist in the tracking and recording of this data and secondly , develop an intuitive method of browsing the data in a way that was meaningful to the user. I therefore Developed the Provenance Browser.

The Taverna system was developed in Java. During the first few months of work the myGrid project joined a group called the OMII ( Open Middleware Infrastructure Institute) which allowed them to obtain money for work which was beyond the stages of research and pertained more to developing a commercial product for the research community. As a result the team grew quickly and was a massive help in developing my interpersonal and team working skills

Provenance is the origin or source from which an entity comes. During the orchestration of the work flow pieces of data and services were monitored and information about them recorded so we could trace back through this “Provenance data” to find out information about its origins.

To do this there were many technologies and concepts I had to learn that I had not previously encountered. Firstly I had to learn about Ontologies. An Ontology is used to describe and reason about objects within a domain. It contains concepts from the domain and the relationships between these concepts to build a web of knowledge which can be reasoned over.

During the recording of the provenance the pieces of data were tagged with appropriate concepts from the ontology so that the data may later be reasoned over in the context of its domain.

The second piece of technology i learn came about when I had to persistently store the Provenance Data , this was done in the form of RDF. RDF ( Resource Description Framework ) is a method of storing data about entities in the form of Triples. Each

Triple has a Subject , Predicate and Object. The Subject and the Object are two entities and the Predicate is the relation between these entities.  
The structure mapped naturally to the information i wished to store ,for example:

Subject:Data , Predicate:mapsToOntologyConcept , Object:Concept.

Once I knew these two technologies I was able to design a prototype browser. With this prototype I visited the myGrid Users Day which brings together users of the Taverna software to train them and present to them new and developing features. I made a presentation to the Taverna users showing them the prototype browser and explaining the functionality it could potentially provide. The response was positive and the session acted as a user requirements gathering process to feed back into the development of the Browser.

The browser was successfully completed and as a result made it into the next release of the Taverna workbench.

Towards the end of my placement I worked on another piece of software for the myGrid project, FETA. FETA is designed to aid in the discovery of web services for bio-informations by making a store of the web services and tagging them with concepts from the myGrid ontology which users could then use to search over the store of web services and discover appropriate services for their needs.

My Task in this area was to design a web based graphical interface to allow users and service provides a means of tagging web services with concepts from the ontology. As I had had little previous experience with web design I had to learn several new web technologies in a short space of time. The technologies I learned were XHTML , JavaScript and AJAX .

I was Unfortunately unable to complete the web interface for FETA and had to set it up to be handed of to a colleague of mine , however this was a great exercise in producing useful documentation allowing subsequent developers to use and understand my code.

### Personal Gains:

I feel I gained a lot personally from the time of my placement , my confidence in team situations and group meetings has been greatly improved.

I also feel that working in the research environment helped me confirm that I would like to pursue a technical role in the future within the research and development field. Most of all during my placement I was able to apply the knowledge I had gained so far , being placed in situations where I had to learn new languages and technologies quickly greatly increasing the confidence in my abilities as a Computer Scientist and motivating me for the final year of my degree.