北京郵電大學

Queen Mary
University of London

BBC6521 Project

Student Handbook

2016 / 17

Joint Programme 2016/17

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1. Introduction

This handbook contains general information on the Joint Programme final year project (BBC6521) for all students of H6N2 Telecommunication Engineering with Management, H6NF E-commerce Engineering with Law and H6NI Internet of Things Engineering.

1.1 Scope of the project

A final year project must involve substantial work by an individual student in one or both of the following areas:

Implementation: this must involve the development of a system. This can be software or hardware design. For software systems, the project should involve a substantial amount of programming with proper software engineering principles being used.

Research: this should be real academic research carried out with one of the research teams in BUPT or QM and must include identifying something novel and **getting results**. It usually involves using a simulator or a tool such as MATLAB – it is not just reading papers and writing a summary.

Remember **you need to produce something** to demonstrate that you have done actual work**.** This can take many forms such as software applications, hardware devices or simulation results. It is not sufficient to just do background reading.

All projects, either Implementation or Research, **must be your own work** and must include a significant amount of engineering design (hardware and/or software). If your project is part of a larger team effort then your own contribution must be clearly identified. See Section 3.7.5 for details.

1.2 Contacting staff about your project

For all **technical matters** concerning your project consult your Supervisor.

For **administrative matters** please contact LIU Dan, the Project Secretary.

For other general queries, use the BBC6521 Message Board. You are NOT automatically subscribed to this forum. However, it is recommended that you subscribe so you will receive email notifications of any messages posted. To subscribe, go to BBC6521 -> Message Board -> Settings (on the left) and click on 'Subscribe to this forum'.

Whether you have subscribed or not, please check this forum before making new queries to see if it has already been answered. This will save time for everyone!

The following contact details may be useful:

	**Project Coordinator: Dr Ling MA** (ling.ma@qmul.ac.uk) • *Overall coordinators and main contacts for QM Supervisors*
	**Project Secretary: LIU Dan** (liudan10213188@bupt.edu.cn) • *Main contact for BUPT Supervisors*

	**Industrial Projects Manager: Dr (Cindy) Yan SUN** (yan.sun@qmul.ac.uk) • *Main contact for external projects*
	**Project Administrator: Maggie (Yanming) LI** (y.m.li@qmul.ac.uk) • *Mainly coordinates loan equipment for QM projects*
	**London-based Project TA: Jinze YANG** (jinze.yang@qmul.ac.uk) • *Mainly helps the Project Coordinator with administrative tasks such as processing PIDs, allocations, timetabling, QMPlus settings etc.* • *Would not normally contact students directly.*
	**Beijing-based Project TA: LAO Yadi** (laoyadi@bupt.edu.cn) • *Mainly helps the Project Secretary with administrative tasks such as coordinating BUPT Supervisors, contacting students, viva arrangements etc., also works together with the London- based TA in some tasks.*

1.3 If things start to go wrong

Your Supervisor will be in contact with you on a regular basis so potential problems should be identified early and remedial action taken. However, if you feel that you cannot resolve the situation with your Supervisor, you should discuss the problem with the BUPT Project Secretary, who will either advise you or refer you to the Project Coordinator. You are reminded that simply **giving up on the project is NOT an option**.

2. The Project Process

The final year project is a solo undertaking which shows what you are personally capable of doing. It is worth 20% of your final degree mark for the UK honours calculations so it is very important that you work hard and produce a good result – it can affect your final degree mark a lot.

2.1 QMPlus

As with other modules on the Joint Programme, your final year project will use QMPlus, which is based on the Moodle Virtual Learning Environment.

Almost every aspect of the project planning and submission processes will be handled through QMPlus. It is intended to make the lives of both staff and students easier by providing a central place for users to deal with their project documents and information.

You should be enrolled for BBC6521 as a 'Student'. If you cannot see 'BBC6521 – Project - 2016/17' under 'My Modules' on QMPlus this means you are not enrolled. You need to contact the Coordinator in this case.

2.2 Getting started on your project

Project ideas are proposed by Supervisors by filling out the Supervisor sheet of the Project Initiation Document (PID) and are then reviewed by a panel of academic staff members to ensure that all projects are acceptable for undergraduate level. Students are also encouraged to propose their own project ideas. However, you must discuss potential project ideas with members of staff before they put their project ideas forward for the review process.

After a project is accepted by the reviewers, the Supervisor can only change the project details by following the formal procedure given in Section 2.5.

Procedure you need to follow:

1) Once project titles are released, you can look at details on QMPlus by going to BBC6521 -> PROJECT TITLES -> Project Initiation Database.

2) The most efficient way to find projects is to use the Search and Sort functions: click on the SEARCH tab, and tick 'Advanced Search' (unless already ticked). Enter your choices and click on SAVE SETTINGS. This will bring up only the titles that match your search criteria. At the top of the page, you can see how many titles matched your criteria. For the text fields, you can give partial items, e.g. typing 'RFID' in the Title field will bring up all the projects containing 'RFID' (or 'rfid') in the Project Title. You can also use the 'Sort by' function.

3) Only some basic information are displayed here. For more details, click on the 'Download (xlsm)' link which is the last field – this will download the Project Initiation Document (PID) which contains full details.

4) Make sure you carefully consider all the information in the PIDs before emailing any Supervisors.

5) When you find suitable projects or if you have any specific queries, contact the relevant Supervisor at the email address given with the project details. **Please make sure you fill up all the information below in your email, and state why you feel the project is suitable for you.** Please pay attention to the expected outcomes and skills required in particular.

    - *Project ID*
    - *Project Title*
    - *Student Name*
    - *Degree Stream* [Telecom/Multimedia/E-commerce/IoT]
    - *QM Student No.*
    - *BUPT Student No.*

6) Some projects are labelled as 'E-commerce Recommended'. What this means is, if you are on the E-commerce stream, we recommend the project to be suitable for you. Students who are not on the E-commerce stream can also be considered for these projects, but note that priority will be given for E-commerce students for projects labelled as recommended for them.

7) Once you agree with a Supervisor to be allocated to a particular project (e.g. via email), the Supervisor will action the allocation. **You cannot change your mind once you give your word to a Supervisor.**

8) As soon as you agree with a Supervisor, you must *a)* make all other Supervisors you were communicating with aware that you have committed to another project and *b)* stop contacting any further Supervisors. The

Supervisors can see on the system that you are already allocated so it will just be a waste of time not to follow this.

9) Once a project has been allocated, the Project Database will display 'No' under the field 'Available?'. Please do not contact Supervisors about unavailable projects.

10) The deadline for allocations is **28th October 2016**. If you are not allocated to a project by this date, you will be allocated by the Coordinator. These allocations cannot be guaranteed to perfectly match your interests etc. therefore it is in your best interests to find a suitable project by yourself.

NOTE: Bear in mind that your final year project will be the best part of 6 months of work so try to pick something you think you will find interesting and keep you motivated. Make sure that the projects you ask potential Supervisors about suit your study programme: For example, if you are an E-commerce student, it is unlikely that a microprocessor hardware project will be suitable for you because you will not have studied the appropriate prerequisite courses in year 3.

2.3 Planning your project work

You have just over 6 months to work on your project. It is your responsibility to plan your time so that the project work can be completed successfully. Along the way, there are various documents that you must deliver to show how your project is progressing, details of which are given in Section 3.

We are well aware of the other pressures that students face in their final year with tasks such as college and job applications; this is why you are given a comparatively long period of time to do your project. You must understand however, that if you fail your project, all the hard work you did for college applications and job finding will be wasted because **you cannot graduate without passing the project**.

Try to use the time you have in a sensible way, allocating time for your project each week and try to make some steady progress. If you leave all the work until a couple of weeks before the deadline your Supervisor will not be able to help you much with it at that point and it will be very difficult to pass your project.

2.3.1 Project timetable

The important dates related to the final year projects for **2016/2017** are shown in **Table 1**.

NOTE 1: Table 1 shows the official submissions you will have to make to the QMPlus system. Your Supervisor may want you to give them additional updates on your progress via email at other times.

NOTE 2: Your Supervisor will give feedback for your reports on QMPlus. Therefore, you must submit them on time even if you have not received any comments via other channels, e.g. email.

Table 1 BBC6521 Important Dates

Title release	17 Oct 2016	
Self-allocations	28 Oct 2016	
Allocations by Coordinator	2 Nov 2016	
Specification	25 Nov 2016	Supervisor approve/reject
Early-term Progress Check (short report)	02 Feb 2017	5% marks from Supervisor
Mid-term report + slides	10 Mar 2017	Supervisor approve/reject
Mid-term Oral exam	20-24 Mar 2017	5% marks from an independent examiner
Late-term Progress Check (Mock Viva)	24-28 Apr 2017	5% marks from Supervisor
Draft Report	2 May 2017	
Final Report & Supporting documents	15 May 2017	30% marks from supervisor
Final Viva Slides	16 May 2017	
Final Viva	22 May – 2 Jun 2017	55% marks from viva panel

2.4 Communication with your Supervisor

The role of the Supervisor is to provide advice and guidance throughout the project, and to monitor progress. The Supervisor is not there to do the project for you! If any problems arise that seriously affect the progress of your work, then you must inform your Supervisor.

Regular meetings should be held with your Supervisor - you should try to have some kind of contact with your Supervisor about once a week though the form of that contact is up to you and your Supervisor to arrange. Meetings may be done on a one-to-one basis or in a group, depending on the Supervisor. All QM Supervisors will meet you face-to-face a minimum of twice throughout the project period. When your Supervisor is not in Beijing, you should arrange to have online meetings for which Skype is the recommended system. Supervisors will record **attendance** – if you do not turn up to meetings this will be noticed and may affect both your progress and your final mark (under 'consistent work and progress').

You should expect your Supervisor to be unavailable from time to time. It is your responsibility to ensure you know when this is likely to happen and be prepared for that. Academic staff have a lot of other things to do so you should not expect them to instantly drop what they are doing to deal with you and your project every time you ask them something. Make sure that you plan meetings and give the staff ample advance notice when you need their help with something. Do NOT send them reports on the day of the deadline and expect them to provide instant feedback!

NOTE: If you feel that your supervision arrangements are not satisfactory, you should discuss this with the Project Coordinator who will help resolve the situation.

2.5 Making changes to your project

After a project idea is reviewed and accepted, it cannot normally be changed. **You will be judged against your original specification document** so you must make sure that you have done the work that you planned to do.

In some special cases, circumstances can change and it may become necessary to alter the Project Specification. Situations that could cause this to be necessary might include:

- An essential piece of equipment being unavailable that prevents successful completion of the project.
- Experimental results that show something unexpected and require new tasks to be added or make old ones redundant in order to deal with the unexpected result.

If you and your Supervisor agree that such a change is required then the **Supervisor must submit a Specification**

Change Request, following the instructions given under this submission on QMPlus.

The deadline for applying for changes to the Specification is **13th January 2017**. No applications will be accepted after this date.

You will be notified once the changes have been approved by the Project Coordinator. You will then be able to submit a revised Specification on QMPlus.

NOTE: The project coordinator will not allow changes to be made if you have not done a reasonable amount of work and ask your Supervisor to change the project tasks to make it easier for you to pass.

2.6 Submitting documents

All project documents must be submitted via QMPlus. However, ideally you should first obtain offline approval (e.g. via email) from your Supervisor for each piece of work prior to submission. Once sent for marking, you will not be able to change it.

2.6.1 Deadlines and cut-off dates

Each submission has a deadline and cut-off date. You must aim to submit all required pieces of work before the deadline (referred to as 'due date' on QMPlus). You can still submit between the deadline and cut-off date; however, your submission will then be marked as **late** which may result in you losing marks under 'time management' in the final marksheet. You cannot make any submissions after the cut-off date.

Most cut-off dates are set to 2 working days after the deadline. The exact cut-off dates will be displayed on QMPlus under each submission.

NOTE – 1: If you first submit before the deadline but update it after the deadline (before the cut-off date) your submission will be marked as **late**. So it is advisable NOT to update your report after the deadline.

NOTE – 2: The Specification is a very important submission. You will not be able to make any further submissions unless you achieve an 'Approved' grade for your Specification. If your Specification is rejected, you will need to revise and resubmit as soon as possible, as you will not be able to resubmit after the cut-off date.

2.6.2 Late penalties for final submissions

If you submit the Final Report, Supporting Documents or Final Viva Slides after the deadline, a direct late penalty of 2 marks per day will apply. The latest date of the three submission dates will be used when calculating the late penalty.
*Example: if you submit the Final Report and Supporting Documents 1 day late and Viva Slides 2 days late, a late penalty of 2*2 = 4 marks will be subtracted from your final mark.*

NOTE: The cut-off date, i.e. the very last day you can submit these three documents is **17th May 2017**. If you have not submitted these by this date, you will get **ZERO** for your final project and will fail your degree. The only exception would be if you have properly documented evidence of an Extenuating Circumstance (EC) and obtain an approval for your case following the same procedure as with other modules. Valid ECs are those normally accepted for examination absence, such as documented illness, etc.

3. Important documents and presentations

This section of the handbook lists the documents and presentations you will have to produce for the project and explains what their content should be.

NOTE: The identity of your Supervisor will not be known to the final viva panel and it is your responsibility to make sure you do not give it away! Hence, **your Project ID or any other references to your Supervisor should not be included in any of your submissions** other than the PID. Bear this in mind and carefully follow the instructions in the rest of this section.

3.1 Report Templates

A set of document templates is available on QMPlus under REPORT TEMPLATES. For Excel forms (including the PID), you can use the spelling and grammar tools in your word processor program to check the accuracy of your English before you enter the text into these forms.

3.2 Specification

The purpose of this form is to provide a clear and precise description of both the problem the project will address, and the proposed solution. The form contains the following sections:

Main tasks and targets:

This section of the specification form is a list of the main tasks that your project is expected to involve. The tasks (up to 4) in this section of the specification form is generated by the information entered into the PID by your Supervisor (in the Supervisor sheet), while the completion date for each task must be entered by you (in the Student sheet).

Measurable outcomes:

This section will list the tangible outcomes (e.g. piece of hardware/software, simulation result etc.) expected at the end of your project, entered by your Supervisor (in the Supervisor sheet).

Project description:

This section will normally contain the aims and objectives of the project, entered into the PID by your Supervisor (in the Supervisor sheet).

Project outline (i.e. 'How I will tackle the project'):

This section will normally contain the following information (but may vary depending on the type of the project) and must be entered by you (in the Student sheet) in consultation with your Supervisor.

Details about the specific problem being addressed

- An initial analysis of user requirements, and how data will be collected
- The algorithms, methodologies and other techniques to be employed
- An initial specification of how users will interact with the system (implementation)
- Experiments that should be done to prove the project hypotheses (research)
- Programming language / database/ software package and hardware to be used
- A list of background material consulted including World Wide Web pages

What I expect to have working at the mid-term oral:

This is your planned outcome at the mid-term oral. This cannot be changed and this will be used by the Mid-term oral examiner to judge the progress of your project. You should discuss it with your Supervisor.

Work-plan (Gantt chart):

This will explain clearly what you are going to do and by when, and can be used to guide your project. You should plan your project schedule by identifying tasks, in terms of sub-tasks under the main tasks already specified by your Supervisor, that you need to complete in order to finish the project in time.

You must enter this information into the Gantt sheet of the PID, in consultation with your Supervisor. Give a timescale for each sub-task by selecting the 'Task' option in the drop-down lists.

Six months may seem like a long time but it is easy to get behind schedule with your project work if you do not plan your time correctly and adhere to that plan. Note that the six months includes holidays.

NOTE: You will be judged against the specification document when you are marked by the viva panel. It is very important that you try to stick as closely to the specification as possible. **Arriving at a different outcome from that stated in the specification will lead to a reduction in marks**.

How? Deadline: **25th November 2016**

Download your PID from QMPlus. Once you have entered all the required information in the 'Student' and 'Gantt' sheets, go to the 'Spec' sheet and click on the button labelled 'Generate PDF Specification Form'. Save it to your local computer (Do NOT change the default filename) and submit to QMPlus.

You also need to submit the completed PID (in .xlsm format) at the same time, the same submission.

You should use the default filename: your Project No. (which you can find on your Specification form) and '_Spec. E.g. 'IC_8272_Spec.pdf'.
Do not change the PID filename or extension.

You should prepare the Specification in consultation with your Supervisor. Once submitted, your Supervisor will formally Approve/Reject it on QMPlus. If your Specification is rejected, you need to revise it based on your Supervisor's feedback and resubmit in order to get it approved.

NOTE 1: You will not be able to submit anything else in this module unless you have an approved Specification on QMPlus.

NOTE 2: You must only use the **PID downloaded from QMPlus** and not any other versions that may be in circulation. Even if you find something that looks exactly the same, they can be considerably different in terms of the functionality and it will be picked up. If you are found to have used any other version of the PID to generate your Specification, the Coordinator will reject it (which may result in you failing the project).

3.3 Early-term Progress Check

This is a short report stating what progress you have made on your project to date. You should answer the following questions in the report:

- What material was read or researched?
- What work was done?
- What problems were faced?
- What solutions were found?
- What are the next immediate steps?

You should also discuss with your Supervisor about what other information they themselves expect you to include in the report.

How? Deadline: **2nd February 2017**

Download the Early Term Report Template from QMPlus. Fill in the relevant information and submit a **PDF** version to QMPlus.

Filename should be your Project No. (which you can find on your Specification form) and '_EarlyTerm'. E.g. 'IC_8272_EarlyTerm.pdf'.

Your Supervisor will allocate a **mark out of 5** for your Early-term Progress Check Report and this directly contributes to your final project mark.

3.4 Mid-term Check

This comprises a mid-term check short report and the delivery of a 5 minute presentation about the progress of your project up to that point.

NOTE: Before submitting your mid-term check report you should discuss your progress on the project with your Supervisor. The result of this discussion must be clearly documented in the report. Remember that marks are allocated depending on your progress compared to the project work plan.

3.4.1 Mid-term check report

The items you are expected to address in the mid-term check are:

- **Targets set at Project Initiation (i.e. 'What I expect to have working at the mid-term oral'):**

  This information is from what you entered under 'What I expect to have working at the mid-term oral' in the Student sheet of the PID. This is displayed on the Specification and will be used by the Mid-term oral examiner to judge the progress of your project.

- **Targets met?** Have you met the stated targets? If not, give the reasons.
- **Finished Work:** What work have you completed so far?
- **Work to do:** What else still needs to be done to complete the project?
- **Can finish on time or not?** True or False - can you finish before the project deadline?
- **Problems:** What has gone wrong?
- **Solutions:** How to fix it?

The mid-term check report must include the structure of the final report. Your Supervisor will **Approve/Reject** your mid-term check report. If your report is rejected by your Supervisor, 2 marks will be deducted from your mid-term presentation. (Therefore you can only get a maximum of 3 marks from your presentation).

How? Deadline: **10th March 2017**

Download the Mid-term Check Report Template from QMPlus. Fill in the relevant information and submit a **PDF** version to QMPlus.

Filename should be your Project No. (which you can find on your Specification/Mid-term forms) and '_MidTerm'. E.g. 'IC_8272_MidTerm.pdf'.

3.4.2 Mid-term presentation slides

Each student will give a 5-minute presentation explaining the purpose of their project and what has been achieved to date. You must prepare a short set of presentation slides (usually no more than one slide per minute) and submit it to QMPLUS.

How?	Deadline: **10th March 2017**
Submit your slides, in either PPT or PDF format, to QMPlus. You will not be allowed to do a presentation if there are no slides in the system. **Filename should be your Project No. (which you can find on your Specification form) and '_MidTermViva'. E.g. 'IC_8272_MidTermViva.pdf/ppt'.**	

3.4.3 Mid-term oral exam

The presentation will be made to one examiner (i.e. member of academic staff from QM/BUPT) plus the other students in that presentation session (typically a small group of students). The examiner will not be the Supervisor of any students in the group.

How?	Time period: **20th – 24th March 2017**
The schedule and other details will be given nearer the time.	

The examiner may ask you a question or two. He/she will award you a **mark out of 5**, which will be displayed on QMPlus sometime after the viva period. This mark directly contributes to your final project mark.

3.5 Late-term Progress Check

This will take the form of a "mock-viva". Your Supervisor will arrange a time slot within the stated time period in the timeline and you must attend this slot. The format will be exactly the same as the final viva, except:

- The examiner will be your Supervisor
- The other project students of your Supervisor will be the audience

This will be a valuable opportunity for you to practise for your final viva, also learn from the other students in your group.

Time period: **24th -- 28th April 2017**
Your Supervisor may either be in the same room in person or remotely via video conferencing.

The format will be similar to the final viva, but with 20 minutes per student (rather than 30 minutes). Allocate time as follows:

-> 10 minutes for the presentation plus demo (if any)
-> 5 minutes for questions
-> 5 minutes for grading and switch-over

Your Supervisor will award you a **mark out of 5**, which will be displayed on QMPlus sometime after the slot. This mark directly contributes to your final project mark.

3.6 *Draft Report*

The draft report must include all elements of the final report (see Section 3.7), although some items can be incomplete. However, attempting to complete all items as much as possible will enable you to receive early feedback from your Supervisor and identify aspects of your project that could be further improved while there is still time to take appropriate actions.

How? Deadline: **2nd May 2017**

Download the Final Report Template from QMPlus. Complete the report as much as possible and submit to QMPlus in a format specified by your Supervisor (e.g. Microsoft Word so it's easy for them to provide comments.)

Filename should be your Project No. (which you can find on your Specification form) and '_DraftReport', E.g. 'IC_8272_DraftReport.pdf'.

NOTE: Make sure you only use the template downloaded from QMPlus. Other older versions of the template may be in circulation so you must be careful that you have the correct one – incorrect versions will not be accepted.

3.7 *Final Report*

The purpose of the final report is to tell the full story of your project. You should explain the motivation and background to the reader then describe the work that you did before finishing with the conclusions that you have made.

In summary, your report should:

- Describe the project to the examiners.
- Show that you have met the aims stated in the specification.
- "Sell" your work by highlighting the best of what you have achieved.
- Show that you have evaluated your work and have identified the successes *and* failures. (Remember that having some failures is not in itself a problem, it is how you resolve the difficulties that is important.)
- Demonstrate that you are capable of a sustained piece of writing.

  It is important that the report should be structured properly and well written with clear English.

3.7.1 Specification

You must download the final version of your Specification from QMPlus and include it in your final report.

3.7.2 Abstract

The abstract should be a short overview of the whole report (200-300 words maximum). It should give the reader enough information about your whole project to know what you have tried to do and whether you were successful.

You are expected to submit an English abstract and a translation of that abstract in Chinese. Include both in the final report in SEPARATE pages.

3.7.3 What should go in your final report?

You should assume that the reader of the report is not an expert in your area but has a good general knowledge of electronic and software engineering. A good quality report should contain enough information for a reader with this level of technical competence to understand what you have done without needing to refer to external sources.

Your report should tell the story of your project. There should be an obvious start point, followed by a proper narrative taking the reader through each stage of your work and finally a clear end point at your conclusion. This structure is crucial to making a report readable and requires that you plan your report carefully.

The basic structure of your report should follow the outline structure provided in the project report template.

The maximum number of pages is 50, excluding references and appendices, with 12 point font and 1.5 spacing.

3.7.4 Table of contents

A full table of contents is very important to allow the reader to quickly locate information in your report. You may also wish to include a table of figures and a table of equations but these are optional.

3.7.5 Introduction

Introduce your project to the reader. Your introduction chapter should answer the following questions:

- What is the point of the project?
- What did you try to do and why?
- What have you achieved?
- How is the report structured?
- Hint at some of the conclusions you have made.

NOTE: If your project forms part of a team effort and/or it depends in any way on another project, you must clearly explain such details here. If you don't, even though your Supervisor may be aware of the overall picture, your contribution will be unclear to your examiners which is likely to negatively affect your mark.

In addition, if you need to present any material that was produced by another student (anywhere in your report), you must clearly reference it. Otherwise you would be representing someone else's work as your own which would count as plagiarism.

3.7.6 Background

The background chapter should include relevant information that explains the background context of your project to the reader. Are there particular special technologies that you have used or special techniques you have employed? This section of your report should give the reader enough knowledge to understand the rest of the report without needing to refer to other sources.

While the background chapter should be comprehensive enough for the reader to understand the report on its own, you should avoid including a lot of widely known general information. You should include information specific to your project. For example, a digital hardware project should not need to include the truth tables for simple logic gates such as AND and OR because this information is very basic and you can assume that the reader would know such fundamentals. However, in the same project, it would be relevant to include information about the specific type of hardware chips you used (e.g. CPLDs, FPGAs etc.) because that directly affects the outcome of your project. More guidelines on this will be made available on QMPlus.

3.7.7 Design and implementation

You should include a chapter that describes the design and implementation of whatever system you have produced for your project. In implementation projects, this is clearly a description of the thing you have implemented. In research projects, this section should outline what experiments you designed and how you implemented them in software (possibly as simulations) or hardware to get your results.

TIP: For some projects, you will have spent time in labs working on experiments. It is a good idea to take photos of what you do while you are working on the project to record your progress. Take photos of the experiments you perform etc. These can be included in the report to show how you did things and are also useful for reminding yourself what you did when you write up.

3.7.8 Results and discussion

In this chapter you should show what the outcome of your design and implementation phase was. In an implementation project, this might be a discussion of the finished system including user reviews and test outputs. In a research project this may well be results of experiments presented in a clear way so that the reader may interpret the information easily.

3.7.9 Conclusion and further work

The conclusion chapter should briefly restate what has been written in the preceding chapters. You should then make observations about the outcomes of the project and discuss what *you* think these outcomes mean. You should answer the following questions:

- What did you try to do?
- What did you actually achieve?
- What problems did you face and how did you solve them?
- What would you do differently if you could do the project again?
- What else would you do if you had more time given to you to complete the project?

This chapter should also include your ideas about how to extend your project work in the future. What would you do to extend or improve the work you have already done? Do your results show the potential for future projects to follow and build on your work?

NOTE: The purpose of this chapter is NOT to state how pleased you are with your work but to show what you have done and that you are able to critically evaluate it.

3.7.10 References (Bibliography)

For every book, article, paper, website etc. that you find useful information from, you should include a reference in the references chapter (sometimes also known as the Bibliography). You should make sure to include as much information about each reference as you can so that the reader could find the document you cite easily if they need to. The Report Template will give you more details regarding the format of the References. Remember that you must include all your sources of information properly cross-referenced within the report.

NOTE: Do NOT say “my Supervisor’s paper” and cross-reference it as you’ll be giving their identity away!

3.7.11 Acknowledgements

This should be a short section (no more than a page) that thanks your Supervisor and any other people who helped you with your project.

NOTE: As mentioned at the beginning of this section, you can say things such as “my Supervisor” but do not mention their name.

3.7.12 Appendices

The appendices for your project should contain information that you think may be helpful or relevant for the reader but that is not directly relevant to the story of your project. Things that might be suitable as an appendix to a report are:

- Large tables of numerical results that have been displayed graphically in the main body of the report.
- Important parts of datasheets for specific devices you have used in your project **if you think that they are important enough** that the reader should have access to them without finding them off the web themselves.
- Mathematical proofs and results that are important to show but not important to the flow of the story in the report.

NOTE: Full **code listings must NOT be included as an appendix**, but extracts of code may be included in the body of the report to illustrate particular points.

3.7.13 Risk assessment

For the risk assessment you should think of any factors that could prevent successful completion of your project and rank them for "Likelihood of occurrence" (how likely it is for a problem to happen) and for "Seriousness of consequence" (how bad is it if it does happen). The risk level of a given event is estimated by multiplying its likelihood level *L* by its associated consequence level *C*.

The result $R = L.C$ is a numeric estimate of the level of risk for a particular undesirable event occurring that can cause disruption to your project's progress. Events with high risk values are the things that you need to make sure you have adequate contingency plans for. Once you have identified the risk factors that apply to your project you should then propose the action you would take to address those of highest risk. You can use the information in Table 2 - Table 5 to assess the level of risk.

NOTE: You should write no more than 1 page for the risk assessment.

Table 2 Scores for level of likelihood

Level *L*	Description	Meaning
0	Impossible	Cannot happen
1	Rare	May happen in exceptional circumstances
2	Unlikely	Could happen at some time
3	Moderate	Should happen at some time
4	Likely	Will happen often
5	Certain	Expected to happen

Table 3 Scores for level of consequence

Level *C*	Description	Meaning
0	Negligible	No noticeable effect on the project.
1	Minor	Undesirable but something that can be handled without affecting the overall progress of the project.
2	Serious	Might cause slight disruption to project progress but will not prevent completion. ?
3	Very Serious	Will cause a significant disruption to project progress but completion still possible.
4	Major	Problem so severe that it is unlikely the project can be completed. Some aspects may be salvageable.
5	Catastrophic	Completion of project is impossible. Situation is unrecoverable.

Table 4 Assessed level of risk combining consequence and likelihood

		Likelihood level *L*					
		Impossible	Rare	Unlikely	Moderate	Likely	Certain
Consequence level *C*	Negligible	0	0	0	0	0	0
	Minor	0	1	2	3	4	5
	Serious	0	2	4	6	8	10
	Very serious	0	3	6	9	12	15
	Major	0	4	8	12	16	20
	Catastrophic	0	5	10	15	20	25

Table 5 Ratings of risk and urgency of required action

Score	Rating	Action
0	No Risk	No action required.
1 - 3	Low Risk	Take action if easy to implement.
4 - 6	Moderate Risk	Take action if cost effective.
8 - 12	Significant Risk	Take action urgently.
15 - 25	High Risk	Requires immediate action.

3.7.14 Environmental impact assessment

Include a short description of your project in the context of the environment and a short discussion on whether or not it has any environmental impact. You should consider the four main issues of:

- Cost of manufacture.
- Waste disposal and recycling.
- Energy use in service.
- Savings in energy.

NOTE: As with the risk assessment, you should write no more than 1 page for this.

How? Deadline: **15th May 2017**

Download the Final Report Template from QMPlus. Complete the report and submit a **PDF** version to QMPlus.

Filename should be your Project No. (which you can find on your Specification form) and '_FinalReport', E.g. 'IC_8272_FinalReport.pdf'.

3.8 Supporting Documents

Any material such as code, simulation results or any other information that is not in the body of the report should be submitted as Supporting Documents.

How? Deadline: **15th May 2017**

Include all supporting material in one zip file and submit to QMPlus. Do NOT use any other archive file types.

Filename should be your Project No. (which you can find on your Specification form) and '_SupportDocs'. E.g. 'IC_8272_SupportDocs.zip'.

NOTE: In most cases, supporting documents will not be very large files. **If you are doing a project that produces large result files** (for example audio or video files) then please contact the Project Coordinator about submitting these in an alternative way.

3.9 Final Viva

In many ways the viva is the most important part of your project grading process. The viva panel marks account for 60% of your entire project grade so your presentation and the answers to the viva panel's questions count for a lot.

You will be examined by a panel of three academic staff which does not include your Supervisor. The panel will be composed of staff from both universities so there will either be two members from QM and one BUPT or two BUPT and one QM.

Your viva is an examination. You must turn up; it is not optional. Failure to attend your allotted viva session will result in you receiving a mark of 0 for the project as a whole and will cause you to fail your degree. The only exception is where you have an EC case approved.

3.9.1 The viva examination

The viva is split into two main parts:

- **15 minutes** presentation. You must explain what your project is about and what you have achieved. This 15 minute session must include any demonstrations you may wish to give as well as your talk.
- **10 minutes** of questions. The panel can ask you anything about your project in this 10 minute session after your presentation.

It is your decision how to split the time in your presentation between your talk and demonstration. This will depend largely on the nature of project so your Supervisor will be able to give you guidance in this respect.

Timing is strictly controlled. If you overrun your allotted time for your talk, you will be stopped by the members of the panel so it important to **rehearse your talk thoroughly** and be very sure of how long it lasts.

You must turn up on time. If you are late, your time slot will not be delayed so you will lose time out of your presentation.

Setting up time is limited. There is very little change over time between viva exams so it is important that you practice setting up your demonstration quickly and efficiently.

3.9.2 Viva slides

Your slides will be displayed from a computer supplied by the school (either the classroom computer or a Joint Programme laptop). The slides you will use on the viva day are the ones you upload to the QMPlus system and these will already be preloaded on the school computer when you arrive for your viva.

NOTE: You will not be allowed to deliver your viva slides from any other computer.

If you have a demonstration that requires a computer then you must use your own laptop for this. It is therefore vitally important that you **check if your laptop will work in advance.** Ask yourself answer the following questions. Do you have the correct software set up for your demonstration? Does your laptop work well with the classroom projector? **It is your responsibility to check these things before you arrive.** A failed demonstration will not look good to the panel and you do not get a second chance at the viva. You should do a live demonstration; videos should only be used as a backup option.

Check list for producing good viva slides:

- Do NOT mention your Supervisor's name or the Project ID.

- Have you checked whether your slides look correct when viewed on a projector? It might look good on your laptop screen but maybe it doesn't work well in the class room. Dark colours are particularly difficult for projectors so try your slides on a projector before submitting them.
- Are your slides numbered? The panel will be pleased if they can ask you about a particular slide by number so make sure each slide has a clear number on it.
- Do you have too many slides? As a general rule, you should avoid having more than one slide per minute for a talk.
- Do you have a lot of text on your slides? Keep text to a minimum on slides - you are trying to present your work so people should be listening to you rather than reading your slides.
- What version of PowerPoint are you using? Is it compatible with the school computers? If in doubt, keep special features to a minimum. Even if you do have the right version of PowerPoint, special fonts may not be available on the school computer and there may be missing plugins for some kinds of multimedia content. If you are not using any animations or other special PowerPoint features then PDF is recommended.

How? Deadline: **16th May 2017**

Submit your slides, in either PPT or PDF format, to QMPlus. You will not be allowed to do a presentation if there are no slides in the system.

Filename should be your Project No. (which you can find on your Specification form) and '_FinalViva'. E.g. 'IC_8272_FinalViva.pdf/ppt'.

NOTE: In order to attend the viva, you must have submitted both the final report AND the viva slides on QMPlus by the given deadline. If you haven't submitted either one of these, you will FAIL your project and your degree.

3.10 Expenses Request and claim (optional)

Some projects require special software, materials or equipment to be purchased in order to complete the work successfully: in these cases, your Supervisor would have mentioned details about this in the PID at the time of describing the project. If you want to buy something for your project and claim the money back from the college, **you must get permission from your Supervisor and the project coordinator before you spend the money**.

In summary, money spent on your project will only be refunded to you if:

- You gained permission to spend it from your Supervisor and the project coordinator beforehand.
- You give the purchased items to the college.
- You can provide full receipts for all items you claim for.

You should obtain proper receipts for all purchases – otherwise you will not be able to claim money back. The claiming will happen at the end of the project period and the procedure will be announced nearer the time.

Equipment must be returned in order for you to claim the money back. If you buy something for your project yourself and do not wish to claim it back then you can keep the item.

NOTE - 1: When you apply to spend money on the project, you are required to estimate how much the items will cost. It is your responsibility to make accurate estimates because, if the spending is approved, you are not allowed claim back more than the amount you estimated in your application.

NOTE – 2: If the accumulated amount of money you ask to spend exceeds the amount stated in the PID, your application is unlikely to be accepted.

NOTE – 3: There are some equipment that you can take out on loan (e.g. Raspberry Pi and Android phone), which must also be returned at the end of the project – otherwise your project marks will not be released.

The claim procedure of QM projects and BUPT projects are different. You will receive detailed instructions in due course.

How? Deadline: **14th April 2017**

First, talk to your Supervisor to decide whether the expense is necessary. If so, download the Expenses Request template from QMPlus. Carefully read the procedure given under the Expenses Request submission, fill in all required fields and submit.

Your request will need to be approved by both your Supervisor and the Project Coordinator (on QMplus) before you spend any money so make sure you leave enough time for all this and the actual delivery of equipment.

Do not change the auto-generated filename.

4. Guidance on writing project documents

In this section we will provide some general guidance on how to approach the writing of project documents.

4.1 Plagiarism

Plagiarism means presenting the work of others without stating where it has come from (sourcing), or to put it simply, **passing off someone else's work as your own**. The formal definition from Queen Mary is:

> "Plagiarism is the use or presentation of the work of another person, including another student, as your own work (or as part of your own work) without acknowledging the source. This includes submitting the work of someone else as your own, and extensive copying from someone else's work without proper referencing. Copying from the Internet without acknowledging the source is also plagiarism. You may use brief quotes from the published or unpublished work of other persons, but you must always show that they are quotations by putting them inside quotation marks, giving the source (for example, in a footnote), and listing the work in the bibliography at the end of your own piece of work- It is also plagiarism to summarise another person's ideas or judgements without reference to the source."[1]

It is a fact that including material without proper acknowledgement has become far too common and it is something the JP takes a very firm line on.

If you are suspected of plagiarism you will be reported for an examination offence under the JP Regulations. Examination offences will normally be treated as cheating under the Regulations Covering Examination Offences. Under these regulations students found to have committed an offence may have their whole diet of assessments invalidated.

A range of methods, including special software tools, is used to detect plagiarism and project reports are routinely put through these tests.

The most common form of plagiarism is "cutting and pasting" background material because you have not left enough time to write about and reference it properly yourself. The most lenient penalty would be to be given a mark of zero for the background section. This can make a significant difference to your overall project mark. In worse cases, the offence may cause you to fail the entire project.

For more details, please refer to the document *Regulations for JP Project Plagiarism*.

[1]Notice that this is a quote from another document and as such it has been set in an indented section of text to show that it is not the author's own words. If you wish to quote a large section of text, this is how you should display it.

4.1.1 Plagiarism check

As already stated, plagiarism is a serious offence. If detected, it can result in a mark of zero being given to the relevant sections of your project report. To help detect plagiarism all reports will be subject to a check. The **TurnitinUK** plagiarism software is used to ensure that reports are properly written. Your TurnitinUK report will be available to the final viva panel.

It is your responsibility to ensure that plagiarism is avoided by properly referencing source material. General advice on this issue can be found at http://www.library.qmul.ac.uk/plagiarism .

4.2 Referencing and quotation

It is very important to properly cite (reference) other works that you have used and are relevant to your own project. There are two main reasons why you should cite other works:

- To show that other authors support your argument.
- To point the reader to more information on subjects you cover briefly.

4.2.1 What information goes in a bibliography reference?

It is important when you cite another work that you provide as much information as possible about that work for the reader so they can find it if they need to. For this reason, your references should include the following information if possible:

- Title (title of the paper or article)
- Name of publication (title of the proceedings or journal if appropriate)
- Name of author (or name of editor if appropriate)
- Publisher
- Date of publication
- Page numbers (if referring to a paper in a larger publication)
- URL (if referencing a web page)
- Last date of access (for web references - when did you last access the web page?) The reference should look something like this in the bibliography list:

[1] Joint Programme Project Handbook 2011/12, Ed. Andy Watson, Queen Mary University, 2011.

4.2.2 When can quoted material be used?

Some students accused of plagiarism state that "they did not know that using other people's material was wrong". Sometimes it is necessary to quote material directly from other works. If you feel that this is the case then there are some simple rules that you should follow:

- Quote **only** if something original from another document is relevant to your argument.
- Never copy blocks of text in order to explain something *so that you don't have to* – that is plagiarism even if you provide a reference.

It is important to understand that when you quote another person's work, it is important to reference the quotation correctly. If you must use a quote then it is important to **make it clear that it is a quote**. The quoted material must either be put in quotation marks in-line with your text like this: **"this is an example of quote from a boring book"[1]** or for longer excerpts you should put the text in an indented section like this:

> This is a long quote from a boring book. This section is a long quote from a boring book. This section is an example of a long quote from a boring book. [1]

In both cases, you should put the reference number "[1]" directly after the quoted material and then remember to include the item in your bibliography (list of references) at the end of the report.

NOTE: If you quote other people's work in-line with your text without using quotation marks **it is still plagiarism, even if you reference it**.

It is your responsibility to find out how to write your report and if you need more information about how to reference the material that you have used then please consult the documents available from our Key Skills web page: www.library.qmul.ac.uk/referencing.

4.3 Intellectual Property

All projects and their associated intellectual property remain the property of the JP unless they have been carried out in association with industry where other arrangements have been agreed in advance.

5. Marking criteria

Marking is carried out by your Supervisor and by the viva panel. Your Supervisor will not be a member of the panel. Your Supervisor's mark contributes to 40% of the overall project mark and the panels' mark contributes to 60%.

The overall proportions for marks allocated for each element of the project are shown in *Table **6***.

Table 6 Overall proportion of project marks awarded for different elements

Assessment Area	Supervisor	Panel
Early-term Progress Check	5%	-
Mid-term Check	-	5%
Late-term Progress Check	5%	-
Final Marksheet	30%	55%
Total	40%	60%

Your Supervisor's final marksheet includes a number of criteria such as your design and implementation ability, report contents, report format, time management and consistent work throughout the year etc. The panel's final marksheet includes criteria such as the quality of your presentation, answers to questions and meeting the Specification etc. Template marksheet used by your Supervisor and the final viva panel, showing the specific criteria and the break-down of marks, will be provided on QMPlus.

Each aspect on the marksheet is awarded a grade, and each grade has a mark on the Chinese scale associated with that grade. The overall mark for the project is the sum of the individual marks and since you may be awarded different grades for different attributes of the project, you should not expect the overall mark to correspond exactly to one of these grade points. The overall Chinese mark is converted to the UK mark for the Queen Mary transcript.

The grades, marks and meaning of each grade, as defined for the final marksheet, are shown in *Table **7***.

Table 7 Grades, associated percentage marks (CN scale) and their meanings

Grade	Percentage%	Meaning
A+	100	**Excellent:** no scope for improvement at all.
A	90	**Very good:** some aspects could be improved but these are only minor.
A-	80	**Good:** lacking some aspects but a reasonable attempt showing some added value.
B	70	**Fair:** adequate understanding of the topic but achievement falls significantly short of what is expected.
C	60	**Pass:** evidence of some work but showing minimal understanding of the topic.
F	40	**Fail:** largely incomplete; no evidence of understanding.

5.1 Examiners

There are two situations where a 'third examiner' who is an independent assessor, will be consulted following the final viva panel.

1) If there is a discrepancy of more than 20 marks between the Supervisor and panel marks (i.e. when both marks are considered as a percentage) and/or
2) The panel feels that your Supervisor's mark is not appropriate (regardless of whether the discrepancy is greater than 20).

In both of these cases, the panel will refer your case (i.e. your final report, supporting documents and all marksheets) to a third examiner who will be able to partially override the final mark.

5.2 Project Mark Review Request

You will be able notified of your final project mark once all marks are finalised following the Subject Examination Board. You will only be told your total mark and not the breakdown.

It is highly unlikely that your mark is in error; however, should you feel so, you can submit a project mark review request. This does not result in a review of your marks by either the Supervisor or the Panel; all it leads to is a re-check that all marks have been added and transferred (e.g. from Supervisor and Panel marksheets) correctly; i.e. you can only request review against procedural errors and not against academic judgement.

Procedure to follow if you wish to submit a project mark review request:

1) Download the 'Project Mark Review Request' form from REPORT TEMPLATES on QMPlus.
2) Go to SUBMISSIONS -> Project Mark Review Request, read the instructions carefully and complete all required fields.
3) Submit the form by the given deadline (to be announced after the release of results). No late submissions will be allowed.
4) The outcome will be given to you via QMPlus, as with any other submission. This outcome is final.

NOTE: if your review request results in any change of marks, it will NOT be processed in time for your graduation; but it will be reflected on your transcripts.

5.3 Project Resit

You have a maximum of 4 resit attempts during the maximum 6-year period of your degree. They are:

1) September/October in your 5th year, doing the same project as in your 4th year.
2) With the next cohort in your 5th year (new project).
3) September/October in your 6th year, doing the same project as in your 5th year.
4) With the next cohort in your 6th year (new project).

Please note:

1) The "year" here means an academic year, not a calendar year.
2) QM marks in ALL of the above 4 attempts will be capped at 40% UK scale, unless the resit attempt is treated as a “first take” due to an approved EC.
3) If you had an approved EC at any attempt, then you can check your status with the coordinator individually.
4) Provided you have met all other requirements, attempts 1 & 2 would allow you to graduate in June in your 5th year, while attempts 3 & 4 would allow you to graduate in June in your 6th year.

6. Email Guidelines

You are advised to carefully read and follow the guide below. Staff members have been advised **to ignore any emails that do NOT adhere to ALL of the following rules**.

These are not only for project purposes; most of these points are good practice to follow in general.

1) Please change the ‘From’ field of your email box to **your name** (in English so that everyone can read it).No one can memorise hundreds of usernames! See Figure **2** for an extract from the Project Coordinator’s inbox at a time when students didn’t follow this practice – it makes life so much easier if there is a name instead of numbers.

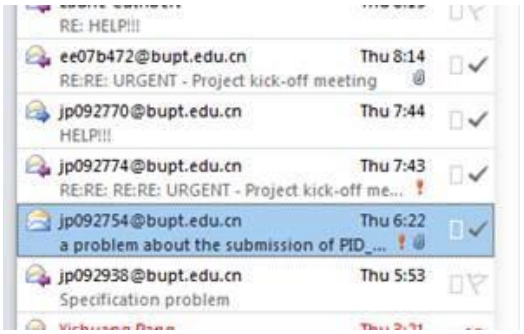

Figure 2

2) User your QM or BUPT mailbox unless there is a known problem. Add a ‘Signature’ to your emails (on all devices you plan to use email on). Here’s how to do that on QM webmail:
   - on the web page mail.qmul.ac.uk go to settings - the gear wheel on the top right
   - choose options from the pull-down list
   - the settings from the list on the left
   - then mail from the list on the top

   Here you can choose the options you want for email including setting a signature. Include the following (as a minimum requirement):
   - Full name (surname in capitals so we know which way round you are writing it)
   - QM student number
   - BUPT student number
   - Mobile phone (in case we need to contact you)

3) Do NOT send the same problem via multiple channels (e.g. email, messageboard etc. – imagine all 600+ of you doing this).

4) Do NOT keep re-sending emails. Remember that staff members have a lot of other things to do. In addition:
   - They may be on a flight or away at a conference etc.
   - While they may sometimes respond to you during evenings or weekends; you cannot expect them to do this.
   - Staff based in UK are 7 hours (during British Summer Time) or 8 hours behind you. So if you send an email to them at 10am, they will be in bed! Hence, it is your responsibility to leave plenty of time to resolve your query and not leave things till the last moment.

5) Your first point of contact for any project related queries is your Supervisor – if they cannot resolve it, they may contact the Coordinator.

6) If you have a general query, first check this Handbook and the BBC6521 Messageboard where your query may already be answered; if not, post your query to the Messageboard and do not email. General queries via emails will be ignored.

7) When emailing your Supervisor, in addition to the signature please include your Project ID and title. Until your supervisor gets to know all their project students this helps them instantly identify you.

8) For a new query, start a new email using an appropriate Subject. Do NOT hit Reply on an unrelated email. Try to make the subject as specific as possible (but keep it short too), e.g. 'PID submission problem' rather than 'Help!!!'. This way you are likely to receive a response sooner and it makes life much easier (for both you and the receiver) when it comes to searching for an email at some point later.

9) For an on-going conversation, use Reply and do NOT delete previous text in the conversation.

10) Always try to do some research and solve the problem yourself (you will learn more this way!) – This is the most efficient way. If you fail, try to direct queries at the appropriate contact. E.g. Do NOT ask the Coordinator how to adjust Excel row height or what is the 'due date'.

11) Be considerate – give some thought to the person receiving the email.

Best wishes with your Final Year Project!