



北京邮电大学
Beijing University of Posts and Telecommunications



BBC6521 Project Student Handbook **2021 / 22**

QMUL-BUPT Joint Programme

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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 QMUL 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.

1.2 Contacting staff about your project

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

For **administrative matters** please contact BUPT project secretary, gjbs@bupt.edu.cn.

For other general queries, use the BBC6521 Student Forum on QMPlus. You must subscribe to “Module Announcements” and “Student Forum” to receive email notifications of any messages posted. Important announcement will be sent through “Module Announcements” ONLY. To subscribe, go to BBC6521 -> Click on the forum -> Settings and click on “Subscribe to this forum”. Please check “Module Announcements” and “Student Forum” before making new queries to see if it has already been answered.

The following contact details may be useful:

Project Coordinator	Dr Ling Ma (ling.ma@qmul.ac.uk) Overall coordinators and main contacts for QMUL Supervisors
Industrial Projects Manager	Dr (Cindy) Yan Sun (yan.sun@qmul.ac.uk) Main contact for external overseas projects
Project Administrator	Maggie (Yanming) Li (y.m.li@qmul.ac.uk) Mainly coordinates loan equipment for QMUL projects
Project Secretary at BUPT	gjbs@bupt.edu.cn Main contact for BUPT Supervisors
London-based Project TA	Yixuan Zou (yixuan.zou@qmul.ac.uk) Mainly helps the Project Coordinator with administrative tasks such as processing PIDs, allocations, timetabling, QMPlus settings etc. The TA would not normally contact students directly.
Beijing-based Project TA	Shenhu Zhang (z666@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 - 2021/22**' 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 selection and allocation*

Project ideas are proposed by Supervisors by filling out the Project Initiation Document (PID) form 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 of project selection and allocation:

- 1) Project titles are released on QMPlus for preview first (without supervisor information). Please take your time to carefully read through the projects and consider suitable projects to apply. The most efficient way to find projects is to use the Search, Sort and Filter functions. 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.
- 2) Once project titles and supervisor filled project specification are formally released with supervisor contact details, apply the project by emailing the Supervisor. **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]
 - *QMUL Student No.*
 - *BUPT Student No.*

- 3) Once your application is accepted, the Supervisor will action the allocation. **You cannot change your mind once you give your word to a Supervisor.**
- 4) As soon as you have been allocated to a project, 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.
- 5) You can check the allocation and availability of the projects on the live allocation sheet on QMPlus. Please do not contact Supervisors about unavailable projects.
- 6) The deadline for allocations is **22 October 2021**. 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.

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 timeline

The important dates related to the final year projects for **2021/22** are shown in Table 1.

Table 1 BBC6521 Timeline (Important Dates)

Item	Date	Marking
Project preview	8-11 Oct 2021	-
Project release	11 Oct 2021	-
Self-allocations	11-22 Oct 2021	-
Allocations by Coordinator	26 Oct 2021	-
Specification	22 Nov 2021	Supervisor approve/reject
Early-term progress check (short report)	10 Jan 2022	5% marks from Supervisor
Mid-term report + slides	28 Feb 2022	Supervisor satisfactory/unsatisfactory
Mid-term oral exam	7-11 Mar 2022	5% marks from an independent examiner
Draft report	14 Apr 2022	5% marks from Supervisor
Late-term progress check (include mock viva)	6 -14 Apr 2022	-
Final report & supporting documents	28 Apr 2022	30% marks from supervisor
Final viva slides	3 May 2022	-
Final viva	9-20 May 2022	55% marks from viva panel

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 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.

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. When your Supervisor cannot meet you face-to-face, you should arrange to have online meetings. 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.

Students are required to keep a project supervision log using the template provided. Please read Appendix 2 Supervision log guideline.

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.
- Unable to carry on experiment due to restrictions set by the government or university.

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 to them.

The deadline for applying for changes to the Specification is **7 January 2022**. 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 submitted 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 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.

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 2 days late and Viva Slides 1 day late, a late penalty of $2 \times 2 = 4$ marks will be subtracted from your final mark.*

NOTE: If you have not submitted the three files by cut-off time, 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**. 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 AND FORM TEMPLATES. You must use the templates provided for specification, early term report, mid-term report, draft / final report and supervision log.

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.

Part 1 – Supervisor. The part 1 of the form is filled in by your Supervisor and the PDF file is generated for you. It contains the following sections: **Project description-** This section contains the aims and objectives of the project. **Main tasks-** This section lists of the four main tasks that your project is expected to involve. **Measurable outcomes-** This section lists the three tangible outcomes (e.g. piece of hardware/software, simulation result etc.) expected at the end of your project.

Part 2 – Student. You need to download the template and fill in the part 2 of the form.

Project outline:

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 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 webpages

Ethics:

Please refer to Section 4.1 for details about ethical issues and projects that involve human participants. You must confirm you have discussed ethical issues with your Supervisor using the ethics checklist (read Appendix 1 Ethic checklist). You must write a summary of any ethical issues involved.

Mid-term targets:

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. Please note it must be something “working”, e.g. functions of software, hardware or simulation.

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 **sub-tasks** under the four main tasks already specified by your Supervisor. You must enter this information in consultation with your Supervisor. Give a timescale for each sub-task by entering a letter X in the cell.

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: **22 November 2021**

Download the Project Specification Part 2 Student Template from QMPlus. Fill in all required information and submit a **PDF** version to QMPlus.

Filename should be your full name (family name then first name) and your BUPT No. and ‘_Spec’. E.g. ‘Wang Ming_2018123456_Spec.pdf’.

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. **You will not be able to submit anything else unless you have an approved Specification on QMPlus.**

3.3 *Early-term progress check*

This is a short report (2-3 pages) stating what progress you have made on your project to date. You should write the following items in the report:

- Summary of material was read or researched (not just list of references)
- Summary of work was done (add as much details as you have)
- Problems were faced
- Solutions were found
- 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: **10 January 2022**

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

Filename should be your full name (family name then first name) and your BUPT No. and '_EarlyTerm'. E.g. 'Wang Ming_2018123456_EarlyTerm.pdf'.

Your Supervisor will award a grade for your Early-term Progress Check Report and this directly contributes to 5% of your final project mark.

3.4 *Mid-term progress 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 report are:

- **Targets set at project specification (i.e. 'Mid-term targets'):**

This information is from what you entered under 'Mid-term targets' in the project specification. 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:** Write a summary of the work you have 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 should have no less than 1000 words. It also must include the structure of the final report. Your Supervisor will grade your mid-term check report with **Satisfactory/Unsatisfactory**. If your report received **Unsatisfactory** grade by your Supervisor, your mid-term presentation marks will be capped at 3. (You can only get a maximum of 3 marks from your presentation).

How?

Deadline: **28 Feb 2022**

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 full name (family name then first name) and your BUPT No. and ‘_MidTerm’. E.g. ‘Wang Ming_2018123456_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. The suggested structure (not restricted to) of the slides is as follow:

- Slide 1: The purpose of the project (problem definition and objectives)
- Slide 2: Background (relevant information that explains the background context of your project)
- Slide 3: Finished work to date (what has been achieved so far)
- Slide 4: Problems and solutions
- Slide 5: The next step

How?

Deadline: **28 Feb 2022**

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 full name (family name then first name) and your BUPT No. and ‘_MidTermViva’. E.g. ‘Wang Ming_2018123456_MidTermViva.pdf/ppt’.

The presentation will be made to one examiner (i.e. member of academic staff from QMUL/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. The time period is **7-11 March 2022**. The schedule and other details will be given nearer the time.

The examiner may ask you a question or two. The examiner will award you a grade, which will directly contribute to 5% your final project mark.

3.5 Late-term progress check

The late-term progress check consists of the draft report and mock viva. Time period: **6-14 April 2022**.

3.5.1 Draft report

The draft report must include all elements of the final report, 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: **14 April 2022**

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 full name (family name then first name) and your BUPT No. and '_DraftReport', E.g. 'Wang Ming_2018123456_DraftReport.pdf'.

You should submit your draft report on **6 April 2022**. You can keep updating your draft report according to your supervisor's feedback until the cut-off time **14 April 2022**. Your Supervisor will award a grade for your final version of Draft Report and this directly contributes to 5% of your final project mark.

3.5.2 Mock viva

Your Supervisor will arrange a time slot for a mock viva 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. This will be a valuable opportunity for you to practise for your final viva, also learn from the other students in your group. Your Supervisor may do the mock viva 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 feedback and switch-over

Mock viva is compulsory although no direct marks awarded. Your Supervisor will provide feedback verbally or in writing. If you are absent from the mock viva, you will receive **ZERO** mark for later-term progress check.

3.6 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.

3.6.1 Specification

You must include the final version of your Specification (part 1 and part 2) in your final report.

3.6.2 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.

3.6.3 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 and it must follow the format specification (read Appendix 3 Final report format guideline).

The maximum number of pages is 50, excluding references and appendices.

3.6.4 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.

3.6.5 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.

3.6.6 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.

3.6.7 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.

3.6.8 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.

3.6.9 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.

3.6.10 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.

The QM Faculty of Science and Engineering has identified the Harvard and Vancouver referencing styles as the recommended styles for project reports. Details about the referencing style and examples can be found online at <https://qmplus.qmul.ac.uk/mod/book/view.php?id=653429>.

3.6.11 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.**

3.6.12 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.

3.6.13 Risk and environmental impact assessment

You think about any factors that could prevent successful completion of your project and rank them for "Likelihood of occurrence" (likelihood level L : how likely it is for a problem to happen) and for "Seriousness of consequence" (consequence level C : 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 $R = L \cdot C$ gives a numeric estimate of the level of risk for a particular undesirable event occurring that can cause disruption to your project's progress. You should make sure there are adequate contingency plans for events with high risk values. Once you have identified the risk factors that apply to your project you should then propose the action to address those of highest risk. You can use the information in Table 2 - Table 5 to assess the level of risk.

The risk and environmental impact depend on the application, and every risk or impact needs to be assessed for any individual project. Risk assessment must be carried out for each of an event occurring that:

- Prevents the successful completion of the project
- Causes potential harm to people and /or animals
- Causes potential harm to the environment (for example waste disposal and recycling, energy use in service and energy savings)
- Causes potential financial loss to the project or to other individuals or organisations.

For any project, all potential risks and impacts must be assessed, including the risks of the effects from malfunctioning hardware or software.

A separate assessment must be carried out for each of the four areas listed above.

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 (This depends on the application, e.g. potential harm to people, animals, the environment, the project itself. The following table suggests possible consequences for the project itself. A separate risk assessment must be carried out for each possible risk.)
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.

NOTE: You should write 1-2 pages for the risk and environmental impact assessment.

How?

Deadline: **28 Apr 2022**

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

Filename should be your full name (family name then first name) and your BUPT No. and '_FinalReport', E.g. 'Wang Ming_2018123456_FinalReport.pdf'.

3.7 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: **28 Apr 2022**

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

Filename should be your full name (family name then first name) and your BUPT No. and '_SupportDocs'. E.g. 'Wang Ming_2018123456_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.

3.8 Final viva

The viva is one of 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 QMUL and one BUPT or two BUPT and one QMUL.

Your viva is an examination. Failure to attend your allotted viva session will result in you receiving a mark of **ZERO** 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.

3.8.1 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 minutes 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 minutes 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 allocated 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.

3.8.2 Viva slides

The slides you will use on the viva day are the ones you upload to the QMPlus. You cannot make changes once you have submitted it.

If you have a demonstration, you must use your own device for this (laptop/phone/other devices). It is therefore vitally important that you **check if your device will work in advance**. 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 in presentation mode?
- 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.
- Do you have a lot of animations? Try to keep animation and other special features to a minimum.

How?

Deadline: **3 May 2022**

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 full name (family name then first name) and your BUPT No. and '_FinalViva'. E.g. 'Wang Ming_2018123456_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.

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 *Ethics and projects that involve human participants*

The obvious ethical issues are fraud (e.g. passing off work that was done by someone else as your own) and plagiarism (which will be discussed further in section 4.2). However, projects that involve human participants, e.g. user studies or experimental evaluations, also involve ethical issues. The principal issues are ensuring that participants have given informed consent and ensuring that personal details are protected in accordance with the Data Protection Act. You will find a check list for ethical issues concerning projects that include human participants in Appendix 1 Ethic checklist. If your project involves human participants, please discuss these issues with your supervisor and record it in the project Specification.

4.2 *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."

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.

4.2.1 *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 <https://qmplus.qmul.ac.uk/mod/book/view.php?id=500362&chapterid=44414>.

4.3 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.

4.3.1 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:

4.3.2 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 book"**[1] or for longer excerpts you should put the text in an indented section like this:

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

In both cases, you should give reference 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 QMPlus: <http://www.learningdevelopment.qmul.ac.uk/sources-referencing>.

4.4 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 Progress Check	-	5%
Late-term Progress Check	5%	-
Final Marksheet	30%	55%
Total	40%	60%

Your Supervisor gives you grades on the following criteria:

- Research and design ability: to (i) carry out literature review (ii) analyse information (iii) synthesise a solution to solve the underlying problem as appropriate
- Experimental and implementation ability: to (i) plan experiments (ii) implement code and/or hardware as appropriate (iii) carry out experiments (iv) analyse and evaluate results
- Project management and achievement: (i) time management (ii) consistent work throughout the year (iii) achieves the target Specification
- Report content: (i) introduces the project with clear aims (ii) demonstrates a thorough understanding of the subject (iii) describes the design and implementation process (iv) uses results to draw valid conclusions and identify future directions (v) quality of writing
- Report format: (i) layout (ii) numbering (iii) figure captions (iv) graph axes labels (v) correct referencing

The viva panel gives you grades on the following criteria:

- How well does the project match the Specification including the 3 main outcomes?
- Quality and completeness of the work presented; evidence provided to show that the student's own contribution has added significant value
- Demonstrated a thorough understanding of the project; described the project approach including evidence of intermediate steps
- Clear and logical slides; arrived at viva on time; well-prepared talk and demo as appropriate
- Gave detailed answers to the questions in depth, with justifications

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	92	Very good: some aspects could be improved but these are only minor.
B	81	Good: lacking some aspects but a reasonable attempt showing some added value.
C	73	Fair: adequate understanding of the topic but achievement falls significantly short of what is expected.
D	66	Poor: basic understanding of the topic and acceptable achievement.
E	62	Pass: evidence of some work but showing minimal understanding of the topic.
F1	52	Fail 1: Incomplete work; no evidence of understanding.
F2	37	Fail 2: very little work; no evidence of understanding.
F3	15	Fail 3: largely incomplete; no evidence of understanding.

5.1 Examiners

There are three 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.
- 2) The panel feels that Supervisor’s mark is not appropriate (regardless of whether the discrepancy is greater than 20%).
- 3) The Supervisor and panel marks fall in difference classification of Pass/Fail (regardless of whether the discrepancy is greater than 20%).

In the above 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 moderate the final mark.

5.2 Project mark review request

You will be 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 QMPlus.
- 2) Go to “Project Mark Review Request” section, 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.

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 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 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) QMUL 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.

6. Expenses request and claim

Some projects require special software, materials or equipment to be purchased in order to complete the work successfully. Every student will receive RMB 200 or RMB250 (depends on the programme you study) to spend on project. If your expense will be over the amount you receive, your Supervisor will make the expense request and it will be decided case by case. QMUL supervisors should contact the Project Coordinator and BUPT supervisors should contact the Project Secretary at BUPT. **Please note you must gain permission from your Supervisor and the Project Coordinator before you purchase anything.**

7. Email guidelines

You are advised to carefully read and follow the guide below.

- 1) Please change the 'From' field of your email box to **your name** (in PIN YIN so that everyone can read it). User your QMUL or BUPT mailbox unless there is a known problem. Add a 'Signature' to your emails:
 - Full name in PIN YIN (surname in capitals so we know which way round you are writing it)
 - QMUL student number
 - BUPT student number
 - Your project ID and title
- 2) Use the cc (copy) in your email if you want to inform more than one person. Do NOT send the same email separately to everyone. For a new query, start a new email using an appropriate Subject. Try to make the subject as specific as possible, e.g. 'Project Specification submission problem' rather than 'Help!!!'. For an on-going conversation, use Reply and do NOT delete previous text in the conversation
- 3) In general, staff will response **within 48 hours**. It is your responsibility to leave plenty of time to resolve your query and not leave things till the last moment. Remember that staff members have a lot of other things to do and they may be on leave.
- 4) 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

-The End-

Appendix 1 Ethic checklist

This document describes 12 issues that need to be considered carefully before students involve other people ('participants') for the collection of information as part of their assessed exercises or projects.

1. Will the participants be exposed to any risks greater than those encountered in their normal working life?

Investigators have a responsibility to protect participants from physical and mental harm during an investigation. The risk of harm must be no greater than in ordinary life.

2. Will the participants be using any non-standard hardware?

Participants should not be exposed to any risks associated with the use of non-standard equipment: anything other than typical interaction with PCs/Tablets/Phones is considered non-standard.

3. How will participants voluntarily give consent?

If the results of the evaluation are likely to be used beyond the term of the project (for example, the software is to be deployed, or the data is to be published, then signed consent is necessary. A separate consent form should be signed by each participant. Otherwise, verbal consent is sufficient, and should be explicitly requested in the introductory script.

4. Are you offering any incentive to the participants?

The payment of participants must not be used to induce them to risk or harm beyond that which they risk without payment in their normal lifestyle.

5. Is there any intentional deception of the participants?

Withholding information or misleading participants is unacceptable if participants are likely to object or show unease when debriefed.

6. Are any of your participants under the age of 16?

Parental consent is required for participants under the age of 16.

7. Do any of your participants have an impairment that will limit their understanding or communication?

Additional consent is required for participants with impairments.

8. Are you in a position of authority or influence over any of your participants?

A position of authority or influence over any participant must not be allowed to pressurise participants to take part in, or remain in, any experiment.

9. Will the participants be informed that they could withdraw at any time?

All participants have the right to withdraw at any time during the investigation. They should be told this in the introductory script.

10. Will the participants be informed of your contact details?

All participants must be able to contact the investigator after the investigation. They should be given the details of both student and module co-ordinator or supervisor as part of the debriefing.

11. Will the participants be debriefed?

The student must provide the participants with sufficient information in the debriefing to enable them to understand the nature of the investigation.

12. Will the data collected from participants be stored in an anonymous form?

All participant data (hard-copy and soft-copy) should be stored securely and in an anonymous form.

Appendix 2 Supervision log guideline

Students are required to keep a project supervision log using the template provided. Students should update the log after each supervision and send the up-to-date version of the log to your Supervisor on a regular basis.

There should be at least one submission made by **4 March 2022**. No submission will result the mid-term marks be capped at 3.

The final version of the project supervision log should be submitted by **3 May 2022**. It must be approved by the supervisor and must be included in the appendix of the final report. No submission or rejected log will affect the final marking on the “Project Management” criteria.

Filename should be your full name (family name then first name) and your BUPT No. and ‘_SupervisionLog’. E.g. ‘Wang Ming_2018123456_ SupervisionLog.pdf’.

Appendix 3 Final report format guideline

You must use the template provided. In the template, all the following format requirements are set:

- Page Layout: A4, Portrait, No grid
- Margins: top 2.5cm, bottom 2.5cm, left 2.5cm, right 2.5cm
- Header: 1.5cm, the header is the project title, replace the texts and remove yellow highlight
- Footer: 1.5cm, the footer is the page number, bottom right, page number starts after cover page
- Format for level 1, 2 and 3 headings: as given in the template, just choose the right style
- Body text: font Times New Roman, size 12 pt, line space 1.5, justified. Do not indent the first line.
- The maximum length of the report (exclude reference and appendix) is 50 pages.
- Cover page:
 - Project title: replace the text with your project title, remove the yellow highlight
 - Name: family name then first name
 - Fill in Class, QMUL and BUPT number, remove the yellow highlight
 - Programme: choose one from the list
 - Date: the date of submission, dd-mm-yyyy, remove yellow highlight

Please find an example cover page in the next page.

Undergraduate Project Report 2021/22

Load balancing 5G small cell networks with mm-wave micro-wave dual mode base stations

Name:	Wang Ming
School:	International School
Class:	2018215101
QMUL Student No.:	181234567
BUPT Student No.:	2018123456
Programme:	Telecommunications Engineering with Management

Date: 28-04-2022