



Liverpool John Moores University

School of Computing and Mathematical Sciences

PROJECT GUIDELINES

MSc in Advanced Computer Studies

MSc in Computer Network Security

MSc in Wireless and Mobile Computing

MSc in Computing and Information Systems

MSc in Computer Science

September 2014/15

MSc Project Guidelines

Content Outline

Part-1. Project Guidelines

Part-2. Guidelines to writing-up dissertation

Project Module Spec

PART 1: Project Guidelines

This consists of 8 Sections outlining detailed Guidelines and rules on the MSc Project Module (module code 7008COMP). Appendix 1 is a Project Proposal Form that students have to fill in and submit, together with, the Project Specification.

1. Introduction

A major distinguishing feature of the Masters Programme is the project for which you are required to write a dissertation. The project represents an important component of the MSc Programme. It is a major piece of work with significant elements of research and innovation. The aim of the project is:

- to develop the students ability to carry out research, plan, execute and report in depth on a major investigation.

The MSc project is referred to as 'Module 7008COMP' in the MSc Programme. In terms of the complete Masters Programme, the project represents a significant component:

60 credits (out of 180 for the complete MSc Programme)

600 hours work (representing around 4 months full time effort)

The students will be required to submit a Project Dissertation and undertake oral presentations of their work. In order to gain the Masters award, a student must satisfy the examiners and the assessment board in respect of this module.

To carry out the project, the students will be expected to:

1. Work independently. The supervisor's role is a mentor rather than a tutor. This means that the supervisor will be able to offer advice concerning the level, structure and content of the project but will not define detailed aspects of the work. The supervisor will normally offer advice in the form of *objectives* rather than *actions*. You will be given a considerable degree of independence in the execution of your project and it is your responsibility to seek academic advice from the supervisor when you feel appropriate.
2. Analyse problems and implement solutions using experiences and skills gained during the MSc Programme. However, you should be willing to learn and practice, on your own initiatives, new experiences and skills as necessary. This situation is most likely to emerge during the conduct of MSc projects.
3. Research the particular domain or topic in which the investigation takes place. This is to emphasise that MSc projects should involve a research element.
4. Structure and write a major dissertation, mainly to report on all your findings, results and conclusions.
5. Develop the ability to explain and defend the dissertation both during its formulation and drafting, and during the viva (presentation) on completion.

To guide students in aspects of the level, structure and content of their project, they will be allocated a project Supervisor who will act as the Mentor. Whilst students are assigned project supervisors, their role is one of mentor rather than tutor; offering academic advice and support where appropriate and assessing the end result. Hence the degree of independence associated with the project is considerable. An important point to understand about projects and project supervision from the outset is that you are responsible for your project and its progress. Your supervisor provides help and guidance, but ultimate responsibility for your performance, particularly in terms of ensuring that you work steadily and sensibly on your project in an organised way over the academic year, rests with you.

Like other components of the MSc Programme, the project will be assessed. The exact nature of the assessment will, to some extent, depend on the project. But despite this degree of variability, the assessment will be made up from the following components:

- 90% from the project dissertation
- 5% from the interim report
- 5% from the final oral presentation

Assessment will be carried out by the Supervisor, a designated Moderator, the Subject Tutor and, where appropriate, the External Examiner.

2. The Academic Staff

- **MSc Subject Tutor:**

Dr Faycal Bouhafs: Room 718, Ext, Email:F.bouhafs@ljmu.ac.uk

The MSc subject tutors co-ordinate and organise the MSc projects within their subject. The subject tutors allocate students to projects and supervisors and oversee the general management of projects within their subject area.

- **Supervisor:** The supervisor is the person who oversees your particular project. You should meet your supervisor regularly to discuss your progress. The supervisor is there to give advice and to help sort out problems with your project as they arise. The supervisor is the principal assessor of your work.
- **Moderator:** The moderator, who will be appointed by the supervisor and the subject tutor, is the 'second marker' of your project. The moderator ensures that the mark awarded by the supervisor is an accurate reflection of the quality of the work presented. In the event of a dispute over marks, the subject tutor will determine a mark in consultation with the supervisor and moderator, and the matter will be reported to the Assessment Board.

3. Project Selection Procedure

A project may originate from three possible sources:

- i) A member of staff at JMU
- ii) Student's place of work
- iii) The student's own ideas (based upon their work experience, as appropriate)

In the case of i) above, the Supervisor will normally be the member of staff who defined the initial 'project brief'. Project briefs will be circulated prior to the project approval process. In cases ii) and iii), a Supervisor (who will be a member of staff at JMU) must be selected by the student, in consultation with the subject tutor and the staff member concerned. In projects with a significant industrial component (i.e. carried out largely or wholly in an industrial environment) there will also be a designated industrial supervisor.

When selecting a project, two conditions apply:

1. Make sure you think of your strengths, interests and maybe future plans. These three factors will help to ensure that your project is not only a useful learning experience but also a pleasant one.
2. You should not have executed the project before either at work or previous studies. You can build on previous work or others' ideas, in which case, you are expected to acknowledge this in your final thesis. Failure to do so may result in convictions of plagiarism which may lead to not being awarded an MSc degree.

Please note that any arrangement entered into by individual members of staff and students prior to the start of the academic session should be regarded as provisional. Arrangements will be finalised subject to resource availability.

However, given a written commitment from a student to a project supervisor that the student will undertake a certain project, the school will endeavour to honour an informal agreement by a member of staff to the student to supervise that project.

You are required to fill in a Project Proposal Form that is given in Appendix 1 plus the project specification, and submit them to your supervisor and upload to Blackboard.

Students should produce a Project Specification for their project in agreement with their supervisors. If the Project Specification does not meet the required standards, the Subject Tutor can reject it and ask for revisions before it can be approved.

Note that *All* students *should* submit a Project Proposal Form that is given in Appendix 1, *together with* a specification for their project by the first deadline.

Normally, the following time schedule should be followed:

1. If you are 'Full-time' student, you need to start thinking about your project near the middle of the first Semester, or, earlier if possible. By then, you need to find yourself a potential supervisor and a project. You are required to submit a project specification at the beginning of the second Semester, by the end of January.
2. . If you are 'Part-time' student, you need to start thinking about your project near the middle of the third Semester, or, earlier if possible. By then, you need to find yourself a potential supervisor and a project. You are required to submit a project specification at the beginning of the fourth Semester, by the end of January.

Deadline for Full-Time Students	Deadline for Part-Time Students	Items to Submit
31st of January.	(End of Semester 3) 31 st January.	Project Proposal Form (given in Appendix 1) together with Project Specification* (Signed by both Student and the Supervisor) Submit to your supervisor and place a copy in the "Project Proposal" folder, in the assignment area of the project module on Blackboard.

* The following describes what should be included in the Project Specification.

4. Project Specification

This should cover details of the planned project, which will consist of the following essential points. You may add other points as you think appropriate to your particular project. This should be completed in consultation with your supervisor, and, if in any doubt, the Subject Tutor can be consulted too. Points to cover are:

1. A **Project Overview** presenting an introduction to the topic and the aims and objectives of the project.
2. A survey of the main results from the **literature** available in the topic;

3. A discussion about the **Methodology** and Specification of anticipated project final **Deliverables**, i.e. what you are expected to do and hand in. If you are expected to develop a system or tool, you can describe its expected features and functionalities.
4. A **Project Work Plan** showing a programme of work with associated staged deliverables and time schedule. It is very important to set yourself a time schedule using short time scales like one week or two weeks at most. Please include: starting date/tasks to do/end date/deliverables expected at the end date. This will help you monitor your progress and take the necessary steps, if problems occur, before it is too late.
5. **Resources** needed: specific hardware/software or other project specific requirements.

It is very important to have a vision of the whole picture even before the project actually starts. That is, a vision of what you want to do, what you are trying to achieve, and what you expect the outcome to be. Please note that the details you describe for these points can be revised at any stage while you are progressing in your work. This is acceptable as long as you stick to the essence of your project's aim and objectives. For example, it is only natural to change the organisation of your chapters and titles as many times as you like whilst work is progressing. It will be acceptable even if the final organisation of the dissertation is totally different from that suggested initially, as long as it is centred around the project's theme and presents your results logically.

5. Project Execution

The supervisor will be responsible for directing the project. This role should be seen as Mentor rather than Tutor. This means that he/she will be able to offer advice concerning the level, structure and content of the project but will not define detailed aspects of the work. Students will normally be offered advice in the form of 'objectives' rather than 'actions'. They will be given considerable degree of independence in the execution of their project and it is their responsibility to seek academic advice from the Supervisor when they feel it is appropriate.

In order to carry out this supervisory role, the Supervisor will require the student to agree to a Project Specification (as explained in Sections 3 and 4), and set up regular meetings. After completing the Project Proposal Form and the Project Specification in agreement with your supervisor, they should be signed by both you and your supervisor. To ensure that students make satisfactory progress during the execution of their project, they should ensure that they maintain regular contact with their Supervisor. The frequency of these meetings should be sufficient to ensure that satisfactory progress against the Project Plan is maintained.

Changing the project, in any way, from this agreed Specification may only be done with the written permission of your supervisor. This written permission should take the form of an amended specification signed by you and your supervisor. Always keep in touch with your supervisor and keep him/her informed of what you are doing. Bear in mind that the project's academic content is what matters, so just, for example, writing a computer program, however big and complicated, is unlikely to be enough.

In cases where the majority of the project work takes place outside JMU, the immediate progress will be monitored by the Industrial Supervisor. The Academic Supervisor will meet the student less frequently in these cases. It is particularly important, therefore, that students keep their Academic Supervisor informed of progress through regular written and/or telephone contact. They will be expected to agree the form of this contact with their Supervisor at the start of the Project.

6. Project Duration

You **should** complete your work and submit your dissertation for final assessment following this time schedule:

- Full-Time students should submit within 12 months of initial registration on the MSc Programme.
- Part-Time students should submit within 24 months of initial registration on the MSc Programme.

Please note the following:

- If no submission has been made within these deadlines, normally, the student will then have failed the project module.
- These deadlines may be extended only when the project supervisor and subject tutor agree on a new deadline due to justifiable circumstances.
- Projects submitted outside these dates because of legitimate circumstances (e.g. a project submitted early, or with an extended deadline approved by the supervisor and subject tutor) will be considered by the next planned Module Assessment Board.

This seems like a long time but is actually a short period of time to produce such a significant piece of work as your project. Consider the competition for all your other work, and then you can feel the pressures that your project will be under. The time you will be able to allocate for your project will be limited. *It is vital that you work steadily at your project over the year.* There is great temptation to feel that you can leave your project work until later. Doing this will inevitably cause serious problems which it is unlikely you will be able to overcome in the time available to you. Start on top of your project, stay on top of it and finish on top of it!

Plan your work, so that all of the technical work should be completed within a reasonable time. Give an appropriate time allowance to writing up your final dissertation (also called thesis). Depending on your writing skills, this varies from one student to another, but on average, you will need at least what is equivalent to six weeks of full time hours. During this period of time, until the hand in date, you will be writing up your final thesis and, if needed, filling in any gaps as necessary. In total, you are expected to spend 600 hours work to complete your project, from start of project to submitting your dissertation, which is equivalent to at least 4 months of full-time effort. This is not too much time. It cannot be emphasised enough how important it is that this time is well used!

Remember your project carries about the same weight as 4 core modules - *Never* neglect it in favour of other coursework.

7. Project Assessment

The exact nature of the assessment will, to some extent, depend on the nature of the project. However, marks for the project break down as follows:

Content	Mark
Interim Report	5%
Project Dissertation**	90%
Final Presentation	5%

** This is an assessment of the overall technical and research progress achieved, and the overall write-up of the final dissertation.

The main assessor of the project is your Supervisor, whose marking has to be checked by a designated Moderator, the Subject Tutor, and where appropriate by External Examiners.

7.1. Interim Report

The interim report describes the state of your project, for the period that covers the start of the project until the submission of the interim report. It should include:

1. a copy of the Project Proposal Form and the Project Specification with a more detailed project plan. If needed, the drafts initially submitted may be revised at this stage for the inclusion in the interim report.
2. a literature review to survey relevant research work that is related to your project.
3. progress made to date (a review of work undertaken to date, any results obtained, problems and solutions).
4. specific and general difficulties encountered,
5. anticipated progress
6. plan (with a time schedule) of how you intend to proceed next, remaining work, risks, etc.

As a guide, the report may be around 10 to 15 double spaced pages in length. Make sure that you write a good interim report and take it as an opportunity to build up information for the final dissertation. It helps you organise your thoughts which will facilitate a smoother continuation of the work.

Deadline for Full-Time Students	Deadline for Part-Time Students	Items to Submit
30th of April 2015.	30th of April 2015 (Semester 4).	Interim Report Submit to "Interim Report" folder, in the assignment area of the project module on Blackboard.

PS: Note that your supervisor is entitled to request that you submit regular short progress reports (maybe monthly or so). This should be seen as a good opportunity to build up for writing the final dissertation, and not as unpleasant pressure! It will help you organise your thoughts and link all parts cohesively. It is advisable that even if the lecturer does not request these regular reports, you should be self-motivated to do so.

7.2. Final Dissertation

This should describe the research, design, implementation, findings, and conclusions of the Project. The students will be required to submit a project dissertation and undertake oral presentations of their work. The dissertation should describe your entire project including all results and conclusions. The dissertation's content is the main means by which the technical work and research conducted are assessed. This forms the main bulk of the mark. The dissertation writing up is very important too and should give a good impression of your effort for the whole year. Your dissertation should conform to JMU standards and good technical writing practice. Guidelines to dissertation writing-up is attached to help you in this task (see Part-2 of this document).

You **should** complete your work and submit your dissertation for final assessment following this time schedule:

- Full-Time students should submit within 12 months of initial registration on the MSc Programme.
- Part-Time students should submit within 24 months of initial registration on the MSc Programme.

Deadlines for Full-Time and Part-Time Students	Items to Submit
31st of August 2015	<p style="text-align: center;">Final Dissertation</p> <p style="text-align: center;">Submit to “Dissertation Report” folder, in the assignment area of the project module on Blackboard.</p>

These regulations apply in regard to dissertation submissions:

- If no submission has been made within these deadlines, normally, the student will then have failed the project module.
- These deadlines may be extended only when the project supervisor and subject tutor agree on a new deadline due to justifiable circumstances.
- Projects submitted outside these dates because of legitimate circumstances (e.g. a project submitted early, or with an extended deadline approved by the supervisor and subject tutor) will be considered by the next planned Exam Board.

Do not leave writing up of your dissertation until the last minute. A hastily written dissertation will not reflect well on your work and will mean that however good your technical work the marks you receive will be significantly less than they might otherwise be. As with all aspects of your project you should allocate time for writing up and make sure you stick to your plans. A good approach is to write short pieces on your project during the year so that when you come to the time for completing your dissertation you have a body of work on which you could put together as a cohesive story.

Important Note: Please note that it is very important that you should show the final dissertation to your supervisor for his/her approval before you submit it. It is important too that you should give it to the supervisor two weeks at least before it is due for final submission, to allow him/her enough time to read it and approve it, and suggest changes before it is too late. Remember that the final dissertation is a reflection on your efforts, and therefore, it is in your best interest to get the supervisor’s advice and approval on this matter.

7.3. Final Presentation

Towards the end of your project, you will be expected to prepare Powerpoint slides and give an oral presentation. You will be given a 15 minutes time slot to describe your project and 5-10 minutes to answer questions about your work. The presentation is an opportunity to tell a small group of staff about your project (normally the Programme Leader, your Supervisor, Moderator and External Examiners). Marks are awarded for the quality of the presentation. A detailed and tedious description of technical work will be marked lower than an interesting discussion of how your project has developed, the interesting problems you looked at, the research points tackled and how you might develop the work further. At the end of your presentation you will be asked questions about the presentation. The presentation marks are awarded for the quality of your talk and how well you answer questions.

You should stick to the time given to present your talk (i.e. 15 minutes). You will be marked down if you do not manage your time properly. These are some guidelines for the presentation, to help you be precise, but straight to the point:

- Slide-1: Project Title, Student Name, your Supervisor Name (When you present this Slide, you may introduce yourself and the motivation for selecting the project).

- Slide-2: Outline of the talk. on this Slide, **just** show a list of the headings that you intend to cover in your talk. This varies from one project to another. Normally, a list of these points in this sequence is recommended:
 - a) Project main aims and objectives, b) Literature Reviewed and main Findings, c) Theory or Model, d) Analysis and Design, e) Development or Implementation, f) Evaluation, g) Main Contribution to Knowledge, h) Possible Future Work. i) Evaluation of the Experience as a Whole (*Lessons Learned, *Difficulties faced).
- 10 more Slides. For each of the heading listed on Slide-2, you may prepare a Single Slide with bullet points of main points (for example, to discuss methods used or/and main results obtained, under each of these headings). You may also have Screen Dumps of diagrams, or pictures, which you could discuss verbally.

Final Presentation Dates:

1. You will be asked to give a Final Presentation (also called Viva) in **early September** (timetable will be given to you in due course).

8. Important Dates

Content	Deadline for Full-Timers	Deadline For Part-Timers
Duration of Project	within 12 months of initial registration on the MSc Programme.	within 24 months of initial registration on the MSc Programme.
Project Proposal Form and Project Specification	31 st of January.	(Semester 4) 31 st of January.
Submission of Interim Report	30th of April.	(Semester 4) 30th of April.
Submission of Final Dissertation	31st of August	31st of August
Final Project Presentation for First Submissions	Early September	Early September

9. Final Advice

Please make sure you do not lose this document. Keep it in a safe place as you will need to refer to it all the time for directions and important dates. You should have few problems (if any), provided you work sensibly and in an organised way. The project is a chance for you to work on something that interests you; take the opportunity to enjoy the work. The golden rules for good projects are:

- consult your supervisor regularly,
- work steadily throughout the year,
- make writing down notes, small essays or reports, a habit.
- read research articles in scientific journals for efforts similar to your work and the latest in the field. Keep copies of the articles you find useful and full information of their sources.
- talk to someone early if you have difficulties,

Appendix 1:

Part 1: MSc Project Proposal Form 2014/15

This information should be submitted together with a Project Specification **to your supervisor and place a copy in the “Project Proposal” folder, in the assignment area of the project module on Blackboard.**

Please return before the deadline specified in the Guidelines

1. The following pages should include your full name and a draft of your provisional **Project Specification** according to the directions given in this guidelines.
2. The contact addresses of yourself and your supervisor on this form:

Student Name: _____

Student Number: _____

Programme Title: _____

Student Tel# (home): _____ Student Tel# (work): _____

Student email: _____

Student postal address: _____

Student status(PT/FT) and Year(1st/2nd): _____

Project Area : _____

Project Title: _____

Supervisor Name: _____

Supervisor Work Tel#: _____

Supervisor email: _____

Supervisor School/Postal address: _____

Student Signature: _____

Supervisor Signature: _____

PART 2: Guidelines to Writing-Up Reports and Final MSc Dissertation

Writing-Up is a very important skill that you are required to develop during the MSc Programme. During the life time of the project, you will be asked to write Project Specification and an Interim Report, and towards the end of the project, you are required to write and submit a Dissertation. This has to be completed in a professional scientific manner to produce quality documents. The Interim Report and the Final Dissertation are marked on quality of the technical work achieved as well as on the writing style.

Part-2 consists of three subparts to help you and guide you in your writing-up. Part 2-1 is a general overview of writing-up requirements. Part 2-2 presents a Style Sheet that should be followed to format the Interim Report and the Final MSc Dissertation. Part 2-3 is a Sample Report, that outlines important issues, to guide you in writing-up your Interim Report and Final Dissertation (or any other Technical Reports). Students do not have to strictly follow this sample report. However, it is given here as a guide to help students organise their ideas, and write their dissertation.

PART 2-1 : Overview of Writing -Up Requirements

The following requirements shall be adhered to in the format of the all written reports, and most importantly, the Final MSc Dissertation submitted:

1. Reports and Final Dissertation should be presented in English, in A4 format.
2. An Abstract of approximately 300 words should be written to provide a synopsis of the work completed. This includes stating the nature and scope of the work undertaken, and of the contribution made to the knowledge of the subject treated.
3. Should include a statement of the candidate's objectives and shall Acknowledge published or other sources of material consulted (including appropriate bibliography) and any assistance received, from people, like your Supervisor, Subject Tutor, and others.
4. Where a candidate's research programme is part of a collaborative group project, it should be indicated clearly the candidate's individual contribution and the extent of collaboration.
5. The text of the Final Dissertation should normally be within 25,000 - 30,000 words.
6. Dissertation shall be presented in a permanent and legible form either in typescript or print.
7. Dissertation shall be printed on the recto side of the page only (single sided); the paper shall be white.
8. The margin at the left-hand of the page shall not be less than 40mm; other margins shall not be less than 15mm.
9. One-and-a-half or double spacing shall be used in the typescript except for indented quotations or footnotes where single spacing may be used.
10. Pages will be numbered consecutively through the main text including photographs and/or diagrams included as whole pages.
11. The Title Page should include the following information (all centred, and in this sequence).
 - a. the full title of the Dissertation
 - b. Student Name: type in your full name
 - c. Supervisor Name: type in the full name of your Supervisor
 - d. This Sentence:

A thesis submitted in partial fulfilment of the
requirements of Liverpool John Moores University
for the degree of Masters in Computing and Information Systems or Interactive Multimedia Systems

e. then, the month and year of submission

(Note: Ask to see specimens, if in any doubt.)

12. A typical Project Report or MSc Dissertation has the following structure. Each of these should start as a main heading on a separate page.

Title Page

Abstract

Acknowledgement

Table of Content

Chapter 1: Introduction

Chapter 2: Literature Review

Chapter 3: Analysis

Chapter 4: Design

[Alternatively, depending on the nature of the Project, these two may be combined in one Chapter called 'Analysis and Design'].

Chapter 5: System Development [or Implementation]

Chapter 6: Evaluation

Chapter 7: Conclusion

References

Appendices [if needed]

PART 2-2: Style Sheet for the Preparation of MSc Reports and Final MSc Dissertation

This is the style sheet that you should follow to format your report/dissertation. In order to ensure uniformity, the following guidelines should be adhered to as closely as possible. Follow this format:

Font: Times Roman with appropriate use of lower case throughout, including titles and headings.

Title Page: Centred, 16 pt, in bold.

Authors: Centred, 14 pt, in bold

Full Address: Centred, 14 pt, italic

Abstract: Title: left justified, 14 pt, in bold.

Text: fully justified, single spacing, 12 pt.

Keywords: Title: left justified, 14 pt, in bold.

Text: fully justified, single spacing, 12 pt., words to separated by a semicolon.

Footnote: can be included, for example the file name, or any additional definition, 10 pt.

Page numbering: Centred at the bottom of the page.

Introduction: Starting on a separate page as a Chapter 1. [Then number the following Chapters as Chapter 2, Chapter 3, etc.

Main headings: Numbered 1, 2, etc., left justified, 14 pt, in bold.

Subheadings: Numbered 1.1, 1.1.1, 1.1.2,, 1.2, 1.2.1, 1.2.2,etc., left justified, 12 pt, in bold.

Text: Fully justified, one-and-a-half or double spacing, 12 pt.

Equation numbering: (1), (2), etc. right justified.

Figures and Tables: Included with the text (they do not have to, but may, start on separate sheets), numbered in order in which they will appear in the text, with a full explanatory heading for each. All should be cited in the text when described in details.

References: a list of references should be given at the end of the text, preferably, in an alphabetical order. Titles of periodicals should be given in full. Each reference should be arranged as follows:

To a paper in a Journal

Author name(s), initials, (year), Title of paper (between single quotes), Title of Journal (in italic), Vol. (No), page numbers, publisher name, place of publication. This is an example:

Phillipson, P.H. (1975), 'Optimum regulating of sampled data process'. *International Journal of Control*, **21**, (5), pp 785-793, Intellect Publishing House, England.

To a paper in Book:

Author name(s), initials, (year), Title of paper (between single quotes), Title of Book (in italic), Book Author name(s), initials, {or editor if appropriate}, page numbers, Publisher name, City and Place of publication.

Ghaoui, C., George, S., Rada, R. Beer, M. and Getta, J. 'Text to Hypertext and Back Again', *Computers and Writing - State of the Art*, Patrik O'Brian Holt and Noel Williams, pp 109-130, Intellect Ltd, Oxford, England.

To a book:

Author name(s), initials, (year), Title of book, Publisher name, place of publication. This is an example:

Ghaoui, C. and Rada, R., (1995), Medical Multimedia, Intellect Books Ltd, Oxford, England.

To a document published on the Web:

Please note, that not all Web sources are credible, especially because they do not get refereed by independent professional bodies, as Journals or Books do. However, there exists very good documents published on the Web that are of very good quality. You need to be selective and consult your supervisor or other academics for guidance on this. To reference Web documents, follow the same style, in regard to papers, books, or journals, except in this case, you will need to add ***the full URL address for the Web Site where the document is published.***

Regarding References, Please NOTE the following:

1. *Every reference listed under heading 'References' at the end of your Report should be cited (cross-referenced) in the main Text throughout. In this list, each reference should appear just once.*
2. *However, each reference that appears in the list of References, can be cited many times, as appropriate to the context of the Text. This is usually needed.*

Please consult various published materials for examples and samples.

PART 2-3: Sample Report Detailing Good Technical Writing Practice

ABSTRACT

One of the features of many Courses/Programmes at universities is a project for which the student is required to present a formal report or dissertation. Many students are not aware of the work involved in preparing and writing this report with the result that it is often poorly written.

This booklet is a short guide to help students write better reports. It suggests guidelines for organising the material, presenting the material in an appropriate style and producing a well laid-out final report.

The booklet is concise mainly to encourage the student who would not normally spend time on this most important aspect of his project to avoid at least some of the basic errors in writing up.

ACKNOWLEDGEMENTS

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INTRODUCTION

The Need for Guidelines

One of the features of most university Courses/Programmes is a project. The student is required to present a formal report which describes his work. The task of writing the reports is a difficult one, and yet students are frequently expected to produce a good report without formal help.

Part of the problem is that many students do not regard writing as an enjoyable and essential part of their work. It is often done quickly and inadequately. Project work is, however, of little value unless others know about it, and this communication of the work is as essential as any other aspect of the project.

Using this Booklet

This guide is addressed to students (BSc or MSc) who, realising that he/she has to prepare a project report, asks 'What should be in it? How should it be written?' This booklet suggests guidelines, not rigid rules, to help you to answer these questions.

The structure of the report as a whole is examined in section 2. This is, in effect, an analysis of the table of contents for the report. Section 3 covers the structure of the main body of the report. The processes of selecting and ordering the material are examined. Aspects of English usage are discussed in section 4. Illustrations and computer program documentation are also introduced. The final section covers the revision of the drafts and the lay-out for producing the final draft.

Limitations

This booklet is a short guide to help you produce a good project report. It is not as detailed as many of the larger texts on the subject. For example, though stylistic principles are suggested, the problems of English grammar, punctuation, and spelling are not examined in any detail. Whenever you require further explanation, refer to the texts mentioned in the annotated bibliography.

Every project and project supervisor will have different requirements. You are therefore advised to consider the guidelines suggested in this booklet in the light of the advice given to you by your supervisor.

Finally, this booklet will only be useful if you allow sufficient time for writing the report. You should think about the report at all stages of the project. It is helpful to practise writing specimen sections, which may be of use later, as you proceed with the project. Your project supervisor may be prepared to comment on your proposed structure and on the style and level of detail of a draft section or chapter. You should consider the tasks discussed in this booklet early in the project and make a time-table for each stage in the production of the report. This time-table should be discussed with your supervisor who will check that you have left sufficient time for writing the report. You should allow time for correcting the drafts. Remember also that producing text and inserting diagrams may take several days or even weeks.

STRUCTURE OF THE REPORT

Title Page

Include the following in the title page:

- The title of the report
- The name of the author
- The qualification for which the report is a part
- The name of the department and institution
- The date of completion of the report

The title itself should be short and yet aim at indicating the content of the report as accurately as possible.

Abstract

This summary of the report should be no more than a page in length and should, like all elements of this structure, begin on a new page. Though it is placed at the beginning of the report, it is written after the main body of the report, which it summarises, has been completed. It gives the potential reader a framework showing the main features of each section of the report, including any conclusions reached. It is therefore both self-contained and self-explanatory. (An example of an abstract produced by a student for his project is given in Appendix 2).

Acknowledgements

This section should be used to acknowledge your Supervisor, the Subject Tutor, and other individuals who have helped you and guided you to complete your project. Also, an acknowledgement for the use of facilities or help from particular sources may be recorded here.

Contents

The table of contents gives the reader a detailed structure for the report by giving headings and associated page numbers. The title, abstract, and contents page thus give the potential reader information from which he can determine whether the report is relevant to him.

Introduction

The introduction has a number of purposes and its contents will vary according to the type of work being reported. It can be used to provide background information to the problem under discussion.

The introduction may be used to state the aims of the project, and also to discuss the approach used by the student in carrying out the project.

It may also give the reader an outline of the work, and hence make apparent its purpose, methods, and scope.

Having clearly stated the problem area that you have investigated, you should state your results. As [Trelease, 1969] argues:

‘The introduction should state clearly and definitely the most significant result of the investigation... The reader is (then) able, as he goes through the paper, to judge the development of evidence and inference brought forward in its support.’

The evaluation or explanation of the results should be further pursued in later section of the report.

The limitations of the project, as well as its achievements, may also be discussed in the introduction. This could include the reasons for any disparity between the original terms of reference for the project and its achievements.

Body of the Report

This should include the information obtained during the project work and the discussion it contains will normally lead to the conclusions and recommendations of the report. The framework and contents of the main body of the report may be determined by the processes of selecting and ordering which are discussed in section 3.. The use of headings and sub-headings and their numbering, (for example, ‘2.6. Body of the Report’), give the reader the landmarks for this structure and therefore show how the report is developing. So as to maintain the reader’s interest and understanding, good English and style are important in communicating the material. These considerations are discussed in section 4.

Conclusion and Recommendations

The conclusion does not usually present any new idea. It may simply summarise the discussion in the main body of the report or the results achieved in the project and their evaluation. This section may, however, be used to make points which link your project to other areas and to recommend ways in which the study may be developed.

Appendices

An appendix is used for material which, through relevant to the subject, is particularly detailed or lengthy and if included in the main text would distract the reader from the main theme. Computer printout and other systems and program documentation will normally be included as an appendix.

References

Where reference is made to a text or paper, full details of that reference should be given in this section.

One method of citing references, used in this booklet, is to give the author’s name and reference number when quoting from a work. The reference numbers are allocated consecutively as required. The relevant page numbers of the citation are given amongst other details in the list of references.

Bibliography

This further list of references gives the opportunity to acknowledge those works which have been extensively used in the preparation of the report which make useful additional reading. You should add comments to each entry.

THE BODY OF THE REPORT

Selecting the Material

The most important aspect of the selection process is considering the reader of the report. It is fair to assume that in a technical project report the reader will know the basics of the discipline although not necessarily the particular concern of the project. Your supervisor is likely to have expertise in the area of the project although the examiners and other readers may not have this knowledge. These considerations will give insight into the level of detail required and what to include and leave out.

Organising the Material

A major task in project work is to develop a skeletal structure for the main body of the report. Material should be organised in categories on the basis of this structure. This imposes order on the chaos of the material. There are a number of ways to impose this order.

If the project involves the structure of an independent entity, for example, an organisation, this can be shown by describing each part and showing the relationship between parts. This is often referred to as Order by Space.

A pure science paper often has the following structure:

- 1. Introduction, which includes the nature and purpose of the research.
- 2. Material and Methods.
- 3. Experiments and Results
- 4. Discussion of these results.

Full details of this method of structuring the material can be found in [Trelease, 1969]

Deductive ordering is arranged in the following way:

- 1. Purpose of the research or hypothesis to be tested.
- 2. The ways in which the data was selected, tested and analysed.
- 3. Description of data.
- 4. The relationship between the data and the hypothesis.
- 5. The conclusions

This method of structuring the material is often used in the social sciences.

For many computer studies projects the following sequence is appropriate:

- 1. Investigation of the problem area.
- 2. Analysis of the investigation findings.
- 3. Design of any solutions.
- 4. Implementation.
- 5. Further development possibilities.

Many students find that their project is best described by the ‘four P’s’ - purpose, problems, progress and possibilities.

- ❑ 1. Purpose
 - why the project was attempted;
 - aims and objectives.

- ❑ 2. Problems
 - whether solved or not;
 - decisions made;
 - difficulties overcome;
 - outstanding difficulties.

- ❑ 3. Progress
 - how far the project has progressed;
 - achievements and comments on implementations.

- ❑ 4. Possibilities
 - critical review (was the project worthwhile?);
 - comments on enhancements;
 - ideas for alternative approaches;
 - how to use the results of the project.

Reviewing the material can lead to a change in the order of presentation as well as the contents of the first draft.

Once the selection of the material and the structure of the report have been settled, its presentation consists largely of a process of linking the material. This should be done in a clear, interesting and informative manner. Some guidelines as to the effective use of English to achieve these requirements are discussed in the next section.

WRITING THE REPORT

Use of English

The style of writing must maintain the interest of the reader, and allow him to interpret the meaning of your report correctly. This requires the use of English to be clear, interesting, and informative. Gowers [Gowers, 1977], amongst others, discusses English usage in detail, but principles can be stated here. These principles aim at simple, readable English. Flowery language, long words and complex sentences hinder good understanding.

Whenever there is a choice, use short words. A project report, however, is to be read by people who understand the subject of the report and therefore the use of technical terms will be appropriate. It may be helpful to define these terms in a glossary, particularly if there can be a number of interpretations for a word or if you have used it in a non-standard way. Specialist dictionaries may help in defining terms and concepts. There may also be authoritative definitions in the particular area of your project such as those provided on data bases and programming languages. Make sure that the use of these technical terms is helpful. Gowers [4] gives examples of writing by computer people where jargon is confusing. In these examples the technical terms are probably meant to impress, rather than inform, the reader.

Long and complex sentences are difficult to organise clearly. It may be better to break these up into smaller sentences. A paragraph should normally discuss only one topic. A sequence of short sentences and paragraphs can, however, be a source of irritation to the reader.

Understanding is reduced by vagueness in sentences. This vagueness is either due to the unwillingness of the writer to commit himself, his desire to 'pad' his material, or his lack of understanding of the subject.

Care should be taken with spelling, punctuation and grammar. A good dictionary, such as the Concise Oxford English Dictionary, should always be at the side of a writer so that spelling may be checked. Whenever there are alternative spellings for a word, choose one and use it throughout the report. Good punctuation is also an aid to achieving clarity. To correct any deficiencies in grammar and punctuation refer, for example, to Gowers [Gowers, 1977] or Close [Close 1975].

The style of a project report should be formal. To put it simply, this means that you should not write as though you were talking to a friend. Therefore avoid abbreviations, contractions (such as can't), exclamations, emotive language (such as 'disastrous'), and slang. The use of 'I' is a subject of much debate, but usually the third party is preferred rather than using 'I', or 'We', etc. (the first person).

If a quotation is short, it may be included within a sentence. Longer quotations, as Parsons [Parsons 1973] points out, should 'be preceded by a colon, set off from the text and indented'. An example of a longer quotation is found in section 5.1.

Illustrations

Where appropriate, illustrations can be a very good way of conveying information. The use of tables and graphs can also have considerable impact in expressing relationships. So as not to reduce this impact, it is preferable to keep the information in graphs and tables to essentials, through they should be comprehensible without reference to the text. Avoid too many columns in a table so as to include only the most important relationships. If necessary, extend the information over a number of simpler tables.

There are a number of types of diagram which can be used. These include:

Project Guidelines

- Histograms
- Graphs
- Pie charts
- Network diagrams
- Flowcharts
- Structure diagrams
- Data flow diagrams

Computer Program Documentation

If you have written computer programs as part of your project, you must provide documentation. This would normally describe their purpose, design, construction, use, and maintenance. Some of this information can be provided in the listing itself. Good layout, particularly the use of appropriate indentations, will make your programs much more readable. The exact nature of the program documentation required should be discussed with your project supervisor. Program documentation is normally given in appendices.

THE FINAL DRAFT

Revising the Drafts

It is essential to allow time to amend the first draft of the report. This is usually better written without pausing which tends to hold up the flow of ideas. Many reports are the result of several drafts.

You will gain from the comments of your supervisor and colleagues and you must allow time for this.

O'Connor and Woodford [O'Connor et al 1975] suggest:

'It is a waste of time trying to improve stylistic details before you are sure that the sections, paragraphs and sentences are in the right order, that all the essential points have been included and any superfluous ones removed... examine everything... for logical order, accuracy, consistency and truth'.

When the report is structurally correct, the style of the report should be examined. Have you expressed yourself clearly without being patronising or casual? Are the spelling, grammar and punctuation correct?

A colleague or your supervisor may be particularly helpful in pointing out stylistic deficiencies.

Lay-out and Final Draft

Unless the appearance of the report is good, a potential reader may not bother to read further and an examiner may be biased against the work from the outset.

You should use A4 size paper held together by a spine so as to facilitate convenient reading and storage. Leave a 40mm margin on the left, about 25mm on the right, and 25mm at the top and bottom of the page. Each major section or chapter should start on a new page. Use one side of the paper only. Normally the text should be one-and-a-half or double spaced, with single spacing for quotations, footnotes, the reference list and bibliography.

Finally, always make regular back-up copies as the loss of work can cause many problems.

Conclusion

It is hoped that you are now aware of the nature of the task that confronts you. The success or failure of this booklet will depend on your answers to the following questions:

- Is the material factual, up to date, relevant, and complete?
- Does the structure of the main body of the paper flow well? Is it logically sound?
- Is the table of contents correctly completed with page and section numbers and meaningful headings?
- Is it written in a clear, informative, and interesting manner? Is it well set out?

Most importantly, are the contents, structure and style suited to the target audience?

REFERENCES

Close, R.A., *A Reference Grammar for Students of English*, Longman, 1975.

Gowers, E.G., (revised by B. Fraser), *The Complete Plain Words*, Penguin, England, 1977.

O'Connor, M. and Woodford, F.P., *Writing Scientific Papers in English*, Elsevier, Amsterdam, 1975.

Parsons, C.J., *Thesis and Project Work*, Allen and Unwin, London, 1973.

Trelease, S.F., *How to write Scientific and Technical Papers*, M.I.T. Press, Cambridge, Mass., 1969.

APPENDIX 2: A Sample Abstract

Project : Finger-spelling

J.K.Taylor

Abstract

Finger-spelling is a form of communication. It is used to communicate with hearing-impaired people and forms the basis of sign language. This report records the events which led to the design and implementation of a computer program which teaches finger-spelling. The program was produced for the parents and friends of hearing-impaired children and adults. It should enable a novice to learn, practise and develop this most useful skill. Written in C for the IBM personal computer, the main feature of the software is the use of high-resolution graphical images as a means of introducing the user to the language of finger-spelling.

APPENDIX 3: Checklists

Terms of Reference

- Are your terms of reference clear? If not, can you get someone to clarify them?
- Are you clear about the purpose of the report?
- Are you clear who will read your report?
- What does your reader already know about the topic?
- What does your reader need to know about the topic?
- What use will be made of what you write?

Titles and introductions

- Have you written a relevant title?
- Does your introduction
 - refer to terms of reference (subject, purpose and reader)?
 - refer to any limitations within which you have had to work?
 - give information about the method you used and the plan you have adopted?

Collecting Information

- Have you used some method to record
 - what you already know about the topic?
 - what you need to know (your questions)?
 - where you might find this information (your answers)?
- Have you collected information from as many sources as possible/necessary?
- Have you kept a note of your sources of information?
- Have you used a flexible way of recording the information you get from your sources?

Organising the information you have collected

- Is your report presented in clear sections?
- Are these sections placed in a logical sequence?
- Is the report easy to follow?
- Do you 'signpost' your reader enough (e.g. by references to other sections or appendices)?

Conclusions and Recommendations

- Have you written an effective conclusion i.e. one that
 - is brief and conclusive?
 - states the main points arising from the report?
 - refers back to the purpose of the report?
- Have you written clear recommendations (either in the conclusion or in a section marked 'Recommendations')?

Writing Clear Paragraphs

- Does each individual paragraph
 - read as complete in itself?
 - start with a topic sentence which shows what the paragraph is about?
 - group points together to 'fill out' the topic sentence?
 - contain only information relevant to the topic sentence?
- Are the paragraphs in each of your sections linked together?

Writing Clearly

- Do the main ideas emerge clearly from your report?
- Have you considered
 - what your reader knows?
 - what your reader needs to know?
- Have you addressed your reader directly and in a suitable tone?
- Are your sentences easy to read?
- Have you checked spelling and punctuation?
- Have you written in the active ('we did') rather than the passive ('it was done')?

Drafting and Redrafting

- Have you made a rough draft?
- Have you checked the structure of your report and amended it as necessary?
- Have you checked the language of your report and amended it as necessary?
- Have you used another persons comments and amended it as necessary?
- Have you made a final draft?
- Have you proof-read the final draft?

Layout

- Does your supervisor have an established format for writing reports?
- If so, is your report presented in that format?
- Have you used a system for
 - identifying headings (e.g. underlining)
 - numbering headings
- If so, is this system
 - necessary
 - consistent?
- Is the contents page accurate?
- Are the references to all sections/appendices/illustrations accurate?

Illustrations

- Have you used illustrations where these are necessary?
- Have you made clear to the reader the relevance of these illustrations?
- Are the illustrations positioned effectively?
- Is each illustration
 - clearly drawn?
 - captioned?
 - numbered?
 - referred to in the text?
- Have unnecessary details been cut out?

Final Presentation

- In what form, and how, will the report be distributed?
- Have you allowed enough time for these final stages?

