

6COSC006W Final Year Project (all courses)

Business Information Systems

Computer Games Development

Computer Science

Digital Multimedia Computing

Software Engineering

Department of Computer Science

Faculty of Science and Technology

University of Westminster

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Chapter 1 Introduction

The project module is a significant part of your degree. Furthermore, it is unlike any of the other modules on the modular course, as rather than being based around lectures, tutorials and an examination, it provides you the opportunity to work throughout the year on a subject you are particularly interested in. Finally, based on your individual research and engagement and further supported by your supervisor, you present the results of your work in the form of a written report and viva representing a completed project.

The project will therefore, give you the chance to show that you can explore and understand a topic in depth. It gives you the chance to exercise skills that will be important to you in your future career and which are difficult to measure in other ways. It is not expected to be a wholly original idea, but you will be expected to show that you have exercised initiative and worked independently, developing your own work. Furthermore, to do well you will need to show resourcefulness, motivation and the ability to work in an organised method over an extended period.

Most students also find doing a project a very useful and rewarding experience. This is supported by the fact that future employers are often very interested in a student's project. What is more, it is a very significant part of the degree. It is equivalent to two 20 credit Level 6 modules.

This handbook, therefore, will provide you with your basic understanding of what the project entails, and more importantly, what you will need to do in order to be successful. You should become very familiar with the handbook and its content and you should use it to extract the requirements for both the process of engagement and the deliverables of your work. Also of importance here, is the deadlines as set out which you must adhere to.

1.1 Aims of the Project

The overall aims of the project module are that a student will be expected to meet:

1. Undertake and perform full requirements analysis for a small size project.
2. Combine previously acquired knowledge and techniques with the newly investigated ideas, the results to be communicated efficiently in a final report and viva.
3. Work independently under the guidance of a supervisor on an agreed project topic and be expected to develop it systematically.
4. Plan and organize the different aspects of their project within the given timescale.
5. Produce an extended piece of work covering a variety of activities related to a single theme.
6. Explain the relevance of legal, social, ethical and professional issues to the project they are undertaking.

1.2 Learning Outcomes for the Project

A student who successfully completes the project module is expected to be able to:

- LO1 Select, justify and apply appropriate methods, techniques and tools for tackling the problem related to the project.
- LO2 Collect and analyse the requirements of the project using appropriate techniques and tools.
- LO3 Develop a project plan that schedules their own activities and time within the given timescale.
- LO4 Research and collate relevant information on a given topic from various sources and critically evaluate the findings.
- LO5 Analyse a complex task, carry out the activities involved in its investigation.
- LO6 Work autonomously to produce the deliverables agreed with the supervisor.
- LO7 Identify and take account of any legal, social, ethical or professional issues relevant to the project topic.
- LO8 Produce a well-structured and coherent report which documents and critically evaluates the work carried out, the new skills which have been acquired and the effectiveness of the project plan
- LO9 Demonstrate and defend their work at a viva voce examination.

Chapter 2 General Advice

2.1 Choosing a Project Topic

The first task for you is to find a suitable subject for a project. You are also expected to use the knowledge you have gained so far on your degree to underpin your project. Therefore, you should choose a project topic that firstly matches your knowledge and expertise and satisfies your course. The topic you choose must obviously be one which you find interesting and one which you want to work on for a whole year. The topic must also be of a suitable standard and is subject to the approval of your Project Supervisor. In its broadest sense, the project is a technical exploration and this may take a number of forms depending on your course and the area of interest. For example, it may be the implementation, design or analysis of a system or you may be carrying out empirical research, but in all cases there must be reference to current work in the field and the project must contain an element of critical evaluation.

A project is not normally expected to consist entirely of original research at one extreme, or simply be just the production of a piece of software or product at the other extreme. It is useful if you can choose a project that solves a real life problem. You might like to consider designing a system for the organisation you work for, or to help a company that you or close friend is involved with. This will allow you to solve a realistic problem and get real feedback on the quality of an analysis, a design or an implementation. It is also possible to perform a case study or perhaps offer something new that provides an organisation with an innovative business opportunity. Members of academic staff also offer projects to be undertaken.

However, when choosing a project there are several points worth considering. These are:

1. The choice of a project should be determined by the extent to which it will allow you to demonstrate as much of your knowledge and understanding as possible - after all, this is a purpose of the project. In many respects it does not matter if the project solution works perfectly in the end, what does matter is the way you can justify each decision in a manner that leaves no doubt that your decisions were based on a good understanding of all appropriate possibilities at every stage. The project report is where you will document the use of your knowledge and understanding, and is therefore more important perhaps than a hardware or software solution.
2. A project which involves investigating a real situation, gathering facts and data, analysing the findings, and then designing, implementing and testing a solution will allow you to demonstrate your abilities in many areas. However, projects do not have to contain all these aspects equally. In a number of cases an effective project will focus on one or two aspects in order to prove a depth of knowledge in specific areas rather than a more superficial knowledge of many.
3. Your project should allow you to use the knowledge you have gained through the modules you have studied so far. If you choose a topic that is not based on your main areas of study, then you are less likely to demonstrate an adequate depth of understanding in that area. For example, if you choose a multimedia project, but it

has not been your main study area, then your work may appear weak alongside that of multimedia students whose projects have built on a strong prior understanding of the issues involved in multimedia developments.

4. You are expected to extend the knowledge you have learnt so far in your course modules, and so it is not unreasonable to expect you to learn a new tool, or applications package, or programming language, or alternative techniques (including new design methodologies).
5. It is possible to choose a project based mainly on literature research. However, there is a danger with this type of project is that it may only show your ability to summarise other peoples' ideas. Only choose this type of project if you feel you can clearly demonstrate your own contribution by drawing out new observations and conclusions over and above those given in the literature. Therefore, do not underestimate how demanding this task may turn out to be.
6. Do not try to make the project too big or too complicated. It is much better to do a more focused project well than to do a bad job of something too complex. However, if your project is too simplified, then you are at risk of doing a project that has no complexity and this will also restrict any credit that might otherwise be given.
7. Most members of staff have a list of project suggestions related to topics that they are interested in. They may be able to give you suggestions and initial advice. Therefore, you should make an early attempt to contact and discuss areas of interest with them.
8. You may also wish to develop a previous project. If a student wishes to do this, then it is essential that the student consults the supervisor of the original project to obtain approval.
9. Ensure that the necessary resources are available for the successful completion of the project. In certain cases, the student may be able to acquire access to these resources externally. There are specialized topics that are suitable in principle for a project, but for which the Department will not be able to provide access to certain resources required. These resources may be items of hardware, software, or the availability of a supervisor with expertise in the specialism. However, you will be expected to demonstrate working with these items during your project viva so this will need careful consideration.
10. It is expected that each project will have a significant part of software/application implementation. In certain cases, there could be an exception for theoretical projects with significant contributions to a field.
11. Students are requested to submit a form to request a project supervisor by the end of the second learning week of the Semester 1. This should include either a provisional project title (if the project has been agreed by a supervisor) or up to three areas of interests and their preferred choice of supervisor (see Appendix D). Following this, supervisors are allocated within the department based on the form. If in doubt, check with your project coordinator. It is expected that students will have been assigned to a supervisor by the third learning week of the Semester 1.

2.2 The Role of the Supervisor

Your supervisor will have a crucial role in the development of your project. You must maintain regular contact with your supervisor and it is your responsibility to contact them. Exactly how often such contact takes place is very much down to the progress and stage of the project. As a rough guide, you should see them for around 30 to 60 minutes every two weeks. Obviously, you may find you need a little less or more time at the beginning when you are still getting to grips with the literature and maybe at the end when you are analysing and interpreting your findings. However, it is important to bear in mind that if you need to make excessive demands on your supervisor, your final mark will reflect your lack of independence and by the same token, if you do not see them enough (less than once every three weeks), you will probably not be getting sufficient guidance. If you have had an extreme lack of contact with your supervisor, it is highly likely that the project will obtain a very poor mark at best or even fail. Make sure you know how to contact your supervisor (and vice versa), either by telephone, email or other means. It is not wise to rely on just being able to turn up and knock on their office door. Supervisors may not be available during vacation times too, and so you should arrange to see your supervisor just before and just after the vacation. The duties of the supervisor include:

- helping you decide on the scope of your project;
- helping you to produce a plan of work for the year;
- checking on the progress you are making throughout the year;
- being available to provide informed discussion and guidance about the project;
- advising on the contents and style of the project report.

They are not responsible for and do not include:

- guiding every detail of your work on your project;
- providing relevant literature;
- debugging code or configuring equipment;
- writing or proof reading your final report;
- printing and/or binding your final report.

Your supervisor may not be an expert on all the technical or academic aspects of your project. This does not matter - the job of the supervisor is primarily to provide general guidance and support. Other members of staff are available to give specific help and advice as required and you are encouraged to seek their support too through their available office hours.

After every meeting with your supervisor you must begin to record (log) the details and main points raised and agreed. This will include the details of what was discussed and the targets to be achieved by the next meeting. A copy of this log should be available to both the student and the supervisor, therefore you should keep this up-to-date at all times and provide your supervisor with access to this.

2.3 Organising Your Time

As a rough guide, the project should take around 400 hours of your time; this time should be distributed reasonably giving full considerations to other modules on your timetable. If you spend much longer than this on your project, you will be in danger of interfering with work for other modules. Hence, any possible benefit gained from producing a slightly better project will be outweighed by the harm done to your marks on other modules. If you find that your project is taking up too much of your time, consult your supervisor who will be able to advise you. Similarly, if you spend too little time on your project, then this will suffer too.

You may also find it useful to keep a 'project diary', in which you jot down all the time you spend on the project, and what you have done when. This will help you to stick to and monitor your work plan, and be a useful source of material when you come to write the final report. It is also a useful way of recording the outcome of meetings with your supervisor and feed into your project log.

2.4 How to Succeed

One key to success in the project module is to create a comprehensive work schedule, and then to stick to it. Obviously, you will not be able to produce a plan of work until you know something about the area you are working on. Therefore, the initial task on the project is to do some background research on the topic you have chosen, and to decide exactly what it is that you are going to attempt. When this initial stage is over, however, you will be in a position to plan the rest of the year's work. Ideally, this initial investigation should be undertaken following the Project Event held at the end of Level 5 and completed during the summer vacation preceding your final year.

If you did not manage to make an early start following the Project Event, do not despair, like many other students the real work will begin once the new academic year begins and this work should also be achieved in the early weeks of your project.

You should prepare your work schedule in consultation with your supervisor, who will help you to make realistic estimates of how long various tasks will take. The supervisor's first job may be to cut down what you propose to a reasonable size! Do not be disheartened by this; when you are preparing a plan of work for the first time it is very easy to underestimate how long things will take. It is better to produce a complete, well-rounded but medium-sized project than to make a botched job of something very ambitious. Remember it always takes longer than you think, therefore you should allow extra time in your schedule so that things like illness or unexpected machine failure do not totally ruin your schedule.

It is difficult sometimes to stick to a plan of work, because as you acquire greater knowledge and expertise in the subject you will probably think of other approaches to the problem, or extra features that you would like to add in to your project. Keep a list of such extensions so that if time permits you can add them, but do not be tempted by them to diverge from your plan of work. If you really have to change some aspect of your project, discuss the matter with your supervisor first; keep records of your original approach and reasons for the change as these should be documented in the final report.

Right from the start of the project you should jot down a record of all the decisions you make together with a justification for each choice made. You may easily forget your early decisions, but these can play an important role in allowing you to show your depth of understanding by being able to justify all the decision you have made at all stages of your project.

Throughout the course of the project you are expected to adopt a professional attitude, taking responsibility for the management of the work according to your work schedule.

2.4.1 Background Research

It is vital that you carry out some background research on your chosen project topic. This acts as an introduction to your project, justifies that your project is worthwhile, puts your project into context and later gives the reader an idea of how your project evolved. Ideally you could start this background research during the summer vacation following the initial project event held before your final year. Like every other aspect of the project the best way to achieve this is to produce a plan of what to do. In this case the best method is to produce a list of topics that you (and your supervisor) think are relevant to your project. Once you have done this it will be useful (indeed necessary) to produce a bibliography list of sources that cover each of the topics on your list. Here are some suggested sources:

- computerized databases, e.g. BIDS
- the recommended book list of relevant modules, and the bibliographies of these text books;
- conference proceedings;
- software & hardware manuals
- lists of references maintained by your supervisor;
- the internet: World-Wide-Web sites and news groups;
- books: either through the online system available in the library or the brute-force method of searching the library shelves;
- company reports Once you have compiled your list of references you have got to read them! It is a very good idea to make notes on each reference as you read it, these notes will assist you when writing your report.

You may also find useful sources from the list provided in Appendix A.

2.6 How not to fail

In this section, are listed some of the reasons why students have failed the project module or not done as well as they expected. It is worth noting these from the start of your work.

1. Not returning the Request for Project Supervision Request Form (see Appendix D): This will cause problems, e.g., a supervisor being allocated who does not know anything about the project topic or a supervisor being allocated very late in the year.
Solution: discuss your ideas with staff members and return the form a.s.a.p.
2. Failure to maintain regular contact with your supervisor: This is very important because without the regular guidance given by the supervisor the student can end up producing a piece of work that is not suitable for a project. In extreme cases where the student sees the supervisor for the first time at the viva, this almost always results in the student failing the project. This is the most common reason for failing or gaining a low final grade.
Solution: See your supervisor regularly at agreed times.
3. Including material taken from books, articles, or other sources, which you do not understand. A lack of understanding is usually discovered during the viva when those long embarrassing silences occur in response to questions such as “Explain the third paragraph on page: 94”?”
Solution: Do not include any material in your project report that you do not understand.
4. Using either program code or material taken from books, articles, or other sources, which has not been acknowledged. This will give the false impression that you are claiming that it is your own work. Again this will usually be discovered during the viva. Note that it is, of course, legitimate to make use of existing code or literature providing that you acknowledge it and that it is not the only material in your project.
Solution: Do not use any unacknowledged material.
5. Not being honest in your report, e.g., claiming that you have performed experiments when you have not or claiming that your program does something that it clearly does not. Again this will be discovered during the viva. You must be able to answer questions about your methodology and also be prepared to provide evidence of testing, e.g. testing sheets, audio recordings or any other relevant materials used. Note that credit is given if you are aware of the weaknesses as well as the strengths of your project. Very few projects fully achieve their initial goals; you do not need to hide any shortcomings in your work.
Solution: Be honest in your report.
6. Thinking that a project is just a large piece of course work. The project must be both more substantial than a large course work and also show the development of existing skills and the acquisition of new skills.
Solution: You must do sufficient and appropriate work.
7. Not using opportunities to demonstrate your knowledge and abilities. If there are several similar repetitive parts of your project where implementing all parts will not show more ability than undertaking less, then do less and spend your time on new areas. (e.g. including several similar user options or numerous similar web pages).

8. Spending too much time on aspects that do not prove your understanding of the computer science discipline. For example, populating large database tables with test data, or gathering commercial or educational content material for a web site, will not prove your ability to design database systems or develop web server applications.
9. A very common problem with computing projects is that students spend too much of their time and effort producing a 'flashy' graphical user interface (GUI) and very little effort on the actual functionality of their system or consideration to the user. This is especially the case with MS-Windows projects. Remember there is no point having a wonderful GUI if there is nothing to interface too.

Solution: You should spend the vast majority of your time and effort on increasing the functionality of the system and only a relatively small amount on the GUI.

10. Rushing the write up of the final project report, resulting in poor logical structure, English, layout, contents, and more. This results in a sloppy and poorly written report that does not create a good impression.

Solution: You should try to write the project report as you do the work, rather than leave it until just before it must be submitted.

Note: this is not an exhaustive list and there are still plenty of novel ways to fail the project. However, the students who fail generally, do so because they end up doing most if not all of the things on the above list. So do take these items listed seriously.

2.7 Work Plan and Project Management

The aim of a work plan is to help you so that you have a clear idea of how to proceed with your project, and that you have a realistic picture of the work involved. You should produce a general suggested plan and you should discuss this with your supervisor so that you customise it according to the needs and the specifics of your project and yourself. You may use project planning tools to help and show your plan in the form of a Gantt Chart if possible and use this to help you manage the project throughout.

As a general guide, start by reviewing your projects objectives and break them down into appropriate sub-tasks (although it is probably not worthwhile trying to break down the work so finely that you include activities expected to take one week or less).

Clarify the order in which these tasks must be performed, and estimate the time that will be taken by each piece of work, and the particular time period over which you expect to be working on it.

Sequence your planned activities remembering also to include the preparation of your Final Project Report so that you aim to finish your main report by the end of semester 2. This should take into account 'slippage' time or 'contingencies' and ideally get your project out of the way before you embark on the bulk of your revision for the May examinations.

As a typical example (you may have a different approach depending upon your project subject), present the plan in the following way, adding detail relevant to your specific project:

- Project start to beginning of November (3 weeks): Literature search and review.
- Beginning of November to beginning of December (4 weeks): Gathering requirements, analysis and initial modelling, developmental work.
- December (4 weeks): Modelling, system design, coding small test programs and simple proto-types. Prepare a draft Interim Progress Report for informative assessment and feedback.
- January–February (8 weeks): Full system implementation.
- March (4 weeks): Final system testing and evaluation.
- April (4 weeks): Completion of Final Project Report.

The plan above presents a relatively linear sequence of activities. In practice it is often a good strategy to take a much more iterative approach, where you break down the work into a sequence of iterations based on the requirements you identify. Each iteration then realises a small sub-set of the requirements, chosen in order of priority. At the end of each iteration you can review and update your requirements based on your progress so far and what you learnt during the last iteration. Each iteration may involve a combination of analysis, design, implementation and testing. Early iterations develop a basic working version, with successive iterations building up more complete versions. An iteration will probably last 1–2 weeks at the most. An iterative plan outline would have a structure like this:

Project start to beginning of November (3 weeks): Literature search and review. Start defining your requirements.

Beginning of November to beginning of December (4 weeks). Refine your requirements and start the initial iteration(s) of analysis and modelling together with some developmental work.

December to March (16 weeks). Work through the iterations. Include here a list of principle features you plan to add.

April (4 weeks). Work on Final Project Report and finalise it. Specific milestones should be added as appropriate to your project. For example, the dates where you intend to have a first working version or a complete working version. Make sure you discuss your specific plan with your supervisor before starting the project report in detail.

2.8 Maintaining a record of your work and agreements made with your supervisor

Throughout your project you must maintain a record of your work, issues identified, problems encountered and decisions made to move forward. This should be done in

conjunction with your supervisor. It is your responsibility to maintain some form of log on meetings held, main points of discussions and agreements/goals/tasks set, as you progress.

An example of a record will be discussed in one of your early project talks where an example of a Google document will be explained.

You should agree in the early meetings with your supervisor what appropriate log will satisfy your project.

2.9 Gathering more formative feedback

During the academic year, you will have an opportunity to attend two presentation events. These are staged during the Student Engagement Weeks planned for Learning Week 6 in each semester. Each event will be organized by your Project Supervisor. In most instances these will be organized as a group consisting of other project students your supervisor is assisting. However, it may be deemed more appropriate to bring two groups together if your supervisor has only a small group of students. There is no prescribed preference here and this is left to your supervisor to choose.

Each session will allow you to either present work carried out or to demonstrate prototype project work achieved. For example, in the first semester you will be able to present your problem statement having carried out a reasonable investigation. You should also be in a position to discuss and defend some of the core requirements you have identified and explain why these are appropriate. You should be able to present further factual information and describe activities carried out to date. You could also begin to explain how you will go about your project in the future to achieve its goal. In the second semester you should be able to demonstrate some prototyping, provide a review of the design and provide a risk register to move your work forward.

These are only some of the ideas. Much will depend on your own course and the project type you are undertaking. However, the session will be invaluable in providing formative feedback not only from your Project Supervisor, but also from other students in the group.

Chapter 3 Administrative Details

3.1 Milestones and Deadlines

The Departmental Undergraduate Project Coordinator is responsible for providing and disseminating project guidelines for students and supervisors on all courses in the Department. They are also responsible for maintaining this project guide. The Departmental Undergraduate Project Coordinator is: Colin Everiss (c.g.everiss@westminster.ac.uk).

Further responsibilities include the overall management of the projects within a particular course. This primarily involves allocation of supervisors, organization of assessment processes and management of marks. You should seek specific advice regarding your project from your supervisor and not the project coordinator. Milestones when events and the forms, reports that are required to be submitted, and a viva carried out, are shown below. In addition, Blackboard will contain other useful information too such as the project talks given by various member of staff during the year, staff expertise, specific project descriptions, and more).

| MILESTONE/EVENT | NAME | NOTES |
|---|--|---|
| Project initiation activities | Module Fair and Project Event | Held during studies at Level 5. Module Fair in March; Project Event in May/June following final exams |
| Early selection process – drafting your PID | Early bird supervision agreement | Before the end of the academic year of study for Level 5 students |
| Supervision selection process | Final request for Project Supervision Request form | Semester 1, Learning Week 2. Full list of project supervisor announced Learning week 3 |
| Interim Presentation (1) identifying problem statement and core introspected requirements | Peer Group Presentation | Semester 1, Learning Week 6, (date to be agreed with supervisor) |
| Project proposal and statement of intent | Project Initiation Document (PID) | End of Learning Week 7 (Thursday 9 th November at 10.00am) |
| Ethics questionnaire | Ethics Forms A and B | To be completed and sent to supervisor by email attachment by (Monday 13 th November) |

| | | |
|---|---------------------------------------|--|
| Interim report showing reasonable showing development and addressing requirements | Interim Progress Report | Semester 2, Learning Week 1, (Thursday 25 th January) |
| Interim Presentation/Demonstration (2) | Peer Group Presentation/Demonstration | Semester 2, Learning Week 6, (date to be agreed with supervisor) |
| Final report | Final Project Report (FPR) | Monday 30 th April at 10.00am |
| Viva | Project Viva | To take place during May (TBA - date to be agreed with supervisor and second marker) |

Table 1: Milestones and Events (2017 – 2018)

In addition to the above milestones you should also attend a series of *Project Talks, lectures and seminars*. Details about these will be announced separately through Blackboard.

3.2 Registration

Students who have successfully completed Level 5 and proceed to Level 6 are automatically registered for the project. If for any reason (placement, failure etc.) you deferred your project, the registration is NOT done automatically. You must register for the project in the undergraduate office during the induction week. You should also inform the Project Coordinator via email.

3.3 Project Selection Process

To select a project topic and seek a supervisor, you must complete and return a Request for Project Supervision Form (Appendix D)¹. You must give the following information:

1. Your name, student ID, and course title
2. Your regular contact email address (type, or write this very clearly) and one of the following two:
 - a. Proposed Project Title if you have agreed a specific project with a supervisor.
 - b. Up to 3 areas of interests, selected from the ones included in the form.

This should be submitted via a dedicated link provided through the module Blackboard area as early as possible, and **by the very latest, the end of Learning Week 2, Semester 1**. This will allow the project coordinator to agree the name of a supervisor with you. By the end of

¹ There is also a separate Word version of this available for your support.

the third learning week of Semester 1, a formal list of project supervisor allocations will be published through Blackboard.

3.4 Project Initiation Document (PID)

You should then arrange to visit your supervisor as soon as you know who this is, so that you can discuss your project ideas and work towards completing a short project proposal to inform your supervisor, what the main area of your work will entail and the major problems and issues that are relevant to it. Also, the the main topics that may emerge as a result of your investigation and research. This will also indicate a timeframe of events.

Do not start working on a project of your own, without the agreement of your supervisor.

IMPORTANT NOTE: Together with the submission of your PID, you will need to complete an Ethics Questionnaire. Details regarding this will be discussed and presented to you separately.

3.5 Peer Presentations

During Learning Week TBA, you will be required to provide a short presentation together with a selection of your peers to either your Project Supervisor or collectively with another small group of peers and a second Project Supervisor. This will depend on student numbers and arrangements.

The intention of the presentation is to provide a clear understanding of what your project is about and what it entails, and to gain an insight into other student projects. You will benefit from any discussions and formative feedback provided.

This session also provides part of your formal tuition you will receive from your supervisor.

3.6 The Interim Progress Report (IPR)

The IPR is an interim written document that clarifies the statement of purpose for the project. It further clarifies the aim and objectives and details the specification following a period of investigation and analysis as well as its requirements. It also serves to show what progress has been made to this stage in fulfilling these therefore it is expected that progress will have been made in both the design and development as well as some implementation. It is used as formative assessment and feedback purposes and should not be ignored.

It is important that during the initial stages of the project, primarily throughout the first semester, you will attend a series of lectures/seminars and tutorials that will provide some support. In addition, your supervisor will help you identify and develop specific areas you should investigate to establish your project requirements. Furthermore, you will expand your thinking at this stage to consider any legal, social, ethical and professional issues that may apply.

The IPR will follow some initial development work on your project that should demonstrate the feasibility of the requirements already identified. In doing this, you also demonstrate progress that has been made through the first semester to satisfy these. The work will be dependent upon the type of project you have decided to undertake and the subject theme of your work.

3.7 The Final Project Report (FPR)

The FPR is a substantial formal written document that fulfils the summative assessment. It fully describes what you have achieved while working on your project. Full details on what it should contain, and advice on how to write it, can be found in subsequent sections of this guide. See also section 4.1 and Appendix C for contents.

Two members of staff read each report, the supervisor and a second marker. The second marker's role is to provide a "second opinion" on the project from the point of view of somebody who is only seeing the finished product. An external examiner will also look at the report.

The report is due in normally before the end of the first week in May. No project report will be accepted after the deadline. (Except if authorised by the Mitigating Circumstances Board).

The assessment weighting is substantial for this report and you should pay particular attention to the next Chapter 4, which is dedicated to it.

Important note: Strictly speaking, your project report is the intellectual property of the University. This does not prevent subsequent publication of all or part of it, with permission and attribution.

3.8 The Project Viva

The project module has a **compulsory** presentation component (Project Viva).

The viva must be carried out after the FPR submission date and before the relevant Assessment Board. Usually, all vivas are normally conducted within the three weeks that follow the end of the exams and you are expected to be available during this period. It is very important that the Project Coordinator and your supervisor has your correct contact details (especially your email address and mobile telephone number) because he/she will arrange the viva and inform you of its date, time and location, if one is requested for your project.

After the supervisor and second marker have read your report, they will viva you, i.e. give you the opportunity to present your work and then ask you questions about it. The viva serves two main functions. Firstly, if your project has involved the production of any software, you will be asked to demonstrate it; secondly, if you have chosen an experimental project, you will be asked questions to satisfy examiners that you have actually carried out

and that you understand the work. Finally, you will be expected to show that you understand the topic of your project, by answering questions on the contents of your report, any issues it raises and any software produced.

3.8.1 Arranging the Project Viva

The Project Viva must be carried out after the Final Project Report submission date and before the relevant Progress and Assessment Board. The precise date is arranged by the supervisor in discussion with the second marker and it will be communicated directly to you possible via email.

3.9 Deferred Projects

Under exceptional circumstances only, a student may be allowed to defer the submission of their report. This is usually only permitted if a serious illness or personal problem has substantially affected a student's ability to complete their project. If a student has such mitigating circumstances, then a request for a deferred project must be made to the Mitigating Circumstances Board (details are available from the undergraduate office or online.) Please bear in mind, however, that the project is a year-long module so having something such as a cold in the week before submission does not qualify for extenuating circumstances.

It is strongly recommended that before a student makes such a request they discuss it with either their supervisor or project coordinator. Note that you do not have to tell your supervisor or the project coordinator the precise details for the request, but obviously these will have to be given to the Mitigating Circumstances Board. If a request is made, then both the supervisor and project coordinator must be told what was requested. The final decision as to whether a student is granted a deferred project submission date can only be made by the Mitigating Circumstances Board.

There is **no** guarantee that the request will be granted. If it is not and you do not submit a Final Project Report, then the mark for that piece of work will be 0%. If the request is granted then the project must be submitted by a new date, which is determined by the Registry Office. It is usually just before the end of the academic year.

3.10 Project Submission Checklist

1. By the project submission date you must hand in to the Registry Office one bound copy of your Final Project Report.
2. You are also requested to hand in with your Final Project Report, a CD (or DVD, USB Flash Drive or equivalent) containing the report and all software developed, and any video or audio recordings used as well as the electronic version of your report. Note: these should be clearly labeled with your name, student ID and date.
3. You will be also required to submit electronically a copy of your final report through a link provided on the module Blackboard are for Turnitin. Details of how to do this

will be found on Blackboard in due time. Failure to submit this will normally result as a non-submission of the project, even if you handed in the hardcopy of the report.

3.11 Assessment

The project is assessed by your supervisor and the second marker who will assess your performance across all aspects of the project.

The project work as a whole is assessed on the following criteria being addressed by the student:

- I. ability to select, justify and apply appropriate methods, techniques and tools for tackling the problem related to the project;
- II. ability to collect and analyse the requirements of the project using appropriate techniques and tools;
- III. ability to develop a project plan that schedules their own activities and time within the given timescale
- IV. ability to research and collate relevant information on a given topic from various sources and critically evaluate the findings;
- V. ability to analyse a complex task, carry out the activities involved in its investigation;
- VI. ability to work autonomously to produce the deliverables agreed with the supervisor;
- VII. ability to identify and take account of any legal, social, ethical or professional Issues relevant to the project topic;
- VIII. ability to produce a well-structured and coherent report which documents and critically evaluates the work carried out, the new skills which have been acquired and the effectiveness of the project plan
- IX. ability to Demonstrate and defend their work at a viva voce examination.

To pass the module you are expected to achieve a mark of at least 40% overall, without scoring less than 30% in the Final Project Report component. Each component will be assessed using specific criteria. See appendix E for the assessment forms used in your assessment together with the indicative threshold assessment to be used.

3.12 Dealing with Plagiarism

It is very important to understand what plagiarism is and how serious its consequences could be. You are referred to the University Academic Regulations with regard to the issue of plagiarism. However, if you need to take some citation from someone else's work, do remember to draw directly on the work of experts in their field of study, which should be related to your problem domain. Try to limit direct quotations to a few lines only and reference ALL instances in both the text and include sources in the reference list, including detailed addresses of World Wide Web references.

Ensure you use the University of Westminster Harvard style of referencing.

All projects will be subject to Turnitin investigation for plagiarism. ***Therefore, always make sure what you are going to submit is entirely yours.***

3.13 Late Submissions

The project is treated as any other coursework. Thus, If you submit your coursework late (either the hard copy or the electronic copy or both) but within 24 hours or one working day of the specified deadline, 10% of the overall marks available for that element of assessment (i.e. 10%) will be deducted, as a penalty for late submission. However, for work that obtains a mark in the range 40 – 49% the mark will be capped at the pass mark (40%).

VERY IMPORTANT NOTE: if you fail to submit either one of the FPR components on time, i.e., the hard copy or the electronic copy, then your work will normally be deemed as late. If you fail to submit either the hard copy or the electronic copy, then your work will normally be recorded as a non-submission - even if you have submitted one of these formats, on time.

Remember, the project is worth three taught 15 credit module at level 6 modules and you cannot be awarded an honours degree unless it is passed i.e., it is a very significant part of your degree and it can have serious implication on your overall result. Thus, if for reasons beyond your control you cannot submit a component within the deadline or the quality of your work/performance has been affected then you should make a Mitigating Circumstances (MC) claim as soon as is possible. If you are going to make such a claim, please use the relevant form. Before you fill in an MC form, please do read carefully the University guidelines on what can be considered as an MC claim. A MC claim form and the University MC guidelines can be obtained both online and from the Registry Office.

You must also inform your supervisor of any such claims and update her/him on your progress. However, remember that the relevant MC board grants all extensions and it is not possible for your supervisor or project coordinator to grant any such extensions.

3.14 Staff Details

The Project Coordinator and Module Leader for this academic year is: Colin Everiss, c.g.everiss@wmin.ac.uk

A list of staff who are available for supervision and their main areas of interest, together with some examples of specific projects available, is available separately through Blackboard. You should consult with this as you complete the process of preparing and submitting your Project Supervision Request Form that is provided in Appendix D.

A list of Project Supervisors that will finally be allocated and their project students will be made available separately through the module area on Blackboard during Learning Week 3.

Chapter 4 The Final Project Report (FPR)

It will take you longer than you think to write up your project, as a rule of thumb, you should allow at least 6 weeks to write it up from scratch. You may also want to get your supervisor to comment on a draft of the write-up; to allow sufficient time for the process of reading and revising the draft report you should aim to have a draft of (most of) your report written before the beginning of the spring vacation. This means that by halfway through the second semester you should be thinking about starting the report writing process. A typical report will be between 50–75 pages long, excluding appendices and program code. You will not get extra credit just for producing a lot of writing.

Below are a number of tips to help you with the final report:

1. Start making notes for the report early on. The report often takes quite a time to write and modify, and so it is essential to start early.
2. The report is the record of your work and abilities and is the basis for awarding you a mark. The report must therefore contain indicators to all aspects of the project. For example, however good an implementation may be, if you have not described each aspect in the report with screen images etc., the report will not show the extent of your work and abilities.
3. A good way to prove your abilities is by comparing and contrasting alternatives wherever they exist. This will demonstrate that you have a good understanding and can use it to reach useful conclusions. Compare and contrast investigation methods, design methods and techniques, implementation possibilities, testing methods, support tools etc.
4. If you have spent time exploring avenues that you did not include in your final solution, then include brief exploration details in your report. This will show that you looked at a wider angle.
5. Many of the marks will come from your justifications dotted throughout, as well as your final conclusions. Not so many marks will come from doing the ordinary work of summarising general background material or implementing straight forward solutions.
6. Your report should go beyond the technical solution and it is essential that you need to demonstrate you understand any legal, social, ethical and professional issues that may be relevant.
7. You must include proper academic references. This is particularly essential in the section containing background material. If you summarise something you have read elsewhere then reference it with a proper academic reference (e.g. with author and year). In reading your report we should clearly know what is your own original work and what is other peoples work that you have summarised or quoted. If you copy someone else's picture, diagram or icon then you must reference where it comes from.

8. Think about how you can effectively test your designs or implementation. This will prove whether you really understand the context in which your solution will operate. Proving whether it 'works' or not may not be difficult, but assessing how effectively it works relies on comparisons and bench marking. Consider the way can you measure effectiveness in the context of your project.
9. Your conclusion section should not be just a summary of what you have explained earlier. Through a critical analysis you should reach real conclusions and recommendations which go beyond a summary and demonstrate that you have gained a real insight into all the important issues.
10. If you include program code or scripts in an appendix, make sure you include explanations of how they work and how they were designed. Program code which suddenly appears in the report which is not explained will not score marks.
11. A full user manual is not often needed. You would be better spending your time improving your conclusions and justifications section.
12. Provide a fully final printed report to your supervisor once before the hand in date (although they may accept by agreement an email attachment). Do not expect them to print an email attachment and provide annotated notes. They cannot be expected to help or see you during the spring vacation, so make arrangements to see them before the vacation or at the start of the first week back. They will be able to read your draft report once through briefly and comment on any major omissions or areas that need more work if supplied with sufficient time in hand. They are not expected to comment on every aspect, or continually view amendments, as the final report and content decisions should be your work and not their work.

4.1 The Contents of the Report

This section briefly describes the different elements that make up a typical report. For more details about these and the actual content of the rest of the chapters you should consult your supervisor.

- i. Title: should be short and indicate clearly what the project is about.
- ii. Abstract: summarises very briefly the problem tackled, the method adopted and the results obtained; it should be no more than half a page long. It should enable a reader to decide whether to bother reading the rest of the report; no detail is required.
- iii. Acknowledgements: are optional - there is little correlation between your final mark and the amount of lavish praise for your supervisor.
- iv. Introduction: this should describe the project in greater detail; it will set the scene, describe previous work, identify the need for the present work and outline the contents of the following chapters. It should aim to whet the reader's appetite to read on. This is the point where you must state your assumptions about your reader's expected level of knowledge. Do not assume that the reader has specialised knowledge of the area that you are describing and be sure to explain any technical terms that you use, perhaps in a glossary.

- v. Main Chapters: these are often first written, and can be produced while work on the project is progressing. You will often learn more about your project while writing it up than at any other time. A good way of discovering whether your writing is at the right level is to get somebody else on your course to read a sample chapter or two: they will have general background knowledge of the subject, but will not be familiar with your special subject. A good review of related works and literature is required. In a developmental project these chapters must also refer to project methodology, details of the analysis and requirements, design and implementation and a description of testing or evaluation (see appendix C for further details). In an experimental report, these chapters will usually correspond to “Method” and “Results”, with the usual sub-headings; however, you may have extra chapters referring to pilot studies. You will need to consider related topics too that have a bearing on your work. For example, legal, social ethical and professional issues.
- vi. Conclusions: should begin with a discussion of all that has gone before, possibly emphasising earlier points, which at a later stage, turned out to be important. Any discrepancies between your findings and the work of others should be explained, or at least identified. Any new results should be clearly stated. Directions for further work should be given, and any outstanding problems should be described. Clearly state what your report and project has achieved.
- vii. References and Bibliography: are particularly important. Whenever you quote some other book or article (even if you change the words slightly) provide the source. It is against University regulations to copy even odd paragraphs from other sources without acknowledgement.
- viii. Appendices: In general, any large amount of technical material that would interrupt the flow of the report can be assigned to the appendix. Examples of the types of material that should be placed in a separate appendix are:
 - Program listings (for computing projects)
 - Materials, questionnaires, full data (for experimental projects / evaluation)
 - Glossary: explanation of any technical terms that you use. This is optional.

In summary, here is a typical sample of chapter contents for the report (please consult with your supervisor about this and how to customise the contents according to the specific needs of your specific topic and your specific course):

1. Introduction
 - 1.1 Definition of the problem
 - 1.2 Aims and Objectives
 - 1.3 Scope of the project (limitations of project, assumptions)
2. Literature Review (other systems and comparison, comparison of various technologies, description and comparison of relative algorithms)
3. Issues relating to the project: legal, social, ethical and professional issues
4. Analysis and Requirements
5. Design (e.g. UML diagrams, architectural diagrams, other types of relevant diagrams illustrating your design, flowchart diagrams, pseudocode)

6. Implementation (this should include small segments of code - less than a page for each segment - showing the most challenging code you developed, followed by text describing it)
7. Results
8. Testing
 - 8.1 Black Box testing
 - 8.2 White Box testing
 - 8.3 Specific test cases
9. Conclusions
 - 9.1 Discussion and Summary - Results and what has been achieved.
 - 9.2 Limitations of results
 - 9.3 Possible Future work and Enhancements
10. References and Bibliography
11. Appendices

There is no specific rule of ordering and headings you must follow. Rather, it is the contents that matter and their appropriateness and fullness. An alternative suggested table of contents, for example, providing a more general discussion of chapters may be found in Appendix C, but you will see, the substance above is generally the same.

4.2 Layout for the Report

These requirements are partly derived from common sense and partly from standard academic practice. The aim of all of them is to make it as easy as possible for somebody to read and understand your project it is obviously in your own interest to ensure that this is the case. In addition, marks may be lost if a project is badly presented.

1. The report must be typed on A4 paper, using one side of the paper only. It should be one-and-a-half spaced and leave a left hand margin of 4cm to allow for binding.
2. The contents, lists of tables and figures, abstract and acknowledgement pages should be numbered consecutively using lower case Roman numerals, e.g., i, ii, etc. The pages of the main text of the report, (starting from chapter one and including the appendices) should be numbered consecutively. All pages, including separate pages containing diagrams or illustrations, should be numbered. The pages of program code must also be numbered.
3. The title page of your project report should provide sufficient information to indicate the contents of the report, see Appendix C for an example title page. It must contain the following Information:
 - Title of the report.
 - Author's name.
 - Supervisor's name.
 - Date of Submission.
 - Department name.
 - List of Key Words.

The statement: "This report is submitted in partial fulfillment of the requirements for the BSc (Hons) XXXXXX Degree at the University of Westminster." (where XXXXXX is your specific degree title)

4. Any acknowledgements of help received should appear on a separate page following the title page.
5. List of figures and list of tables, all figures and tables used in the main chapters of the report should be listed, giving its number, caption and page.
6. The table of contents comes next. It should include the following items (where applicable): acknowledgements, list of figures, list of tables, contents, chapters, only the main numbered sections of each chapter i.e., "1.2" but not "1.2.3" or "1.2.3.4.", bibliography, references and appendices.
7. For an experimental or computing project, the main text should normally be no longer than 10,000 words long. This is roughly 50 pages of solid writing, allowing for diagrams and illustrations, therefore, this gives an ideal length of perhaps 70 pages for the main body of the report. For a philosophy or literature review project, the main text should be a little longer, around 15,000 words.
8. Each table and figure should be clearly labeled with a number and caption, e.g., "Figure 1.3: Mean recall for 'young' vs. 'old' subjects", the third figure in chapter one. All labeled items must be referenced somewhere in the text and should be placed as close as possible to the place in the text where it is first referred to. An illustration appearing on a separate page must also be labeled; the page should be inserted into the report immediately after the page on which the illustration is first referred to, and the inserted page should be correctly numbered.
9. It is essential to include a key with figures that make use of graphical notation, e.g. data-flow diagrams, object oriented design diagrams.
10. The references should appear at the end of the report, just before any appendices. A list of references is presented in alphabetical order by author and presented in Harvard style.

4.3 Hints on Style

1. The report should be a description of what has been achieved not a story about how you struggled through the year, or why you chose the particular project that you did. The final report should be written in the third person, so the use of "I" should be avoided where possible.
2. The introduction should provide a specification of the project: describe what you decided to do and what you decided to leave out, and why. Bits that you meant to do but did not manage to finish can be discussed in the *Conclusions* or perhaps better in a section entitled *Future Work*, however, you should avoid simply using this as an acceptable reason for not completing work intended.
3. Structure is all important; the people marking your project have a lot to read in a short time, and you can make it easier for them (and thereby create a good impression) by making your report well structured and easy to follow. A project report is not a detective story.

4. Before setting pen to paper, decide exactly what it is you are trying to say. A useful technique here is to divide each chapter into sections and subsections before you start writing, to map out how the argument of the chapter is going to proceed, and in the light of this to decide exactly what each section is going to contain. (Do not get too elaborate a reference to sub-sub-sub-section 4.2.3.1 does not help you to be understood). As a rough guide, try to ensure that each paragraph makes a single point. If you find that you are repeating large blocks of material in two different places, stop and think again about the structure of your report. If a chapter requires a lot of changes, it may be quicker to start writing it again from scratch than to try and alter it, especially if you are working at a keyboard.
5. Define technical terms when you first use them; if your report includes a lot of (unavoidable) jargon, include a glossary.
6. If you want to quote some material from another source it is better to quote it directly than to attempt to rewrite it in your own words; make sure that you give the reference to the original source. This rule does not apply, however, if the amount you want to quote is longer than, say, a paragraph. In this case you should summarise what your source has to say, and refer readers to the original for more detail.
7. Similarly, your report should not rework material that you have already learnt in previously taught modules. It can be safely assumed that your reader knows this material a well-chosen reference is normally adequate.

If in doubt ask your supervisor or consult a book on technical report writing, (see the bibliography towards the end of this handbook).

4.4 Final Project Report Submission Requirements

1. The deadline for handing in your project is usually at the beginning of May (check the module Blackboard area) You must submit one hard copy of your final project report to the Registry Office by the date that will be specified. You must accompany the copy with CDs or other media that include(s) any programming code (where appropriate) or demonstrable solution and an electronic version of your report.
2. Part of the purpose of the project is to test your ability to work to a schedule. Consequently, If the project is handed in late, the Assessment Board will be informed and you will score 0% for that piece of work, unless there are mitigating circumstances. If you are not going to submit your project report, then your supervisor and the project coordinator must be informed as soon as possible.
3. The Department or your supervisor for future reference, may keep the submitted copy; If your report runs to more than one volume, a copy of each must be submitted. If the extra volumes consist simply of software listings, however, consult your supervisor before collating them all; it is usually sufficient to submit only one copy of such material.
4. You are responsible for getting your project typed and bound. Special facilities to assist project students with printing their reports may be provided, but we can make no guarantee that these will be available at a specific time. Bear in mind that many

other students will be producing reports at the same time, and allow plenty of time for the process. “The printer broke down”, is not acceptable as an excuse for late submission of a project report.

5. Project reports must be bound using the regulation method, (See Section 4.5 Binding the Project Report).

4.5 Binding the Final Project Report

The regulation method for binding the project report is to use: ring binders, front and back clear acetate covers, an official project front cover and a plain white back cover.

Binding is available through the University’s Reprographics Department, Marylebone Campus (located close to the library). However, good stationary stores such as Ryman will be able to do this for you too. There is also a ‘local’ stationery shop nearby at 108 Cleveland Street where this may be done also. The project front cover should have the project title and your name on your title page as well as other important information (see Appendix C).

Remember that all the other project students will be trying to bind their projects at the same time so do not leave it too late if you are using the university’s resources.

Chapter 5 The Project Viva

The length of a typical viva is usually between 30 minutes and 1 hour. This may seem a long time but it can take quite a long time to demonstrate all aspects of a project and ask and answer several questions. As you will discover, time goes very quickly when you are enjoying yourself. It should be noted that the actual length of a viva bears no relationship to the final mark awarded to a project.

The general assessment criteria for the viva are understanding of material in the project report, understanding of wider context of the project topic, proposed improvements to the project and communication skills. Please note that programs must run on the equipment and with the software that we provide in the university laboratories, unless you have been given written permission to use outside resources. In any event, you should be able to demonstrate your work here inside the university.

During the viva your supervisor (and second marker) will ask you to explain and discuss issues mentioned in your report. They will not normally ask you to explain technical issues which were not mentioned in your report and are not part of your project.

The viva allows you to:

- demonstrate what you have done.
- explain to us the merits of your achievements.

It helps us to:

- clarify issues we have not clearly understood when we have read your project report.
- clarify your depth of understanding on issues arising in your report and your work.
- ensure that we have not missed out any important aspects you have included.
- ensure that we know if you have done extras that are not shown in the report.
- ensure you have a wider understanding of issues that may be applicable such as legal, social, ethical and professional issues.

Appendix A: Sources of Information

This is a useful list of sources related to project work. The list is not exhaustive and you may find other useful information not listed here. Please note, in addition to these sources you should seek further guidance and support from the readings indicated in the project Module proforma specification.

Alexander I., and Beus-Dukic L., (2009), *Discovering Requirements How to Specify Products and Services*. John Wiley and Sons.

Cottrell S., (2014), *Dissertations and project reports: a step by step guide*. Palgrave Macmillan.

Dawson C., (2005), *Projects in Computing and Information Systems*. Pearson Education.

Dewdney A., and Ride P., (2014), *The digital media handbook*. Routledge.

Graff G., (2014), *They say, I say: the moves that matter in academic writing*. New York: W.W.Norton and Company.

Greasley P., and Hickie S., (2015), *Business information systems: technology, development and management for the e-business*. Pearson.

Kirton B., (2011), *Brilliant Dissertation: what you need to know and how to go about it*, 5th ed. Pearson.

McAdoo M., (2015), *The student's guide to research*. Chicago.

McDonald K., (2015), *Beyond Requirements: Analysis with an Agile Mindset*. Addison-Wesley Professional.

Nedra R., and Davis E., (2014), *Portfolio keeping: a guide for students*, 3rd ed. Boston Mass.

Northey M., and Jewinski J., (2015), *Making sense: a student's guide to research and writing. Engineering and the technical sciences*, 5th ed. Oxford University Press.

O. Grady J., (2013), *System Requirements Analysis*, 2nd ed. Elsevier.

Pickering A., (2010), *The cybernetic brain: sketches of another future*. University of Chicago Press.

Rost J., and Glass R., *The Dark Side of Software Engineering: Evil on Computing Projects*. John Wiley and Sons.

Schile E., Rheinboldt J., and Waeshe N., (2011), *SIMPLY SEVEN Seven ways to Create a Sustainable Internet Business*. Palgrave Macmillan

Shah R., (2010), *Social networking for business: choosing the right tools and resources to fit your needs*. Wharton School Pub.

Rearson D., (2006), *Doing your Undergraduate Project*. Sage Publications

Yang L., (2010), *Mobile Intelligence*. Wiley-IEEE Press

Appendix B: Example of a Final Project Report Title Page

An Investigation into the Effects of
Ear Preference and Laterality on
Signal Presentation on Auditory
Temporal Acuity

Robert Jenkins

Supervisor: Catherine Loveday

Date: 3rd May 2016

Department: Computer Science

Key Words: audition, laterality, intelligence

This report is submitted in partial fulfilment of the requirements for
the BSc(Hons) Computer Science degree at the University of
Westminster.

Appendix C: An Alternative Possible Outline for your Final Project Report

The following provides an alternative indicative contents suggestion. An alternative table of contents targeting more technical projects may be found in Section 4.1.

You should consult your supervisor about the contents that you actually include in the report.

- Chapter 1. Introduction / overview (summary of what you chose to do and very brief conclusions) (write this section last)
- Chapter 2. Description of the Problem and Project methodology. Use chapter 2 to say what your overall project objectives were. What did you wish to achieve, what outcomes did you expect, what angle did you initially take and why, what problems did you expect to see initially, what approach were you to take? You should include a detailed description of the problem you try to solve and why this is worth addressing.
You should outline the proposed methods here (explaining in the future tense) what you were expecting to do in the future when you originally started the project. You should briefly consider other methods and then say why you chose your method. Don't add comments on what you found out half way through the project (e.g. any limitations arising), but give limitations which you could have predicted before doing your work. The methodology for fact-finding should explain (where appropriate) techniques for observation, literature search, current systems investigation, and say why they were appropriate for you to use. Briefly mention some project management issues and the proposed time schedule for the project.
(Later on in chapters 5 or 6 give the difficulties you encountered when you applied the methods in practice.)
- Chapter 3 could explain general background information surrounding your topic. Background theory and principles., extracts from research articles and any other information and explanations that the report reader might appreciate before reading your report. (E.g.: theory on: human computer interaction issues, Web server background explanations, security issues and methods, a description of the business environment etc.). Later on in the analysis and implementation sections you will be describing your decision making but you will not wish to explain all the background explanations from scratch in those sections as it will spoil the flow in the account of the decisions you made. Therefore, explain background issues in this section first so you can refer to them later. Make sure this section includes proper academic references to books and articles. Do not include material in this section that is not referred to later (e.g. not Internet Security methods unless you will use the information later in the report).
- Chapter 4 could be where you present the facts found during the analysis stage of the project. Chapter 2 gave an overview of what you wish to achieve, and this section is where you should show how you fully investigated the environment and the detailed requirements of the proposed project or system. Include details of

interviews, descriptions of current or similar systems, predicted volumes of processing, functions required, business rules etc. Discuss the information gained to firmly establish the requirements for the proposed system. You should discuss the business options and the technical options, and present various alternatives for a solution. You should then justify your preferred solution which you intend to implement and also describe the difficulties you foresee. Write what you have investigated in the past tense. You need to also identify and discuss any legal, social, ethical and professional issues that are pertinent to your project.

This section should not form the main bulk of your work unless you have agreed with your supervisor that the report will be based on other people's research findings. For research only projects this section must be a detailed section with many primary reference sources (and not summaries from books).

- Chapters 5 and 6: Design and Implementation. The conclusions of your analysis section should lead through to the design and implementation phase. Explain the stages of design and implementation. Refer back to your material from chapters 3 and 4 and JUSTIFY why you designed each stage as you did (you may wish to number the sub sections in the report to make it easier to refer to earlier sections). Don't include too many of your own final thoughts and conclusions here just present all the facts used, and discuss the decisions you took. You can include sample images and screen shots in the main text if you refer to them in your explanation. Only put data and images in the Appendix if it is not necessary for the report reader to look at these.
- Chapter 7 This may be for writing up the testing. Justify your approach to testing: why you chose your methods, what they were to prove, how conclusively you thought they might test your system. Just give extracts of testing in your report. Don't give every test screen - just a sample - and annotate them with comments showing the reader what they should see, and what should be concluded from the results.
- Chapter 8 - This is VERY important, and should take a fair amount of your time. Your conclusions show us how deep you have managed to understand the project material.

This section is for your thoughts, conclusions and personal observations. Comment on how effective your methods were. What would you do differently next time? What additional work could be done (future work) if time allowed?

Remember the above are indicative contents. You should consult your supervisor about the ACTUAL contents of the report.

Appendix D: Request for Project Supervision Form

Department of Computer Science - Request for Project Supervision 2017–2018

Instructions

1. You will find a word document file of this form under the tab on the Blackboard Module site identified as “Project Supervision Form”
2. Fill in all of **Section A**, **only if you have agreed with a member of staff on a project.** Make sure you obtain your supervisor’s approval and provide the “provisional” title of your project.
3. Fill in **Section B**, only if you have not agreed with a supervisor on a specific project. In this case, also make sure you also fill in your details (name, ID, course) in Section A.
4. Submit a copy of this form, through the link provided under the same tab on Blackboard. **PLEASE DO NOT SEND THIS VIA EMAIL ATTACHMENT.**

The link for submission will appear thus:



Submission of Request for Project Supervision Form

Deadline: **Friday 6th October 2017, 10.00am**

Section A – Final Year Project (all courses)

Provisional Project Title:

To be agreed with the Supervisor

Supervisor name:

Date agreed:

{by completing the above I hereby confirm that I have explicitly received confirmation that the member of staff has agreed to supervise me and has accepted my intended title}

Please add an appendix (cut and paste) to the end of this form of any corresponding email confirming this agreement.

The following to be completed for both Sections A and B of this form

Student name:

Student ID:

Course Name and Code:

Student email address:

Student contact telephone number:

Section B – Final Year Project (all courses)

Please number with 1, 2, 3 (in order of preference) **up to three choices only**, indicating the preferred areas of interest for your final year project.

| <i>Project Theme (main area of interest)</i> | <i>Order of preference</i> |
|--|-----------------------------------|
| Artificial Intelligence and Knowledge Base Systems | |
| Applications (mobile devices) | |
| Applications (other) | |
| Business, Marketing Analysis and Strategies | |
| Business Communication Systems | |
| Data Analytics | |
| Database Design and Development | |
| Decision Support Systems and Modelling | |
| Gaming and Graphical Representations | |
| E-Business and E-Commerce applications and development | |
| Interactive Design | |
| Human Computer Interactions and Usability | |
| Learning and Education | |
| Methods and Methodologies | |
| Operations Management and Process Design | |
| Programming Languages | |
| Social Media | |
| Security and Forensics | |
| Systems Analysis and Cloud Computing | |
| Systems Modelling and Software development | |
| Web Applications and Web Development | |
| Other: (please specify) | |

Note: for your information, the above main areas of interest, is a simplified overview of typical areas for a themed topic, that your project may be identified with. A more detailed theme of your project could finally be based around a project domain, developed from one of the areas listed on the next page.

Please make a choice of your preferred supervisor. Details of staff availability and their areas of interest together with some specific projects may be found separately on Blackboard identified as “Areas of Interest for Academic Staff”.

| <i>List your choice of supervisor here in order of preference (up to three choices only)</i> | <i>Supervisors name</i> |
|---|--------------------------------|
| 1 st preference choice of supervisor | |
| 2 nd preference choice of supervisor | |
| 3 rd preference choice of supervisor | |

Please add further clarification about your choice of project in a short sentence. You may include some of the detailed areas listed on the next page here if this helps identify your intended areas of interest:

3D graphics; AR gaming; Artificial intelligence; Artificial life Automated Reasoning (proof search techniques and their implementation); Bioinformatics; C++; Chemometrics; Client-side web applications (JavaScript); Cloud Computing ; Component-based Design; Component-based soft- ware applications; Computer Security; Computer vision; Concurrency; Data Integration, In- formation Retrieval, Collaborative Systems; Data Mining and Knowledge Discovery; Data/Knowledge Engineering and Algorithms; Decision support systems (prediction models/pattern recognition) in Food Data Analysis; Desktop and Service Grids; Distributed Applications and Computing; E-commerce; E-learning; Educational Technology; Educational applications; Evolutionary computing (genetic algorithms, genetic programming); Financial Forecasting; Forensics; Formal Methods; HCI (application of theories and methods on multimedia applications); Human Computer Interaction; Intelligent and adaptive control; Intelligent Agents/Multi- Agent systems; Interaction Design; Intelligent Web; Interactive Learning Environments; Java; Large Scale Programming and Software Development; Learning technologies (design and development); Linguistics Forensics; Mac OSX development; Machine learning; Medical therapy and recovery monitoring; Mobile Application Development (iPhone, iPad, Android); Mobile Web; Modelling and Classification problems (using neural networks, fuzzy systems, and hybrid schemes, support vector machines); Models of programs (formal specification); Natural Language Processing; Natural Language Understanding; Network performance measurement and monitoring; Neural networks; Ontology Engineering and Ontology based Reasoning; Operating Systems; P2P applications; Parallel Computing (GPU, etc.); Physical modelling of systems; Platform games; Query Languages and Search Engines; Real-time applications; Robotics; Semantic Systems; Engineering; Semantic Web Signal and Image processing analysis (medical applications); Soft Computing; Algorithms and Methodologies; Software Engineering (based on Java, C++, Python); Software Engineering (other); Software tools; Usability; Use of gpus in security and forensics; User-Centred Design Web Accessibility; Knowledge Representation; Web Systems Engineering; Web Services using SOAP, XML, etc.; Web-based applications (ASP, PHP with Databases and Ajax); Web-based applications and computing; Windows development.

As you begin to develop your ideas with the help of your supervisor, you will become more specific and gravitate towards one of the subjects above.

Appendix E: Assessment Specifications and Marking Forms

Contained in the following pages are the marking forms used in the assessment of your project work. You will see that there are two summative components of work. Firstly, there is the Project Initiation Document (PID), and secondly, the Final Project Report (FPR). The weighting for these components are 10% and 90% respectfully. In addition, here you will find the criteria used as a basis to assess your work – indicative Project Assessment Threshold – which is an elaboration of the table initially indicated in your Module Proforma for the Final Year Project Module.

Criterion based marking is to be used in your project assessment, whereby each area will be indicated with a grade relating to how this is judged to reflect an equivalent degree classification. You will notice that each section does not have its own weighting. This is intended and is because different projects may have a different emphasis on each section whereby some are more important to others depending upon the project type and problem domain. If you are in any doubt, your supervisor will help you decide the important areas of your project and how this will relate to the assessment forms.

In addition, the items identified in the assessment criteria for the IPR maybe found in the module proforma, identified under the sub-heading Project Initiation Document (PID); the items identified in the FPR are identified as the Learning Outcomes as indicated in the Module Proforma.

PROJECT ASSESSMENT FORM FOR PROJECT INITIATION DOCUMENT

| | | | |
|----------------|--|----------------|--|
| Student Name: | | Student Id: | |
| Project Title: | | | |
| Supervisor: | | Second Marker: | |

Guide for the assessment of the student's overall achievement. Note that the degree of suitability of the project choice and consideration of how well the project, if executed satisfactorily, will fulfil the Learning Outcomes as identified in the Module Proforma should be taken into account here.

ASSESSMENT CRITERIA:

| | |
|---|---|
| 1 Identification and justification of project aims and objectives that are related to the project. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| 2 Identification and discussion for the scope of the project. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| 3 Identification and discussion of the project problem. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| 4 Identification of activities and sources required to satisfy initial investigation relating to related works and literature review. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|---|---|
| 5 Identification and reasoning of initial list of requirements from initial project investigation. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| 6 Supporting Project Plan indicating and detailing activities, timescales and deliverables. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|---|---|
| ETHICS CHECKLIST Has the student completed satisfactorily the Ethics Questionnaire form. | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Comments (if any): | |

| | |
|---|---|
| Overall assessment of the Project Initiation Document. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Final Mark for Project Initiation Document | |

| Comments |
|--|
| (Please add any further comments on the general aspects of the Project Initiation Document and give brief reasons why the submission should be in the grade range you give in the previous section and not above or below it). |

Signature:

Date:

PROJECT ASSESSMENT FORM FOR REPORT BEFORE VIVA

| | | | |
|----------------|--|----------------|--|
| Student Name: | | Student Id: | |
| Project Title: | | | |
| Supervisor: | | Second Marker: | |

Guide for the assessment of the student's overall achievement. Note that the degree of challenge, in terms of complexity of the problem and its solution should be taken into account.

Note: LO6 and LO9 are included in the Project Assessment Form After Viva

ASSESSMENT CRITERIA:

| | |
|---|---|
| LO1 Select, justify and apply appropriate methods, techniques and tools for tackling the problem related to the project. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| LO2 Collect and analyse the requirements of the project using appropriate techniques and tools. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| LO3 Develop a project plan that schedules their own activities and time within the given timescale. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| LO4 Research and collate relevant information on a given topic from various sources and critically evaluate the findings. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| LO5 Analyse a complex task, carry out the activities involved in its investigation. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| LO7 Identify and take account of any legal, social, ethical or professional issues relevant to the project topic. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| LO8 Produce a well-structured and coherent report which documents and critically evaluates the work carried out, the new skills which have been acquired and the effectiveness of the project plan. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | | |
|--|--|--|
| Overall suggested assessment of the project (based on the report) | <input type="checkbox"/> Fail (0 – 29) | <input type="checkbox"/> 2:2 (50 – 59) |
| | <input type="checkbox"/> Re-assess (30 – 39) | <input type="checkbox"/> 2:1 (60 – 69) |
| | <input type="checkbox"/> Pass (40 – 49) | <input type="checkbox"/> 1st - excellent (70-79) |
| | | <input type="checkbox"/> 1st - exceptional (80+) |

Comments

(Please add any further comments on the general aspects of the project report and give brief reasons why the project should be in the grade range you give in the previous section and not above or below it).

Signature:

Date:

PROJECT ASSESSMENT FORM AFTER VIVA

| | | | | |
|----------------|--|-------------|--|---------------------------------------|
| Student Name: | | Student Id: | | OVERALL FINAL PROJECT MARK |
| Project Title: | | | | |
| Supervisor: | | Moderator: | | |

Guide for the assessment of the student's overall achievement. Note that the degree of challenge, in terms of complexity of the problem and its solution should be taken into account.

| | |
|--|---|
| LO6 High technical difficulty and a challenging project. Significant development of existing skills. Significant development of new skills. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

| | |
|--|---|
| LO9 Demonstrate and defend their work at a viva voce examination. | <input type="checkbox"/> Fail (0 – 29) <input type="checkbox"/> 2:2 (50 – 59) <input type="checkbox"/> Re-assess (30 – 39) <input type="checkbox"/> 2:1 (60 – 69) <input type="checkbox"/> Pass (40 – 49) <input type="checkbox"/> 1st - excellent (70-79) <input type="checkbox"/> 1st - exceptional (80+) |
| Comments (if any): | |

Report brought forward

Overall Grade (using criterion marking) brought forward from report assessment form before viva

(indicated with ✓)

| | Fail | Reassess | 3rd | 2.2 | 2.1 | 1st |
|------------|------|----------|-----|-----|-----|-----|
| Supervisor | | | | | | |
| Moderator | | | | | | |

Overall Comments and Feedback

Please comment briefly on the general aspects of the project;

Give reasons to justify your mark and explain why the mark should not be in the grade range above or below the suggested one – this is particularly important if the mark is borderline;

If your final assessment of the project following the viva is significantly different than the assessment of the work after reading the project report but before the viva please explain the reasons.

Supervisor

Moderator

Signature of Supervisor:

Date:

Signature of Moderator:

Date:

Appendix A to Project Assessment Form After Viva - Reassessment

This section should be completed by the supervisor if the assessors award a mark in the reassessment range, 30-39%. Please explain below the work that the student is required to perform in order to achieve a pass. In addition, please indicate if the student should attend for a new viva.

The following section should be completed for the student's resubmitted report and/or attendance for a new viva (if it was required).

Reassessment Result:

OVERALL RESULT FOLLOWING REASSESSMENT AND NEW VIVA:

Signature of Supervisor:

Date:

Signature of Moderator:

Date:

Project Assessment Threshold Criteria

| Grade | Indicative meaning |
|--------|---|
| 90-100 | <p>LO1 – LO9. The project is complete, with major critical additions by student. An exemplary piece of work carried out to an extremely high professional standard. Work shows an extremely deep understanding of the problem and evidence of highly creative and original thought is evident throughout. Publishable project.</p> <p>LO1. Exemplary work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Exemplary work demonstrated in the elicitation of the requirements of the project. Exceptionally clear analysis and specification of the problem being solved demonstrated.</p> <p>LO3. Exemplary work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale.</p> <p>LO4. Exceptionally coherently presented background research interleaved with student's own creative commentaries and constructive criticisms of broader issues and related literature to the project. Student is able to present very challenging and complex background material in a precise and logical, yet concise manner.</p> <p>LO5. Exceptionally well presented design and high-level structure of the software produced. Comprehensive and well-grounded justification of the main design decisions. Exhaustive testing of the software supported with personal comments for the requirements of the specific tests.</p> <p>LO6. Very high technical difficulty and a very challenging project. Exceptional development of existing skills. Exceptional development of new skills.</p> <p>LO7. The student has demonstrated an exceptional understanding and wider consideration to legal, social, ethical and professional issues that relate to the project.</p> <p>LO8. Exceptionally well-written and well-organised professional report. All main themes and issues are clearly identified and presented in a professional way. Exceptionally clear appraisal of the project, including clear well-structured conclusions.</p> <p>LO9. The student demonstrated a very deep understanding of both the theory and the related practical material in the viva. The software produced is exceptional, with novel and original features. The software is stable and robust and has excellent performance.</p> |
| 80-89 | <p>LO1 – LO9. The project is complete, with major critical additions by student and shows that s/he can work on this subject quite independently in a research environment. An outstanding piece of work carried out to a high professional standard.</p> <p>LO1. Outstanding work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Outstanding work demonstrated in the elicitation of the requirements of the project. A very clear analysis and specification of the problem being solved demonstrated.</p> |

| | |
|-------|--|
| | <p>LO3. Outstanding work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale.</p> <p>LO4. Outstanding coherently presented background research. Student is able to demonstrate an outstanding critical analysis of broader issues and related literature to the project.</p> <p>LO5. Well presented design and high-level structure of the software produced. Comprehensive and well-grounded justification of the main design decisions. Exhaustive testing of the software.</p> <p>LO6. A technically difficult and a challenging project. Excellent development of existing skills. Excellent development of new skills.</p> <p>LO7. The student has demonstrated an excellent understanding and wider consideration to legal, social, ethical and professional issues that relate to the project.</p> <p>LO8. An excellent well-written and well-organised report. All main themes and issues are clearly identified and presented. Exceptionally clear appraisal of the project, including clear well-structured conclusions.</p> |
| 70-79 | <p>LO1 – LO9. The project is complete, with major critical additions by student. An excellent piece of work carried out to a very high standard.</p> <p>LO1. Excellent work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Excellent work demonstrated in the elicitation of the requirements of the project. A very clear analysis and specification of the problem being solved demonstrated.</p> <p>LO3. Excellent work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale.</p> <p>LO4. Excellently coherently presented background research. Student is able to demonstrate an outstanding critical analysis broader issues and related literature to the project.</p> <p>LO5. Clearly presented design and high-level structure of the software produced. Well- grounded justification of the main design decisions. Exhaustive testing of the software. The software has all the required and expected features. The software is stable and robust and has excellent performance.</p> <p>LO6. High technical difficulty and a challenging project. Significant development of existing skills. Significant development of new skills.</p> <p>LO7. The student has demonstrated an excellent understanding and wider consideration to legal, social, ethical and professional issues that relate to the project.</p> <p>LO8. A well-written and well-organised report. Main themes and issues are clearly identified. Very clear appraisal of the project, including clear well- structured conclusions.</p> <p>LO9. The student is competent in technical matters and understands the theory as demonstrated in the viva. The student is able to solve own problems independently.</p> |
| 60-69 | <p>LO1 – LO9. The project is complete, with some critical additions by student. A very good piece of work carried out to a very good standard.</p> |

| | |
|-------|--|
| | <p>LO1. Very good work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Very good work demonstrated in the elicitation of the requirements of the project. A good clear analysis and specification of the problem being solved demonstrated. Well-written analysis and specification of the problem being solved. However, the specification is not always sufficiently detailed.</p> <p>LO3. Very good work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale.</p> <p>LO4. Very good coherently presented background research. Student is able to demonstrate an outstanding critical analysis broader issues and related literature to the project. Background research present, although at times the presentation lacks coherence. Some lacking in breadth of literature review.</p> <p>LO5. The high-level structure of the software produced and its design are clearly presented. Main design decisions are described, but some justifications are not convincing. Testing of the software almost complete</p> <p>LO6. A moderately technically difficult and a challenging project. Good development of existing skills. Good development of new skills. Has needed some help by supervisor.</p> <p>LO7. The student has demonstrated a good understanding and wider consideration to legal, social, ethical and professional issues that relate to the project.</p> <p>LO8. Well-written and well-organised report. Main themes and issues are clearly identified. Clear appraisal of the project, although the conclusions are not clearly structured.</p> <p>LO9. The student demonstrated an understanding of the practical material in the viva but not of the all the theoretical aspects. The software has almost all the required and expected features. The software has good performance and is mostly stable and robust.</p> |
| 50-59 | <p>LO1 – LO9. The project is complete, with some work above 'textbook' standard. A good piece of work carried out to a good standard.</p> <p>LO1. Good work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Good work demonstrated in the elicitation of the requirements of the project. A clear analysis and specification of the problem being solved demonstrated in most parts. Acceptable analysis and specification of the problem being solved. Both the analysis and specification are not sufficiently well described, but it is still possible to have a relatively clear picture of what has been solved.</p> <p>LO3. Good work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale.</p> <p>LO4. Background research presently well. Most of the relevant background material is adequately presented. At times the presentation lacks coherence. However, the student is able to demonstrate a good critical analysis of broader issues and related literature to the project.</p> |

| | |
|-------|---|
| | <p>LO5. The high-level structure of the software produced and its design are adequately presented. However, they are either too brief. Main design decisions are described, but the justifications are not convincing. Almost adequate testing of the software but with a number of missing minor tests.</p> <p>LO6. A technically sound and a fairly challenging project. Good development of existing skills. Some development of new skills. Has needed some help by supervisor.</p> <p>LO7. The student has demonstrated a fair understanding and wider consideration to legal, social, ethical and professional issues that relate to the project.</p> <p>LO8. Adequately written report. Most of the main themes and issues are clearly identified. Most appraisal issues are addressed but the conclusions are brief and at times not informative. Evidence of critical analysis in a few places.</p> <p>LO9. The student demonstrated an understanding of the practical material in the viva but not the theoretical aspects. The software has acceptable features. The software has acceptable performance and is reasonably stable but not necessarily foolproof or robust.</p> |
| 40-49 | <p>LO1 – LO9. The project is complete, but nothing much above 'textbook'. Overall a fair piece of work but carried out to a minimal standard but sufficient to pass without further work.</p> <p>LO1. Fair work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Fair work demonstrated in the elicitation of the requirements of the project. A fair analysis and specification of the problem being solved demonstrated in some parts. Both the analysis and specification are not sufficiently well described, and even though it is possible to understand what has been solved in broad terms, a clear picture is missing.</p> <p>LO3. Fair work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale.</p> <p>LO4. Background research presented basically. Some relevant background material is poorly presented (or is absent). Student is able to demonstrate a basic critical analysis broader issues and related literature to the project in part. Not very original.</p> <p>LO5. Main design decisions are described, but lacking in justification provided. Some testing of the software but lacking.</p> <p>LO6. Technically fair and a but not too challenging a project. Minor development of existing skills. Minor development of new skills. Has needed significant help by supervisor.</p> <p>LO7. The student has demonstrated some understanding and wider consideration to legal, social, ethical and professional issues that relate to the project. However, some of these may be underdeveloped.</p> <p>LO8. weakly written in part, but still acceptable report. Some of the main themes and issues are not adequately identified. Poorly presented appraisal. The conclusions are brief and mostly non-informative evaluation includes few points but little critical analysis. Some quality work but insufficient in quantity. All sections are covered just competently.</p> <p>LO9. The student demonstrated an understanding of the practical material in the viva but not the theoretical aspects. The software has minimal to adequate features. The software is possibly weak but not entirely</p> |

| | |
|-------|--|
| | unacceptable, it tends to instability (not entirely) and lacks robustness in part. |
| 30-39 | <p>LO1 – LO9. The project is incomplete and the student has submitted work but cannot evaluate sufficiently. There is at least one section (specification, research, implementation, evaluation) that needs major reworking. A piece of work carried out to a standard that slightly underachieves the minimum standard expected but is recoverable.</p> <p>LO1. Insufficient work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project. However, this is recoverable.</p> <p>LO2. Insufficient work demonstrated in the elicitation of the requirements of the project. Insufficient analysis and specification of the problem being solved demonstrated. However, all is recoverable.</p> <p>LO3. Insufficient work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale. More time is required to recover some of the activities.</p> <p>LO4. Background research presentation is very weak (or absent). Student is unable to demonstrate a satisfactory critical analysis broader issues and related literature to the project. Some of the analysis is presented in an incorrect or confusing manner but all is recoverable.</p> <p>LO5. Some of the main design decisions are weakly described. Testing of the software very incomplete (or minimal) with many missing test cases but recoverable.</p> <p>LO6. Insufficiently technical or challenging a project as presented but recoverable. Weak in development of existing skills. Development of new skills weak. Has needed significant help by supervisor However, all this is recoverable.</p> <p>LO7. The student has not demonstrated sufficiently an understanding and wider consideration to legal, social, ethical and professional issues that relate to the project but this is considered recoverable.</p> <p>LO8. Weakly written, and partly incoherent report. Only a few main themes and issues are clearly identified but recoverable. Appraisal is either incorrectly presented or minimal and needs to improve. The conclusions are non-informative and some are wrong as currently stated.</p> <p>LO9. The student demonstrated a weak understanding of the work and was unable to explain sufficiently parts of it in the viva. The software has inadequate features. The performance is weak and the software is unstable.</p> |
| 20-29 | <p>LO1 – LO9. A piece of work carried out to a standard that fails to achieve the required standard. The project is significantly incomplete. The project but made very weak effort for a major piece of work and is probably closer to a submitted coursework.</p> <p>LO1. Significant omissions in work shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Significant omissions in work demonstrated in the elicitation of the requirements of the project. Significantly poor in analysis and specification of the problem being solved.</p> |

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| | <p>LO3. Poor work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale. Insufficient time to recover in remaining part of academic year.</p> <p>LO4. Background research presentation is extremely weak (or absent). Student is unable to demonstrate sufficiently any critical analysis of broader issues and related literature to the project.</p> <p>LO5. Most of the main design decisions are not described. Testing of the software too incomplete or not present. Appraisal is virtually non-existent.</p> <p>LO6. Significantly low technically or non-challenging a project as presented. Hardly any development of existing skills. Development of new skills non-significant. Help from the supervisor mostly ignored.</p> <p>LO7. The student has failed to demonstrate any consideration to the wider consideration to legal, social, ethical and professional issues that relate to the project.</p> <p>LO8. Very poorly written, and incoherent report. Significantly low main themes and issues identifiable. Very poorly written and incoherent report. The main themes and issues are not clearly identified. Most background material is not presented. Some of the presented background material contains factual errors. Most of the analysis is incorrect or confusing. The conclusions are non-informative and mostly wrong.</p> <p>LO9. The student demonstrated a poor understanding of the work and was unable to explain parts of it in the viva. The software has considerably fewer features than could be considered adequate. The software is highly unstable.</p> |
| 1-19 | <p>LO1 – LO9. A piece of work carried out to a standard that fails to achieve the required standard significantly. The project is significantly incomplete. Misunderstood point of what the student had to do. The effort is closer to a bad coursework.</p> <p>LO1. Significantly poor work is shown in demonstrating the selection, justification and the application of appropriate methods, techniques and tools in tackling problems relating to the project.</p> <p>LO2. Significant omissions in work demonstrated in the elicitation of the requirements of the project. Significantly poor in analysis and specification of the problem being solved.</p> <p>LO3. Significantly poor work displayed in project management developing a project plan that scheduled the student's own activities and time relating to the project activities and timescale. Insufficient time to recover in remaining part of academic year.</p> <p>LO4. Background research presentation is of no real value to the project. Student is unable to demonstrate any critical analysis of broader issues and related literature to the project.</p> <p>LO5. The main design decisions are not described. Testing of the software too not present. Appraisal is non-existent.</p> <p>LO6. Insufficiently technical or challenging a project. No development of existing skills. No Development of new skills. Help from the supervisor ignored or not sought.</p> <p>LO7. The student has significantly failed to mention any of the wider consideration to legal, social, ethical and professional issues that relate to the project.</p> |

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| | <p>LO8. Very poorly written and incoherent report. The main themes and issues are not identified at all. Most background material is not presented. Most of the presented background material contains factual errors. The analysis is incorrect or confusing. Main design decisions are not described. Testing of the software too incomplete or not present. No appraisal. No conclusions, or the conclusions are wrong.</p> <p>LO9. The student demonstrated a poor understanding of the work and was unable to explain parts of it in the viva. The software does not do almost anything useful and has almost no appropriate features, if any.</p> |
| 1 | In cases of proven plagiarism to indicate attempt |
| 0 | Only in cases of non-submission |