

MODULE HANDBOOK

COMP1682 – Undergraduate Project

2023 – 2024

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1 Welcome message from your Module Leader

Your final year project is an extended piece of work on a topic of your own choice related to your degree programme. Working on your project will provide you with an opportunity to demonstrate your ability to work independently on a major implementation that builds on your established knowledge, understanding, and skills. It serves as a culminating intellectual and academic experience that enables you to combine the concepts, knowledge, and skills gained throughout the past two years of your degree programme.

You should develop a real-world working culture while working on your project and will build a set of professional skills that are highly valued by prospective employers, which will ultimately serve you well throughout your career. The project is not only a requirement of your degree but also an opportunity to demonstrate to prospective employers that you are more than just a candidate with the necessary academic qualifications. It shows you have experience working on a practical endeavour, as well as your ability to pursue a complex issue and see it through, which demands professionalism, work ethic, and perseverance.

The project is the final part of your undergraduate degree programme. It is **worth 60 credits** (*half of the credits of your final year*) **and it is a major undertaking that can require up to 600 hours of work to complete.** You will be allocated a supervisor who will guide and advise you in your work.

This handbook provides essential information about this module including the aims and learning outcomes, the schedule of teaching and learning activities, assessment tasks, resource recommendations, and, if applicable, any additional resources that you will need. Please read it at the start of the term so you are aware of key details and important dates.

2 Key contacts (academic queries)

Projects Coordinator

Yasmine Arafa

Location: QM410

e-mail: Y.Arafa@greenwich.ac.uk

Office Hours: Tuesdays 12:00-13:00 or by appointment

Computing and Business Computing Projects:

BSc (Hons) Computing, BSc (Hons) Business Computing, BSc Computing (Network Systems, BSc Computing (Information Systems)

Keeran Jamil (Programme Lead)

Location: QM330

e-mail: K.Jamil@greenwich.ac.uk

Office Hours:

Computer Science, Computer Security & Forensics, Software Engineering Projects:

BSc (Hons) Computer Science, BSc (Hons) Computer Security and Forensics, BSc (Hons) Computer Science (AI), BSc (Hons) Computer Science (Cyber Security), BSc (Hons) Computer Science (Data Science), BSc (Hons) Computer Science (Games), BSc (Hons) Computer Science (Networking) , BEng (Hons) Software Engineering

Peter Smith (Programme Lead)

Location: QM333

e-mail: P.A.Smith@greenwich.ac.uk

Office Hours:

3 Module details and learning outcomes

Host faculty: Faculty of Science and Engineering

Host school: School of Computing and Mathematical Sciences

Number of credits: 60

Term(s) of delivery: Term 1 & 2

Site(s) of delivery: Greenwich

Pre-requisite modules: To have passed Level 5 of registered degree programme.

Co-requisite modules: None.

Aims:

The aims of the module are to:

- Provide an opportunity to research, specify, design, implement and test a software product to an appropriate level of professional competence.
- Encourage you to critically evaluate the work of others and relate it to your own work where appropriate.
- Develop your ability to create, plan, organise and work independently on an appropriate product, drawing on and extending ideas, skills and techniques encountered during the programme of study.
- Develop your ability to appraise critically, by means of a written report, the product and the process of its production as well as lessons learnt during the course of the project.
- Develop your ability to critically evaluate the work of others and relate it to your own work where appropriate.
- Develop your ability to critically appraise your own academic, creative, and technical practice, by means of a written report, the product outcome, and the process of its production.

Learning Outcomes:

On successful completion of this module, you will be able to:

- A. Produce a formal Project Proposal including a critical justification for the project and an appropriate set of objectives and estimates for the project.
- B. Critically evaluate and use appropriate project management tools and techniques to plan, organise, schedule and control the project.
- C. Undertake a critically evaluative and appropriate literature search, using a variety of sources and methods for collecting reference material.
- D. Carry a software development project through to a logical conclusion.
- E. Document a project with evidence of appropriate research, development methodology, technical documentation, and critical reflection on progress and response to changing circumstances.
- F. Satisfy any professional requirements specific to your degree programme.

Glossary:

Aims	define the overall educational purpose of the module.
Co-requisite Module	is one that must be taken alongside this module.
Pre-requisite Module	is one that must have been completed successfully before taking this module.
Learning Outcome	is a subject-specific statement that defines the learning to be achieved through completing this module.

4 Employability

You should develop a real-world working culture while working on your project and will build a set of professional skills that are highly valued by prospective employers, which will ultimately serve you well throughout your career. The project is not only a requirement of your degree but also an opportunity to demonstrate to prospective employers that you are more than just a candidate with the necessary academic qualifications. It shows you have experience working on a practical endeavour, as well as your ability to pursue a complex issue and see it through, which demands professionalism, work ethic, and perseverance.

- You can find out more about the Greenwich Employability Passport at: [Greenwich Employability Passport for students](#).
- Information about the Career Centre is available at: [Employability and Careers | University of Greenwich](#).
- You can also use LinkedIn Learning to gain access to thousands of expert-led courses to support your ongoing personal development. More information can be found at: [LinkedIn learning | IT and library services](#).

5 Schedule of teaching and learning activities

The final year project is essentially student centred with support provided by a supervisor and second marker during tutorial sessions in term 1 and one-to-one sessions in term 2. The resources on Moodle, as well as the project website, are also valuable resources. We will aim to inform you about the project process, course delivery, and assessment methodology, plus the project lifecycle and areas identified by you.

The structure of the project will vary slightly, depending on which area you study, but you will be assigned a tutorial group and two co-supervisors (your supervisor and a second marker) at the start of the year. Your main contact is with your supervisor who is a member of the academic or research staff. They will advise and guide you throughout the course of the project.

In term 1, you will be required to attend a weekly 1-hour lecture and 2-hour tutorial which will involve activities that will help you start your project and enable you to get feedback on your project ideas. In Week 8, you will be required to submit a Project Proposal and give a project pitch, where you will present your project idea to your supervisors and activities to help with areas such as academic writing, research, critical thinking, employability skills and project management. **YOU MUST SUBMIT A PROPOSAL and IT MUST BE ACCEPTED** by your supervisor. The proposal is worth 10% of your total mark and you **CANNOT PROCEED WITH YOUR PROJECT UNLESS IT IS ACCEPTED**.

In term 2, you are required to organise and attend individual meetings with your supervisor to discuss your progress and development. **Your timetable will include scheduled sessions for your weekly/bi-weekly progress/supervision meeting with your supervisor. Attendance at these progress meetings is mandatory and your attendance will be recorded.** This is probably the most critical period for your project, and you must keep in constant contact with your supervisor to ensure you are progressing as expected and your project implementation meets the requirements of programme. After your final submission, you are also required to produce a poster about your project and attend a project viva/demo where you will be expected to present your project deliverables and you will be asked questions about your report and development by your supervisor and second marker.

In addition to the teaching and learning activities within the module, additional study support can be found on the [Academic Skills](#) page.

6 Assessment

Assessment schedule:

First sit assessments	Deadline	Weighting* out of 100%	Mapped LO +
Project Proposal	13/11/23	10	A, C
Initial (Contextual) Report	15/01/24	Formative#	B – E
Final Report and Product Code	22/04/24	90	B – F
Viva/Demo (poster+)	25-26/04/24		

*The weighting refers to the proportion of the overall module result each assessment task accounts for. +LO refers to learning outcomes. #Assessment carries no weighting, and you will receive feedback. +Dependant on degree programme.

Your Assessment Brief:

Project Proposal:

The project proposal is a document that details the proposed problem/topic of investigation and acknowledges related Legal, Ethical, Social and Professional issues (LESPI). The purpose of the proposal is to ensure you have a sufficiently scoped project that

meets the requirements as agreed with your supervisor. It must provide sufficient rationale for the project, which may include an indication of why the project is of interest, a preliminary investigation into the concepts, theory and current research available to underpin the project, and some indication of what methods might be adopted to implement and evaluate the project. The proposal should also outline a clear project aim (what the project will produce) and a set of realistic objectives, including a brief exposition of how these objectives will be met.

Initial (Contextual) Report:

The aim of this report is to inform your supervisor of the current project status and to review the feasibility of the project and objectives. The report should give a summary of the overall project status in terms of research and development. Typically, at this stage, you will have completed your research, and system modelling/design and are well on your way with your development. The report should include a first draft of the literature review and an indication of your technical design/specifications. This deliverable does not carry any mark weighting, but it is a requirement and an opportunity for you to receive formative feedback and support, which will help you improve your work.

Final Report and Product Code:

The final submission is an upload of your product along with a project report of 10,000-12,000 words. The report is a comprehensive technical report detailing the results of your research, implementation, and evaluation. The product is the code you developed for your implementation (might also include an executable file or a Jupyter Notebook or equivalent).

Assessment Criteria

There are two components in assessing the project:

- **The product**, which is uploaded as a zip file by the project submission deadline, and should be demonstrated at a scheduled time (viva/demo). **The demo is mandatory, and you WILL FAIL the module if you do not attend the demo.**
- **The report**, which is uploaded as a pdf file by the project submission deadline. The marking scheme for these two components can be found in [Appendix A](#).

Deliverables

The deliverables for the project are:

- A project pitch, together with a formal project proposal
- Demonstration of initial software templates, together with the initial report
- Final demonstration of software and findings, together with an upload of the final report.

You are expected to devote approximately 600 hours to a project. The final project report should be between 10,000 and 12,000 words and you must demonstrate an appropriate command of the rules of report layout, spelling, punctuation, grammar, syntax, and due regard to the use of figures, diagrams, and references. Where this does not take place, the mark awarded will reflect this.

The purpose of the demonstration is to allow your supervisor and the second marker to see the product running, confirm your understanding and authorship, to help them visualise the product when they read through your description of it in the project report. **Please note that the demonstration is compulsory. Failure to attend your scheduled Final Year Project demonstration will result in failing the entire COMP1682 module.**

Consult the marking scheme ([Appendix A](#)) to confirm what you will be assessed on, for both the demonstration and final report.

Important note: The reports and code are marked based on the understanding that it is the student's own work on the module and that it has not, in whole or part, been presented elsewhere for assessment. Where material has been used from other sources, this must be properly acknowledged in accordance with the [University's regulations regarding Assessment Misconduct](#).

Marking, feedback and next steps

To pass this module, you must achieve an overall mark of 40+ you **must achieve an overall mark of 40%+** for all assessments. The marks and **feedback will normally be provided within**

fifteen working days of the submission deadline. In exceptional circumstances, where there is a delay in providing feedback, you will be informed by the module leader.

If you do not pass a module at the first attempt, you will likely be eligible for a resit opportunity on the failed assessments. The Progression and Award Board (PAB) will decide whether you will be offered an opportunity to resit. Note that marks on resit assessments are capped at 40% unless extenuation has been applied for and granted.

For further details on resit assessments, please see the section on [Resit Assessments](#) below. The assessment and feedback policy can be accessed at [Assessment and Feedback Policy](#).

Moderation

Submitted student work is moderated by an academic moderator before the marks for an assessment are released. The purpose of moderation is to evaluate the overall standard of assessments on the module, and the quality of marking and feedback provided.

The moderator is unable to correspond with individual students about their work. If you need to discuss your marks and/or feedback, please contact your lab tutor in the first instance and the module leader if necessary.

Academic skills support

In addition to the teaching and learning activities within the module, additional academic skills support, guidance, and resources are available at the following links:

Academic and Digital Skills support - <https://www.gre.ac.uk/academicskills>

Academic Integrity - <https://libguides.gre.ac.uk/courses/integrity>

Guidance on use of AI – <https://docs.gre.ac.uk/rep/information-and-library-services/ai-guidance>

The IT handbook for new students - <https://docs.gre.ac.uk/rep/information-and-library-services/student-booklet>

Strong academic skills will help you to act with academic integrity, honesty, and trust. These are the values on which academic achievement at the University of Greenwich is based. As a

student, you are expected to take responsibility for the integrity of your own work, including asking for clarification where necessary. Any improper activity or behaviour which may give you an academic advantage in assessment is considered to be assessment misconduct. Allegations of assessment misconduct will be considered under the University's Assessment Misconduct Procedure and may result in a penalty being imposed. More information about this procedure can be found at [Assessment Misconduct Procedure](#).

Extenuating circumstances

The University recognises there are times when matters that are unexpected and beyond a student's control will impact on their performance and ability to complete assessments within the specified timeframe. Examples include unforeseen illness, a death in the family, or injury. Guidance on submitting an extenuation claim can be found at: [Extenuating circumstances](#).

If you have a disability, specific learning difficulty, for example dyslexia, a long-term medical condition or a mental health condition which might affect your studies and assessments, and you have not already done so, then we advise that you seek support from the Student Wellbeing Service by contacting wellbeing@gre.ac.uk in the first instance

Student Support

The University offers a range of support services including health and medical services, a chaplaincy, disability and dyslexia support, and mental health & wellbeing support. Support can be accessed at [Student Support | Support and Wellbeing](#).

External Examiners

The External Examiners for this module are:

Name: Ameer Al-Nimrat

Name: Yasmine Rosunally

Institution: University of East London

Institution: University of West England

Please note that the role of the External Examiner is to evaluate the overall standard of assessments on the module. They are unable to correspond with individual students about their work. If you need to discuss your marks or feedback, please contact the module leader.

7 Resit assessments

Assessment schedule:

Resit assessments	Deadline	Weighting* out of 100%	Mapped LO +
Project Proposal	12/07/24	10	A, C
Final Report and Product Code	12/07/24	90	B – F
Viva/Demo (poster+)	15-19/07/24		

*The weighting refers to the proportion of the overall module result each assessment task accounts for. +LO refers to learning outcomes. #Assessment carries no weighting, and you will receive feedback. +Dependant on degree programme.

Assessment Brief and Criteria:

The same marking criteria outlined for the first sit assessments apply to the resit.

8 The Role of the Supervisor

What is the role of the supervisor?

It is to advise, guide, criticise and encourage you through the project process, but it is not to direct the work unless the work contributes to a larger research project.

The tasks the role encompasses are to:

1. Approve the project proposal when it meets the associated programme's criteria.
2. Agree on the supervision structure and the associated time allocation.
3. Discuss a general project strategy and approve the outline project plan.
4. Discuss possible avenues for literature search.
5. Discuss possible research methods, if applicable.
6. Discuss/advise on hardware/software and liaise with support staff, if applicable.
7. Offer advice on progress and warn of major problems.
8. Agree with you and the second marker on a convenient time for the presentation.
9. Be the first marker and complete the development and final assessment forms.

What you may expect, but is NOT within the supervisor's role:

1. Rewrite/finalise your project proposal.
2. Tell you what to do.

3. Edit/rewrite drafts, write the software, or configure the hardware.
4. Provide detailed feedback when you submit late without an agreed extension.
5. Give detailed feedback on the summary, conclusions, and evaluation.
6. Perform intermediate plagiarism detection.
7. Negotiate on your behalf for an extension. These are the same as for all pieces of assessed work and are dealt with via the School's policy for extensions and application for extenuating circumstances.

What happens to the supervision role over the holiday period?

In doing your project, you must be able to take personal responsibility and minimal supervision is required. However, in the case of students re-sitting the project, the School of Computing & Mathematical Sciences will provide staff throughout the summer period to provide 'immediate support'. You must agree with your supervisor when and how they may be contacted over the holiday period.

9 The Project Development Process

A. Getting Started and Choosing a Project

i. Selecting a Project Topic

Your final year project is probably the largest individual piece of work that you will complete while studying with us for your undergraduate degree. It is vitally important that you choose a project which is appropriate to your skills and abilities, achievable within the limited time available, and of interest to you. A list of topics suggested by academic staff in your area of study is available, and you are strongly encouraged to select from among those. These topics are derived from staff research expertise, and you are most likely to receive the best support if you choose from that list.

ii. Choosing an Appropriate Project

Your project must reflect the programme of study that you are following. If it does not, then you will be in danger of getting a low mark, if not failing your project altogether. The weekly sessions will help guide you develop your ideas and interests into a suitable project proposal.

Please note that even when choosing from among the topics proposed by staff, the actual project you will carry out is defined by you in its detail and must be agreed upon with your supervisor. **A good project will begin by clearly identifying a question to be answered or a problem to be solved.**

Your project must contain an element of investigation or analysis of a problem. **Your project must produce a product** but the development of a piece of software is not the only requirement. Your project will be mainly assessed by the report that you produce at the end of your project.

Your report will contain the following:

- A description of your project aim and objectives.
- Review of relevant literature, analysis of data collected to establish appropriate criteria for the project.
- A description of the modelling/design/implementation of your solution
- An evaluation and reflection on the work that you have done.

The detail of undertaking your project will be discussed in the project tutorials and you will get guidance from your supervisor, but these issues are worth considering at this stage as you choose your project topic.

iii. Finding a Topic that is of Interest to You

The important thing is that your project is something you feel comfortable about doing, that you have some interest in the topic and that you feel that you can achieve it. You should start with the list of topics that is available by your supervisors in your assigned tutorial group.

These topics can accommodate a wide variety of projects and you should approach your supervisors to discuss them. On the other hand, it might be that you have already decided what your project topic is before the year starts. That is fine and you can discuss this with your supervisors in September.

However, if you are struggling to produce an idea, then here is a simple checklist to help you:

- Start by thinking about the things that interest you or you are associated with in some way.

Ask yourself some or all of the following questions:

- If you work (or you have done an industrial placement), are there any potential projects that you can find there?
- Does a member of your family or a friend work somewhere that needs an application?
- What are your pastimes and hobbies? Do any of these suggest a possible project?
- What are the areas you want to work on to get a job in your chosen career? What would impress a potential employer?
- Is there something that you use every day that you think can be improved?
- Are you a member of a club or association? Do they need an application to be built?
- Can you find any ideas for a project topic by reading trade journals and magazines?
- Can you find a topic that interests you from those suggested by members of staff?

Use all sources available to you to try to come up with some ideas.

- Go through each of the courses that you have studied so far. What topics interest you most from your programme? Can you find any ideas there? Identify a list of keywords for each of the courses you have studied.
- Using the material above, put aside some time to brainstorm (maybe sitting with a friend) and come up with as many ideas as possible. At this stage, it does not matter how silly the idea is but take twenty minutes to write down as many ideas as possible that come into your head. You should end up with a long list of possible projects.
- Go through your list and filter out the ideas which are impossible and try to whittle your list down to three potential projects.
- Using the list of keywords identified, attribute these keywords to each of the project ideas you have selected. If you find that there are no keywords that seem appropriate, then it probably means that your project is not appropriate for your programme, and you might not have the technical skills to complete the project.
- Next, spend a couple of days searching through the material in books, on the internet, in academic papers, in newspapers and magazines and talking to friends and colleagues. (Try using the keywords you identified in earlier in a search engine and see what comes up.)

Write down a summary of what you would want to do for each of the three selected projects. Then take these to the tutorials and discuss them with your supervisors.

iv. Choosing an achievable project

One of the main causes of students failing their project is that they choose one that is either too simple or too complicated. Officially, the project lasts from the end of September to mid-April (although it is useful to start doing background reading as soon as possible). So, you have approximately 6 months, including the Winter and Easter break to complete your project. This is not a very long time, and you should choose your project carefully, considering whether you can complete it within this timeframe.

Your supervisor will advise as to whether the project is appropriate when you meet them at the beginning of your final year. For the time being, consider the following points:

- Do you have to learn any new technologies to complete this project?
- Are all the technologies you require for this project available?
- Do you have the right technical skills to complete this kind of project?
- Will you have to collect any data from external sources? If so, will it be available to you during the time you are completing your project?
- Are there any materials that you require which will be difficult to get hold of?
- How will you evaluate your product? How will you measure the success of your project?

Use the answers to these questions to decide whether you can complete the project in the timeframe. The aims and objectives that you have considered for your project idea should also help in determining whether it is appropriate. If some of them require a considerable amount of work and you cannot guarantee that you can complete them in the timeframe, then it is probably too complicated. If you can complete all the objectives within three weeks, then it is probably too simple.

B. Project Proposal (10% of the Project Mark)

This is the next stage of the project process following on from the project registration. Your Project Proposal is due in Week 6 of Term 1 and will account for 10% of your Final Year Project

mark. Do some preliminary reading. Because most fields of engineering and science, and especially the field of computing, change rapidly, using textbooks alone is not enough; neither is concentrating solely on manufacturers' literature.

You could start with a trade journal, a scientifically or technically oriented general magazine such as Science, Scientific American, IEEE Computer, or Byte, or ask a librarian to guide you to suitable publications in the topic area. The Internet is obviously a good place to start. The INSPEC database is held in the library on CD-ROM and is a very good source of computing journal abstracts.

Alternatively, to get a good grounding in a new topic area, find a good textbook. Decide first, what information to look for. The table of contents, preface, and introduction are a good general guide to the value a book is likely to have.

The following also need to be considered:

- If the project relies on third parties (e.g. employers, clients, University personnel), can they be relied on?
- If a new skill needs to be acquired, how realistic is it that it can be mastered, and what will happen if it can't?
- Can the project scope be changed if it turns out to be too simplistic or complex?
- How will the product be tested? If qualitative testing is used will there be sufficient users for a statistically relevant sample?

The answers to these questions are not easy and guidance may be needed – this will involve the support of your supervisor. The critical determinants of the success of a project are defining its breadth, depth, and supporting resources. The more effort that is done at this stage can often avoid problems later on.

Set measurable objectives. A clear objective is unambiguous – there is no mistaking what you intend to do. There should also be a very clear way of deciding when an objective has been met. The best – the only effective – objectives are those where it is possible to say whether

they have been achieved. By doing so you gain a measuring stick against which to judge everything that occurs during the project.

For each objective, there should be an associated statement that outlines how it will be achieved and how it will be measured once it is completed. For example, if one intended to evaluate types of hardware and then choose one, state how many types it is intended to evaluate and how the criteria will be set. This will produce a set of tasks and then you must decide how manageable each of these tasks is, given one's circumstances and environment.

Use the resulting lists to determine what needs to be done in what order and estimate how long it will take e.g. visit a library, identify, obtain and read the relevant materials all need to be completed before it is possible to write up the literature survey. Similarly assembling the necessary software components must usually be completed before one can begin work on the system. Use the information to construct a project schedule. This should show the schedule of tasks, associated descriptions, and duration in hours per task. A Gantt chart should also be attached. Remember failure to plan, is planning to fail. It is much harder without a detailed plan – as many students will testify.

You will also need to detail all of the resources required to complete the project e.g. hardware, software, and access to data. It should also state whether or not any potential issues may arise, for example, a company may be introducing new software next month but what are the implications if this is deferred for three months.

IMPORTANT: The template for your Project Proposal will vary depending on your degree subject area. Please refer to the electronic resources in Moodle, where you can find the relevant template under the links dedicated to your degree subject area.

C. Ethical Approval

Depending on the topic and type of project you choose, you may need to gain ethical approval before you can start working on your project. More details on research ethics will be

discussed in week 7. Your Programme Leader / Supervisor will provide further instructions on whether and when you need to submit an application. Essentially, you will need ethical approval if you involve human participants/users in any aspect of your project (i.e. data collection, evaluation, etc.).

If you do need ethical approval, you must complete this form. Your supervisor must approve and sign your form before it can be sent to the Faculty Ethics Committee for approval. Please ensure your full application is combined into ONE WORD document, otherwise, this will be returned to you. Your application form will then be sent to fes-ethics@gre.ac.uk by your supervisor. Applications will only be accepted by the committee from supervisors, anything sent by students directly will be returned. **The Ethical Approval form and deadline for submitting is available on the projects Moodle page.**

D. Project Planning

i. Project Milestones and Deliverables

It is expected that your project plan will contain a set of milestones. Milestones are major points in your project work that you must pass to get to your goal. The University sets some milestones such as the dates for the project proposal, initial report, and final report submission.

A deliverable should specify exactly what is to be delivered when some work has been completed. Deliverables include not just identifiable 'software', but also less tangible elements such as books and journals read, notes taken, tests performed, and report drafts written. These should be tied closely to the milestones and hence to the objectives.

ii. Work Plan - Timetable

Once the objectives, tasks, milestones, and deliverables have been written down, they must be arranged in the form of a timetable. Estimate how many hours each task might require and over what period it will be completed. Set a date by which each milestone and deliverable will be achieved (remember some have been pre-set by the University and are non-negotiable). Review this critically to determine whether they are achievable given constraints of time and cost and then produce and maintain a Gantt chart.

E. Literature Review

i. What is the purpose of the literature review?

The literature review has three primary purposes:

“.1 It justifies your project and shows that your project is not merely repeating the work of others, but has a contribution to make, perhaps by identifying a current gap in the literature of your field of study which you intent to fill.

.2 It sets your project within context by discussing and critically evaluating past and current research in your area. Through this contextualization you will identify how your project fits within, and contributes to, wider issues.

.3 It provides other researchers with a starting point from which they can understand how your project evolved and to identify what literature is relevant to your project in order that they can continue where you left off.”

Dawson *“The Essence of Computing Projects”*, 2000

It will also help the student to learn more about the topic area; define previous work in your proposed field and identify significant sources of information in the area you are studying.

When working in isolation it is unlikely one would be aware of other potential solutions to the area under investigation. Therefore, it would not be possible to make any judgments about whether the solution is as effective as other solutions or not.

When completing a Literature Review there are four iterative steps:

- Define the search
- Perform the search
- Evaluate the material
- Write the literature review

The outcome will help to set the context to the problem area and allows you to take an informed and critical viewpoint about the work. This process also has the advantage of preventing the student from reinventing the wheel – use it to see if someone else has already carried out the work being proposed and, if so, is there some way it can be improved upon? You should also establish what kind of literature you are looking for before you start.

The following are various source types you may use:

- Journal articles: these are especially important; they are recent and can give a view of the current state of the art.
- Conference literature: this can be quite good in providing a snapshot of a topic and can give you an idea of current research areas.
- Books: these tend to be the first resort of students anyway and a good book will help the student refine their search and give them the necessary background information.
- The Internet: make sure you find trustworthy sources.

A copy of all articles studied must be kept in case they are needed later in the project process and details of those read should be kept in the logbook with brief notes on each (this is referred to as an annotated bibliography).

ii. Writing up the Results of a Literature Review

The review should provide “a coherent argument that leads to the description of a proposed study” (Rudestam and Newton, 1992) and should not just be a report that lists all the papers and books one has read with brief annotations on each one. It should convey to the reader what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are. It will also demonstrate your capability of:

- information: identifying a set of useful articles and books and scanning the literature efficiently;
- critical appraisal: applying the principles of analysis to identify unbiased and valid studies.

It should appear, at least in abbreviated form, as early as the initial report. It may be fully integrated into the main text of the final report or can appear as a separate chapter. There should be a full list of articles and books that have been consulted in the project reference list.

F. Reports

i. Initial (Contextual) Report

The aim of this report is to inform the supervisor of the current project status and to review the feasibility of the project and objectives. It is important that this procedure concentrates on the key issues and that it requires the minimum of effort on your part. The report should give a summary of the overall project status. It should include a header page and the following sections:

Current Situation

In this section, describe the completed work. This should include an account of the literature survey to date – what books and articles have been consulted and how the material fits in with what one is planning to do.

Review of Objectives

Restate the objectives in your project proposals and discuss any changes.

Project Management

Discuss the project management plan, as stated in your proposal, with any changes.

Problems

The problem areas should describe the critical factors that will affect the meeting of target dates. Now is the time to bring to your supervisor's attention any problems that have arisen so far. This includes problems in obtaining equipment and software – and access to key people. This acts as an early warning system and focuses attention on the matters requiring urgent attention. If it is found that the project scope was too ambitious and some aspect of it needs to be revised, then there is still time to have a chance of completing on time.

Development Method

Discuss the method or framework you'll be using in this project.

Literature Review

See section on [Literature Review](#) above.

Draft Chapter

Create a framework for the main sections of your report and write the preliminary content for these sections.

Key Work over the Next Period

Specify methods, tasks, and activities plus the estimates of time to complete them. Indicate the actual progress and identify any deviation from the original proposal and plan.

References

List all the resources you have used. All references must be cited in the body of the report.

ii. Final Report

The project report is the outcome of your research project. It is a scholarly document, which must be able to fit in just one volume (including all appendices). It incorporates:

- the results of your literature survey;
- a report on how you carried the analysis, and the reasons for your choice of techniques;
- a design and implementation based on your analysis;
- a critical re-evaluation of the project itself and its outcomes.

Major writing tasks during this stage tend to be a “middle-out” approach. Once the outline structure has been decided, write the main body of the report first, then add the supporting sections afterward. The document does not need to contain all the elements listed under the structure below and may be adapted to suit the needs of the project. The typical order of writing is “middle-out” and follows the sequence outlined below:

- Finalise outline structure
- Write the main body
- Write conclusions, recommendations, and summary
- Compile appendices and bibliography
- Write introduction
- Write abstract, preface, and acknowledgments
- Prepare contents list
- Write a critical appraisal

Logical structure of the project report

The following is the standard structure for the report. More advice is available on the project Moodle page.

Title Page

The Title Page contains the project title, your name, the date (month and year) of submission, your project supervisor and the title of the undergraduate programme.

Abstract

The Abstract, occupying less than half a page, is a short description of the intention of the project.

Preface

The Preface includes any relevant observations that do not belong in the project itself. It is here that the justification for the project meeting the programme requirements.

Acknowledgements

It is customary to acknowledge any substantial help, with either the project work or the report, from people and other informal sources.

Table of Contents (including appendices)

The report should be divided into chapters each of which may be divided into sections which may again be divided into subsections and so on. Each chapter and numbered section should **have a title, and the contents page should list the most significant of these.**

List of Tables

Optional if no tables have been used in the report

List of Figures

Optional if no figures have been used in the report

Body of Report

In the body of the report, each chapter should start on a new page. Chapter headings should appear more important than section headings. The following usually have one or more chapters devoted to them.

Introduction

The first chapter of the report is commonly an introduction, which gives an account of the work to be done and the context in which it is to be done, usually providing background

Literature Review

A summary evaluation and critical analysis of the literature read, relevant to the project topic, together with its possible application to the project.

The “middle” chapters

They would usually include the description of work done and the presentation and analysis of results.

Closing chapters

The closing chapters commonly include a summary and a conclusion together with any recommendations. In summarising, highlight the important stages and outcomes of the project. The conclusions, would normally consider and comment critically upon the results of the project; this includes both the process and the product. This should include a consideration of the extent to which the aims of the project have been achieved. Finally, recommend ways in which the work could be applied or extended.

List of References

References should be ordered alphabetically by the name of the author (or, if there is more than one, the name of the first author. The Harvard system is used (more information is available on the project website) and each reference should state the author's name and initials, date (in parentheses), title, publisher and place of issue (if known) e.g.

Seber G.A.F. (2003), Multivariate Observations, John Wiley, New York.

If the reference is to a journal or to a conference proceedings article, then the journal title, volume, number and page numbers should be added, e.g.

Parnas D.L. et al (2001), Evaluation of Safety Critical Software, CACM, Vol. 33, No.6, pp. 636- 651.

Appropriate references should also be included if material has been used from lecture notes that have been written by members of staff, from previous students' project reports, or from laboratory manuals.

ii.a. Report layout

The following are guidelines for a standard report.

Length (Word Count)

The complete report should be capable of being bound in one volume. **The normal size of a project report is on average 10,000 words – it should not exceed 12,000.** The exact length of the report will depend on the type of project carried out but should typically be between 10,000 to 12,000 words overall.

Note: the number of words is counted from the beginning of the first chapter up to and including the end of the last chapter. The abstract and reference

Page Layout

The report should be:

- one and a half line spacing.
- margins should be 2.5 CIS/1" on all sides.

Font size and type

Times New Roman font type and font size 12 are recommended.

Page numbering

Numbering from the Title Page through to but not including the first chapter should use small Roman numerals. The number on the Title Page (i) is not normally shown. The body of the report consisting of the first through to the last chapter, and all remaining report elements through to the very last page of the report, should be numbered using Arabic numerals (starting at 1).

Table of contents

Chapters should be numbered (1,2,...), and each section sub-numbered (2.1, 2.2, 2.3 ...). Further decomposition into subsections should be numbered (2.2.1, 2.2.2, 2.2.3, and so on). Each chapter and numbered section or subsection should have a title, and the contents page should list the most significant of these.

ii.b. Writing up

Written communication is extremely important in project work. Computer software is an intangible product, which can be difficult to assess as it progresses. For a long period of the development, the reports may be all you can show to your supervisor. There are two reports to write for this module: an initial report, and a final report.

10 Resource recommendations

The following are suggested readings for the module. Additional, more detailed reading recommendations will be provided for the module topics. They will help guide you through the research and project development stages.

You can check availability of the resources by using the search tool LibrarySearch at

<https://librarysearch.gre.ac.uk>.

Author	Title	Publisher	ISBN
Dawson, C. W.	Projects in Computing and Information Systems: A Student's Guide: A Student's Guide (3ed), 2015	Pearson	0-129-20734-62
Evans, D. and Gruba, P.	How to Write a Better Thesis, 2014	Springer	0-331-90428-58
Philip Weaver	Success in your Project, 2004	Prentice Hall	0-273-67809-4
Dawson, C.W.	Computing Projects, A Student's Guide, 2000	Prentice Hall	0-13-021972-X
Gash, S.	Effective Literature Searching for students, 2000	Gower	0-566-082772
Sharp, J.A. Peters, J. and Howard, K.	The Management of a Student Research Project (3ed), 2003	Gower	0-566-084902
Turk, C. and Kirkman, J.	Effective Writing: improving scientific, technical and business communication, (2ed), 1989	E & FN Spon	0-419-14669-1
Cryer, Pat	The Research Student's Guide to Success, 2000	OUPress	0-335-206867

11 Digital Student Centre (non-academic queries)

Our new [Digital Student Centre](#) is your space to find answers 24/7 to your questions about student life, helping you get the support you need when you need it. AskUoG provides you with hundreds of up-to-date articles covering topics such as student engagement, student finance, academic and personal conduct, accommodation, visa and international student advice, disability, mental health and wellbeing support.

You can also download important documents like bank, student status and council tax letters by visiting My Documents on the Digital Student Centre (eligibility criteria apply).

If you can't find the right answer or need more personalised support for your query, you can create an enquiry and our specialist teams will respond swiftly. You will be able to track your requests and check the status of your enquiries in real time.

For academic queries, always contact the staff who collaborate with you on your academic programme - your programme leader, module leader or personal tutor.

12 Changes to the module

At the University of Greenwich, we value feedback from students as well as External Examiners and other stakeholders and we use this information to help us improve our provision.

Important note: The University of Greenwich will do all that it reasonably can to deliver the module and support your learning as specified in our handbooks and other information provided. However, under some circumstances, changes may have to be made. This may include modifications to the:

- content and syllabus of modules, including in relation to placements,
- timetable, location and number of classes,
- content or method of delivery of your module,
- timing and method of assessments.

This might be because of, for example:

- academic changes within subject areas,
- the unanticipated departure or absence of members of university staff,
- where the numbers expected on a module are so low that it is not possible to deliver an appropriate quality of education for students enrolled on it,
- industrial action by university staff or third parties,

- the acts of any government or local authority,
- acts of terrorism.

In these circumstances, the university will take all reasonable steps to minimise disruption by making reasonable modifications. However, to the full extent that it is possible under the general law, the university excludes liability for any loss and/or damage suffered by any applicant or student due to these circumstances.

Appendix A: Project Marking Scheme

PROJECT MARKING SCHEME

The final project should be assessed using the following grade bands.

Marks	Undergraduate Criteria
>=80%	Meets all criteria. Shows a significant amount of critical analysis and exhibits an excellent understanding of the relevant issues. Product meets requirements.
70-79%	Meets most of the criteria. Demonstrates clear awareness of relevant issues with a high standard of critical analysis. Product meets requirements.
60-69%	Meets most of the criteria. Demonstrates clear awareness of relevant issues with a high standard of critical analysis. An attempt has been made at analysis using appropriate frameworks but may include some errors.
50-59%	Some of the criteria are present but are mainly factual and descriptive with little grasp of analysis.
40-49%	Some of the criteria present and establish a few relevant points but superficial or confused exposition of issues.
<40%	Little or no evidence of given criteria and no grasp of analysis. Does not demonstrate self-direction, originality in problem-solving, or a critical self-evaluation of the project process.

Overall assessment**Overall assessment of the report:****Overall assessment of the demonstration:**

Have you held a demonstration or viva for this project?



Comments on the viva/demonstration



Does this project meet the requirements of the British Computer Society?



Dissertation projects are not accepted for BCS.

To meet the BCS criteria, the student needs to have:


- (a) a mark of 40% or above
- (b) produced a project which is practical and has problem-solving in its content and relates to the development life cycle of computerised systems

Has the report met the presentation criteria?

Comments on the Standard of Presentation (if not commented on above)

Reports should have a length of 10,000 - 12,000 words. They must also demonstrate an appropriate command of the rules of report layout, spelling, punctuation, grammar, and syntax with due regard to the use of figures, diagrams, and references. Where a candidate fails to satisfy assessors with respect to these rules the grade awarded should reflect this.

Note: All technical documentation should be provided as Appendices and can be excluded from the word count.

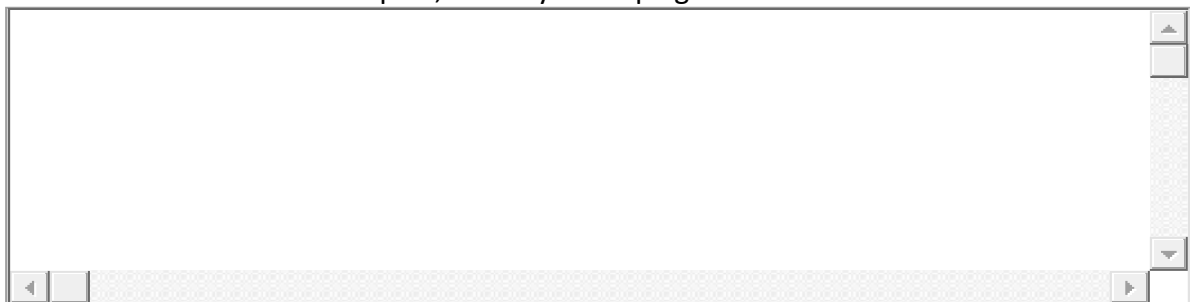


The authenticity of the Submission

All final reports are uploaded into TurnItIn for plagiarism checking. Supervisors will inspect the TurnItIn report and comment on it.

TurnItIn Percentage Match = %

Comments on the TurnItIn report, and any other plagiarism issues.



Marking criteria for each of the sections above.

1. Understanding of the Problem Domain:

Demonstration:

$\geq 80\%$, 70–79%, 60–69%, 50–59%, 40–49% or $<40\%$

Report:

$\geq 80\%$, 70–79%, 60–69%, 50–59%, 40–49% or $<40\%$

This section is about assessing your ability to identify and investigate a suitable problem and follow an appropriate project methodology to solve the problem.

- Identified an area to research or investigate and a problem to be solved.
- Demonstrated understanding of the problem domain.
- Shown how project objectives were formed and project planning took place.
- Discussed the research or investigation within the context of the project.
- Critical evaluation (of the appropriateness) of the current thinking in the research area.
- Compared similar products and systems.
- Selected suitable criteria for the development of the product and ideas.
- Chosen appropriate tools for modelling and development.
- Production of requirements specification/client brief of suitable complexity.
- Identified any legal, social, ethical, and professional issues relevant to the project.

2. Development of Product and Ideas:

Demonstration:

$\geq 80\%$, 70–79%, 60–69%, 50–59%, 40–49% or $<40\%$

Report:

$\geq 80\%$, 70–79%, 60–69%, 50–59%, 40–49% or $<40\%$

This section is about assessing the level of the development and the student's competency within the context of the chosen topic area.

- Clear plan of how the hypothesis might be tested.
- In-depth investigation of the context/literature/other relevant products.
- A reasoned thread going throughout the project.
- Use of suitable data collection techniques.
- Use of suitable analysis tools to evaluate data.
- Demonstrated complexity in the design and implementation of the product.
- Discussed the development process.
- Shown that a number of alternative approaches have been considered.
- Explained the reasons for selecting a particular solution.
- Demonstrated changes in the project plan
- Resolution of relevant legal, social, ethical, or professional issues

3. Product Build and Evaluation:

Demonstration:

$\geq 80\%$, 70–79%, 60–69%, 50–59%, 40–49% or $<40\%$

Report:

$\geq 80\%$, 70–79%, 60–69%, 50–59%, 40–49% or $<40\%$

This section is about assessing the student's ability to present their completed work and discuss issues of quality, usability, etc.

- Demonstrated technical ability in building the product.
- Demonstrated the full scope of product developed.
- Shown that the product has been tested and evaluated appropriately.
- Discussed the quality of the product in relation to original objectives and criteria.
- Demonstrated usability and appropriateness of the product for the problem domain.
- Identified where and how improvement can be made.

4. Conclusions and Critical Review:

Demonstration:

>=80%, 70-79%, 60-69%, 50-59%, 40-49% or <40%

Report:

>=80%, 70-79%, 60-69%, 50-59%, 40-49% or <40%

This section is about assessing the student's ability to be critical of their own work and show reflective thinking.

- Demonstrated critical thinking in writing up the project.
- Discussed lessons learned whilst completing the project.
- Identified any problems encountered and discussed how they were tackled.
- Identified mistakes made and lessons learned.
- Reflected on how the project plan changed during the development.
- Made suggestions as to how the work can be improved.
- Identified how the project might be taken further or expanded.