Module Handbook 2024/25

Module Name: Digital Systems Project

Module Code: UFCFXK-30-3

Module Leader Names: Dr Benedict Gaster & Nathan Renney

Aims of the Handbook

The handbook is a guide for students in the Department of Computer Science and Creative Technologies that undertake the UFCFXK-30-3 Digital Systems Project module. The information in the handbook can also be found in a number of other electronic or paper sources and the document provides links to the definitive data sources wherever possible.

Please note that the electronic version of the handbook will be kept up to date and you will be notified of any significant changes. If you have taken a hard copy of any information, please remember to refer back to the electronic version to ensure that you are working with the most up to date information.

Contents

1. Module team information

Module leader

- Name: Benedict Gaster
- Office location: 2Q17
- Email address: Benedict.Gaster@uwe.ac.uk
- Published office hours: 1pm – 3pm Wednesday.

- Name: Nathan Renney
- Office location: 2Q17
- Email address: nathan.renney@uwe.ac.uk
- Published office hours: Please contact me by email to arrange a suitable time.

Tutor team (supervisors list)

The current list of supervisors will be published in October.

Note that you will be assigned a supervisor automatically.

External examiners

External examiners are appointed to this module to provide the University with impartial and independent advice, as well as informative comment on the institution's standards and on student achievement in relation to those standards. See the external examiner appointed to this field.

2. Module enhancement

Addressing last year's student feedback, the following changes have been implemented:

The Project in Progress is now worth 25% of the final mark, and includes submission of a completed background chapter and a working demonstration of your application.

3. Introduction and context

The purpose of this document is to provide students with a set of guidelines to direct and support work from topic selection through to completion of a Final Year Digital Systems Project. The project comprises 30 credits of Level 3 work within the University's modular scheme and contributes to the computer science and creative technologies related programmes in the Faculty. You can find the module specification in the following link:

https://info.uwe.ac.uk/modules/specification.asp?urn=2142720&file=UFCFXK-30-3_1920.pdf

This is an **individual project**. It provides the opportunity for the student to learn independently, and to develop and apply the skills necessary for an extended technical project.

Students select and investigate a topic **beyond the normal level of treatment in the taught modules**, resulting in a **hardware and/or software artefact**. The subject of the project will be agreed between the student and the supervisor, and may stem from a variety of sources; for example, a member of staff, the student, the student's employer or from an outside organisation. It must involve research, followed by the development of a hardware and/or software artefact using appropriate method(s)/tool(s). Whatever the subject, the student will be expected to treat material critically, to demonstrate their understanding of the relevance of material and to reflect upon the tools and methodologies used.

4. Learning outcomes

On successful completion of this module students will be able to:

- Independently research a comprehensive body of knowledge in a chosen subject.
- Develop a hardware/software artefact by selecting appropriate approaches/methods for its realisation and construction.
- Identify and communicate knowledge of the development approaches/methods and their application.
- Demonstrate analytical, critical and reflective skills.
- Demonstrate informed reporting skills via research and critical evaluation of appropriate academic, commercial and anecdotal literature.

5. Use of Blackboard and other learning technologies

The material from lectures may be found within the **'Learning Materials'** section of this module.

All the forms needed for the module, including the Formal Project Proposal form, the Poster and Meeting Logs templates for the Project in Progress day and the Report Template, are found in the **'Learning Materials'** section of this module.

Guidance documentation on Literature Review, requirements Analysis and Project Design are also found in the **'Learning Materials'** section of this module.

The **'Module Schedule'** section on Blackboard provides a detailed schedule of the module.

The **'Past Projects'** section provides a list of past project ideas and a link to excellent past project reports that were awarded with a first.

The **'Announcements'** section is used for communications which apply to all students on the module. An email will be sent to inform you when an announcement has been made. Ensure that you regularly check your UWE Student email so that you are aware of important announcements.

In the **'Contacts'** section you can find information about the tutors (supervisors) involved in this module. Each tutor has provided a short description of their research interests and/or project ideas. Read carefully the profile of each tutor and discuss with them your project idea.

The **'Assignments'** section is where you will submit your deliverables. Submission areas will become available closer to the deadline.

6. Module schedule

For a detailed view of the module schedule please check the 'Module Schedule' section on Blackboard.

7. Learning and teaching on this module

Each student will select (or be assigned to) a supervisor who will meet regularly with the student to help plan and manage the work. Wherever possible students will be assigned a supervisor with an interest in the project topic, but this cannot be guaranteed. The responsibilities of the supervisor are primarily to provide guidance on the management of the project, the standard of work required, what can realistically be achieved in the available time and to give feedback on work done (including the writing of the report).

A series of lectures and drop-in sessions spread throughout the year will provide the student with the context in which the project is to be undertaken.

Each student must:
- Submit a **project proposal** with the name of the supervisor.
- Fill in the **ethical review checklist** with their supervisor.
- Submit a **poster, have a demo of their system with link to a video, write 2000-3000 word background chapter and meeting logs** that will be part of the Project-in-Progress day.
- Submit a **project report**.
- Present their project in a short **viva** held by their supervisor and a second marker.

Please check the **Module Schedule** on Blackboard for the precise deadlines.

Besides being often critical to the classification of the student's degree, the project is also an opportunity for the students to showcase their skills to potential employers. In most job interviews, interviewers spent much time talking with the candidates about their final year project since it provides much information on the candidate's analytical, technical and reflective skills. Thus, a good project can be a major advantage in a student's career

What is a Project?

"The computing project you embark upon gives you an opportunity to **make your own contribution**. There is little point in doing a project that merely regurgitates the work of others. Your own thoughts, ideas, and developments are important and these are what people reading your report are interested in."

(Dawson 2015)

Looked at from a high level the component parts of a typical project report would include the following sequence of sections:

- Here is a problem
- This is why it's important
- Here's how other people have tried to solve it
- Here's what I'm going to do
- This is how I'll know I've succeeded
- This is how I'm going to do it
- What I actually did
- Here it is: does it solve the problem?
- This is what I have learnt

Two very useful books you can access from your Reading List on Blackboard:

Dawson, C. (2015) *Projects in Computing and Information Systems: A Student's Guide*, 3rd ed. Harlow: Pearson

Weaver, P. (2004) *Success in Your Project: A Guide to Student Systems Development Projects*, Harlow: Prentice-Hall

Selecting topic and supervisor

The Digital Systems project module is an opportunity for the student to explore a topic or problem of personal interest in an environment supportive to intellectual enquiry. The task of topic selection is very important since it defines and directs the rest of the project development. Identifying a good topic and approach can be key to your success on the module. The topic may stem from the student's own interests, perhaps developed from placement or other prior experience, or from the research interests of staff, or from ideas about areas to investigate with a view to employment. Individual projects have to be related to the degree programme the student is registered to.

In trying to identify a viable and appropriate topic for your own project, ask yourself the following questions:

- **Is there a reasonably current literature base to get started?**
  Past project titles available on Blackboard can provide useful leads in the early stages of searching for relevant academic literature.

- **Is the topic relevant, timely and interesting?** The piece of advice most consistently offered by past students is to choose something that you are interested in.
- **Is the scope narrow enough to permit some depth of analysis?** It is harder to get a good mark if the topic area is very broad.

We normally expect a significant technical content and normally 50-60% of your work should be in the 'software development' phases of the lifecycle (requirements analysis, design, and implementation). You must produce a tangible software product. The remainder would typically be areas such as research, evaluation, report writing, etc.

Three Golden Rules

1. Know yourself – choose a topic you are interested in
If you tackle a project that you have an interest in, you will almost always do much better than if you take on a project you find uninteresting. What interests you will likely be entirely different from what interests your friends, so make your own decisions. But be realistic about what you are likely to achieve and try to use expertise you already have. Do not, for instance, imagine you will easily be able to cope with something you have previously found difficult or that is entirely new.

2. Once you have started your project, try not to change topic
Changing your topic is almost always the wrong thing to do. You will be abandoning all the work you have done so far and your supervisor will also be less able to assist you.

3. Make good use of your supervisor
You need to keep a dialogue going with your supervisor.

During the first four weeks of term (induction week 13 - week 16) students must discuss project ideas with their tutors. It is the students' responsibility to contact staff members. Students can see the list of tutors and their research interests in the 'Contacts' section on Blackboard.

Project selection coexists with and depends on the selection of supervisor. **The student is responsible for finding a supervisor**. This can come as a result of the student discussing their ideas with tutors. Each student must use the Project Allocation System on Blackboard to submit their project idea and propose a supervisor. The proposed supervisor can then either accept or reject the project proposal.

The Project Proposal

To have the proposal accepted by the selected tutor, please talk to the tutor prior to submitting the proposal to the system.

If the proposal is rejected, the student is responsible to find another supervisor (again using the online tool). <u>Please do not propose supervisors without talking to them first and having a tacit agreement of acceptance from them.</u> Proposing supervisors without talking to them first and having an agreement will likely lead to rejection.

During this period (week 13 - week 16) the student can still discuss with other tutors, about the same or other ideas.

If/When the supervisor accepts the project proposal, the student can then move on submitting the Formal Project Proposal on Blackboard. The students should check the system regularly since no announcement is made when a tutor accepts or rejects a project proposal. If the student cannot find a supervisor before the deadline (week 16 Thursday 4th November at 2pm BST), then a supervisor is randomly allocated. The student then needs to discuss with the allocated supervisor the topic of the project and submit the formal project proposal on Blackboard (an additional week will be provided for the final submission of the Formal Project Proposal form).
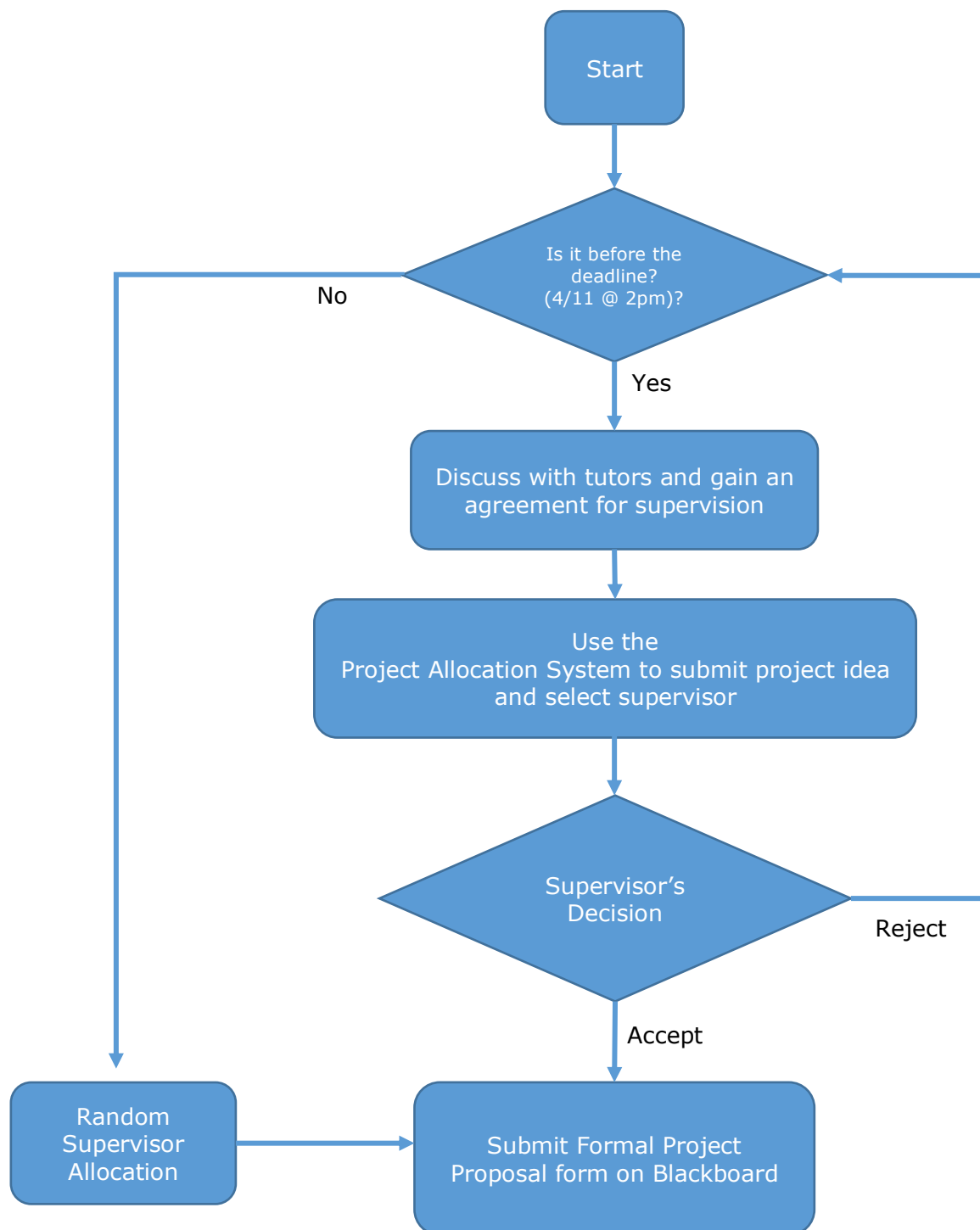
Figure 1: Project proposal submission process

Please note that there is a limited number of students that each tutor can supervise, therefore a "first come first served" process is followed. Some supervisors "fill up" very early, therefore you need to be quick and have viable proposals to be able to secure them. Information on the availability of each supervisor is provided in the 'Contacts' section on Blackboard, and if a supervisor is full, their name will not be available on the Project Allocation Tool.

Experiencing problems with the supervisor

If students experience problems in their working relationship with their supervisor, they should try to talk to them about it in the first instance. If this feels too difficult, they should discuss the matter with the Module Leader, the Academic Personal Tutor (APT), the Programme Leader or the Head of Department. If a student experiences difficulty in contacting their supervisor, they should contact the module leader, the Academic Personal Tutor (APT), the Programme Leader or the Head of Department.

Ethics

After the submission of the project proposal, students are required to discuss with their supervisor the ethical implications that their project may entail. An Ethical Review Checklist online form must be filled in as a result from this discussion.

A link to the ethical guidelines documents is: https://www1.uwe.ac.uk/research/researchethics/whyyouneedethicalappro val.aspx. Please read these guidelines to understand the ethical considerations for your project prior to ethical signoff.

The ethic checklist is an online only form. Only the supervisor can create a new entry and submit the form. Arrange a supervision meeting with your supervisor so that you can work through the ethics form together and submit it. Check the ethical guidelines documents above so that you understand the process and what questions will be asked. The students must work with their supervisor to submit. Please check the Module Schedule section on Blackboard for the corresponding deadline for ethics forms to be complete.

Working on the Project

Students are expected to devote 300 hours to this module. This works out to be **approximately 10 hours per week** to work on the project. This effort is best distributed as evenly as possible over the two semesters and suspending work on the project to concentrate on other assessments is strongly discouraged. You should meet your supervisor regularly and take full advantage of the supervision sessions available, many of which will take the form of small group sessions initially.

You are expected to create a project plan and to keep a weekly log of activities and time spent on the project. Logs need to be presented on the Project-in-Progress day.

Outline schedule (for a 'typical' project)

This is only a guide as every project is different and hence is likely to require a different schedule.

October	Prepare proposal, Find supervisor, Initial Research
November	Finish Research, Start Requirements Analysis
December	Finish Requirements Analysis, Start Design
January	Finish Design, Start Implementation, Prepare for Project-in-Progress day. Complete background chapter. Working demonstration of proposed system.
February	Continue Implementation
March	Testing, Finish Writing Report

Literature review (Background)

Early work on the project is likely to focus on identifying relevant academic literature and other sources of information. Students are expected to use the full range of literature resources available through UWE Library Services.

It is important, right from the start, that you keep track of full references for all the material that you collect and any notes that you make from published sources, including the internet.

Referencing

If you use anyone else's work in any way you must reference it. You are required to conform to the UWE Harvard Referencing Standard.

Use the Study Skills web pages to access detailed guidance explaining exactly how you should use the **UWE Bristol Harvard standard** to cite references within the text of your project and how to produce an ordered list of complete bibliographic references for your sources. You should not

use footnotes for this purpose. It is expected that you will use the correct referencing and citation standard within your report.

Plagiarism and Collusion

Encarta defines **plagiarism** as stealing, copying what somebody else has written or taking somebody else's idea and trying to pass it off as original.

Collusion is secret cooperation between people in order to improve your project marks.

Presenting the words or ideas of other people as if they were your own, i.e., without citing their source, is known as plagiarism and is **a serious assessment offence** that can and will be referred to the Assessment Offence Officer for further penalty and sanction.

Although it is a rare occurrence, most students who plagiarise usually do so because they are running run out of time. Please plan your work such that you have plenty of time to write everything in your own words (other than direct quotes). If you are short of time it is still better to keep going with your own efforts than to risk an assessment offence. Universities regard plagiarism and collusion as serious infringements, and silence is no defence. If you are unable to say anything insightful at your demonstration then that suggests you had help and it will be investigated further. The penalties range from getting 0% and having to rework and resubmit the project (capped at 40%) to failing your degree programme. These offences are easily spotted. As part of your submission you will be required to submit an electronic copy of your project by the deadline which will be checked for plagiarism and collusion with appropriate software tools (that you can use yourself). Supervisors and second-markers are very good at detecting these offences. Although rare, each year a few cases of collusion and plagiarism are detected.

If after checking the Study Skills web pages you have any doubts on how to reference correctly using UWE Bristol Harvard standard, or how avoid plagiarism, then it is strongly recommended that you attend a Library Study Skills course on "*How to reference and avoid plagiarism*". The library also offers other great courses which you should take advantage of, such as "*How to get started with critical writing*" and "*How to make notes and read effectively*". These courses will help you to improve your final report. The full list of courses currently available is available at the Study Skills Workshops page. The courses are run frequently so do keep checking the list for new dates and courses.

Requirements

The requirement analysis plays a vital role in the development of a project. Clear and well-defined requirements can help developers identify objectives

in their work and test the final product. The final product must address all requirements set.

In a real environment, requirements are set by the client and project stakeholder and software developers work based on these requirements. For the needs of the module, the requirements will be captured and analysed by the student after he/she discusses them with the supervisor. It's in the student's role to accurately capture, analyse and prioritise the requirements after discussion with the supervisor.

Students are expected to provide both functional and non-functional requirements as part of their project. A limited number of requirements is asked (10 functional and 10 non-functional requirements) to make the project viable in the context of a 30 credits module; in real life this number can be much larger. However, no marks will be deducted in case a project has more than 10 functional or non-functional requirements (if all requirements are clear and well defined).

Requirements should be realistic, detailed, and measurable/testable. You should also prioritise your requirements using a method such as the MoSCoW method of prioritisation.

Students should consult their supervisors on how to form the requirements.

Further information and reading materials around requirements are provided on Blackboard. Please check the **Learning Materials** section.

Methodology

Defining the methodology that the project development will follow is very important. There are significant differences between methodologies (e.g. Waterfall and Agile)

Students should consult their supervisors on how to choose a methodology for their project.

There is no need to describe all methodologies in the report, however the student should be able to describe why he/she has chosen the particular methodology and show how the methodology applies to his project.

Design

The design should include both high-level and low-level design, providing the appropriate diagrams (more information is provided on Blackboard).

In the high-level design, you need to think about:
- System architecture
- User interface design (possibly)
- Object oriented design (possibly)
- Database design (possibly)
- Environment design

In the low-level design, you need to think about:
- Developing structural models
  - Classes
  - Relationships between classes
    - Inheritance
    - Uses
- Designing dynamic models
  - To show interactions among objects
    - Sequence diagrams
    - Collaboration diagrams
  - Changes of state in objects
    - Activity diagrams

The design of tests against which the developed product will be tested should also be included in this chapter.

Students should always consult their supervisors on the design.

Further information and reading material on the design is provided on Blackboard. Please check the **Learning Materials** section.

Implementation and Testing

This is probably the most time consuming task of the project. It is likely to take much longer than you assume. **A rule of thumb:** it will take three times longer than you think. (Honestly… this isn't just a scare story!)

The implementation chapter of the report should describe the steps followed in the implementation process abiding to the chosen methodology (e.g. present sprints). As such, this chapter should be written in parallel or after the implementation of the software. Screenshots from the implemented software and code snippets should also be provided and discussed.

Your supervisor can provide you guidance but should not write code or solve coding issues in the implementation for you, since they are also your

first marker. After the implementation is finished you need to test your product using the tests you designed in the Design chapter.

You should upload your code in a zip file or provide a link to your GitHub/Gitlab repository. UWE has its own GitLab servers at https://gitlab.uwe.ac.uk. There is no need to write the whole code in your report. If you provide a link to a Github/Gitlab repository, you should ensure that your supervisor and second marker have access to view this.

Evaluation

At the end of your project, you should provide an evaluation of your project identifying the difficulties you faced and describing how you overcame them. The evaluation should cover all aspects of the project reflecting on the meetings you had with your supervisor. Testing outcomes could also be discussed in this section. Directions for further work should also be provided.

Formatting

Your report will be submitted in an electronic format only. No paper copy is required.

- Word-processed
- Font size: 11 or 12 pt.
- Suggested font style: Calibri
- Numbered pages
- Numbered and indexed figures and tables
- UWE Harvard referencing system

Structure

At a minimum, a project report should include the following:

- Title
- Author
- Abstract
- Acknowledgements
- Table of Contents
- Table of Figures
- Table of Tables
- Introduction – Including Aims and Objectives
- Literature Review/Background
- Requirements
- Methodology
- Design
- Implementation
- Evaluation
- Conclusion
- References/Bibliography
- Appendices (if any)

A short guide to writing your final year project report is also provided on Blackboard in the Learning Materials area.

Project in Progress Day

As part of the Project in Progress the following must be submitted:

- A PDF of your poster
- A link to 5-minute video demonstration of the current state of your system

The poster and demo must also be shown during your allocated Project in Progress Day slot.

Additionally, you must also submit to Blackboard:

- Meeting logs
- Literature Review/Background chapter of the report, which should be between 2000-3000 words in length. This should also include references, which are not part of the word count.

In principle, the poster will describe the work done so far and will outline the next steps until the completion of the project. The poster will be required in digital format for submission to Blackboard, but you should also

print it in A1 format so that you can display it at the Project in Progress session.

You should prepare a short video of 5-10 minutes discussing and demonstrating your current implementation. It is expected at this point that you have at least some basics implemented and a demo is required.

Meeting logs will include details of the meetings with the supervisor (e.g. progress so far, what was discussed, what are the next steps). The **meeting logs should not be on the poster**; meeting logs should be provided separately in Word document on A4 paper size so that they can be reviewed by your supervisor and second marker.

The poster needs to clearly state the aims and objectives of the project based on critical review of relevant products and projects found in the literature. It needs to present a short description of the research (Your research/literature review should have already been done by now), outline some of the project's key requirements and provide a state diagram and some (if any) implementation artefacts.

Finally, the poster should include clear planning and management for the rest of the project by including a small Gannt chart.

Evidence of student engagement should be provided to the markers (logs from the meetings with the supervisor and ways that issues discussed were or will be addressed; not on the poster). All sources need to be appropriately cited and referenced on the poster using UWE Bristol Harvard standard. Finally, the poster needs to have good balance between visual and textual information and follow an appropriate style and structure (formally written and clearly covering the aforementioned sections).

A template of the Project in Progress poster is provided on Blackboard in the Learning Material section. Students need to design their posters in A1 size for the Project-in-Progress day.

The video should be 5-10 minutes long and in .mp4 format. Please do not upload the video to blackboard, but instead include a link. You can place your video on your student OneDrive or other cloud service of your choice.

The Literature Review/Background chapter should be 2000-3000 words in length and is expected form part of your final report. It will be marked as part of this submission and will NOT be remarked with the final report.

Meeting logs must be a separate Word document in A4 size. The **assessment weightings** are provided in the **APPENDIX A**. The **marking criteria** are provided in the **APPENDIX B**.

For the Project in Progress day you will need to be available for a short Q&A with your supervisor and second marker. Please see the schedule on

Blackboard for the day and time. We also encourage other students to review each other's projects and discuss and comment on them.

Viva including demonstration

Within the assessment period (check the Module Schedule on Blackboard for more details) viva sessions will be held where students will present their product to their supervisor (first marker) and their second marker.

The format of the viva will be a 20-minute presentation by the student, followed by 10 minutes Q&A. The format of the presentation is up to the student, but it is suggested that you create 2 or 3 PowerPoint slides to introduce the project and give an overview of your system architecture before showing a technical demo. However a formal presentation is not mandatory.

To pass your viva, you will need to present your working software (the one you submitted with the hard copy of your report) and provide evidence that you understand how your software is working (both in low-level and high-level).

You are expected to provide a short technical demo of your product, explain its capabilities and how it addresses the problem, describe the low-level and high-level design, and answer your markers' questions. To demonstrate your insights into how your software works, you may wish to show and discuss parts of the code that you have implemented.

Please be reminded that during the demo session your markers will assess both your technical and your presentation skills, therefore a good and confident presentation can also give you some marks. You should not rely on your supervisor providing the answers to questions you may be asked; your supervisor is there as your first marker.

> Attendance is compulsory – you will lose 25% of your marks (30% in the resit) if you fail to attend, if you are unable to demonstrate your software, or you are not able to convince us it is your own work

Further details on the format and dates of the demo sessions will be provided closer to the date. The **assessment weightings** are provided in the **APPENDIX A**. The **marking criteria** are provided in the **APPENDIX B**.

8. Reading list

Your module reading list can be accessed online, directly through the link below and through the module's Blackboard page.

Reading List

9. Past Projects

You can access past projects from here (to view the latest projects navigate to the related programmes and select the 2019 or 2020 folder):

https://blackboard.uwe.ac.uk/webapps/bb-auth-provider-cas-bb_bb60/execute/casLogin?cmd=login&authProviderId=_5_1&redirectUrl=https%3A%2F%2Fblackboard.uwe.ac.uk%2Fbbcswebdav%2Flibrary%2FLibrary%20Content%2FStudent%20Dissertations%2FUndergraduate%20dissertations%2FBSc

The database is managed and updated by the Library with the collaboration of the Module Leader and former students awarded with a first who agreed to share their project reports.

Some past project titles:

- Dense tactile vibrator grid for depth map interpretation
- Research and analysis of social media data in real-time
- Real-time product monitoring solution with integrated 3D graphical interface
- Embedded Rubik's cube solver
- Distance learning solution
- Network defender (Scan and visually map network; assists with diagnosis, debugging and fixing)
- Walk: Using a time constraint algorithm for walking routes
- Microcontroller based low power LoraWAN Gateway
- Development of a user interface testing system for .NET framework applications through the use of image comparison
- RFID clone detection for high security facilities using two-factor authentication with mobile devices
- Implementing a hybrid multiple-criteria recommender system

10. Assessment & Deliverables

First Sit Deliverables

FORMAL PROJECT PROPOSAL form (0%) Requirement	Submit **Formal Project Proposal form** on Blackboard.
ETHICAL REVIEW CHECHLIST (0%) Requirement	Fill in the online **Ethical Review Checklist form** with your supervisor. See the Ethics subsection on page 10 for more details.
POSTER, VIDEO, and Lit review/Background chapter (25%)	Project in progress **Poster** presentation (poster, video and meeting logs) and submission on Blackboard Additionally submit PDF of 2000-3000 words for the Lit review/Background, plus references.
PROJECT REPORT (50%)	**Project Report** (6000 -8000 Words) Submit your report along with your code on Blackboard. (submit your code as a file or as a link to UWE GitLab or similar software development platform) No hard-copy submission is required. Note: your report should include the Lit review chapter submitted as part of the previous milestone, however, it should not be included in the word count. (It will not be remarked.)
VIVA (25%)	**Viva** including Demonstration held during the Exam Period

Resit Deliverables

Lit review/Background chapter (25%)	Project in progress **Poster** presentation (poster, video and meeting logs) and submission on Blackboard Additionally submit PDF of 2000-3000 words for the Lit review/Background, plus references.
PROJECT REPORT (50%)	**Project Report** (6000 -8000 Words) Submit your report along with your code on Blackboard. (submit your code as a file or as a link to UWE GitLab or similar software development platform) No hard-copy submission is required. Note: your report should include the Lit review chapter submitted as part of the previous milestone, however, it should not be included in the word count. (It will not be remarked.)
VIVA (25%)	**Viva** including Demonstration held during the Exam Period

The assessment weightings are provided in the APPENDIX A. The marking criteria are provided in the APPENDIX B.

Submission details

Please check the Module Schedule section on Blackboard for a detailed presentation of all the deadlines.

Please note that the submission deadlines are absolute and based on completion of the upload according to UWE server time. Therefore you are strongly advised to submit work well ahead of the deadline dates to avoid situations where penalties could be incurred. Penalties are imposed if a submission is made up to 24 hours after the deadline, and the highest mark you can receive will be the minimum pass mark (if the assessment is passed). After the 24 hours have passed, the work will not be accepted for marking and it will be recorded as a "Non-Submission".

Word Count

The Background section should be 2000-3000 words with a tolerance of +10%.

The report should be between 6000-8000 words with a tolerance of +10%. See the University's policy on word count for further details for what is and isn't included in the word count.

Again note that the report should include the background section, but not be part of the report's word count, as it is already accounted for.

Referencing
See a guide to referencing.

Personal Circumstances
If personal circumstances are preventing you from undertaking a coursework assignment or an exam, the University's academic support process might be able to help you. We recommend you contact an Information Point as soon as you can so that they can recommend the best option for your circumstances; the earlier they know about a problem the sooner they can help you. The University's Wellbeing Service can also offer help and support if you are experiencing personal difficulties. Alternatively, if you need help or advice about study skills, you can access this from the link in the main menu of your module page in Blackboard.

Date of submission

Please check the Module Schedule section on Blackboard for a detailed presentation of all the deadlines.

Feedback

You will receive informal feedback verbally through your supervision sessions.

You will receive written and verbal feedback on your proposal, and this is a key element of this work.

Reading Draft work

• Staff should only read in full 3 sections or not more than 2,500 words (excluding proposal) of the final draft.

• No work should be read and commented on within 4 weeks of the final deadline.

11. Communication

Throughout your time with us, you will receive regular communication from your module leaders, and administrative staff. It is your responsibility to ensure that you read everything that you are sent, and act upon it where appropriate.

The main communication channel used is Blackboard for all the modules you are currently studying. This should be checked regularly for module specific information, new content and announcements.

Please see further [information on all aspects of your myUWE portal](#).

In addition, the Faculty also has a [Staff and Student Communications Policy](#) that applies to all FET staff and students.

12. Advice and support

There is a range of facilities and services available to go to for advice and support depending on what the issue is. Remember – asking for help at the earliest possible stage will help you in the long run. Your first point of call should always be your Academic Personal Tutor, as they will be able to signpost you to the right services and will be able to deal with specific matters relating to teaching and learning. If you are not able to contact your Academic Personal Tutor for any reason, go to an Information Point.

Student Support Advisers are available and can also be contacted through the Information Points.

However, you are more than welcome to talk to other members of UWE staff depending on who you feel most comfortable talking to.

13. Supervision - Expectations of student and staff

Undertaking a dissertation or project involves a different way of working for a student compared to studying a taught module. It is designed to be an independent piece of work and therefore the supervisor will not be directing the student's studies. The student should aim to take ownership of the process and the piece of work. The following is a list of expectations of the student:

Responsibilities of the student, a student should:

- Initiate contact with their supervisor once they have been allocated.

- Agree a timetable for completion of the work in conjunction with the supervisor, including the pattern and frequency of meetings, the nature of communication, as well as the procedures for re-scheduling meetings should these be cancelled for any reason.

- Identify an appropriate topic and to formulate a proposal and, under guidance from their supervisor, refine this topic into a research question to be explored or hypothesis to be tested.

- Submit draft sections of their work for comment as set out in the module handbook. The onus is always on the student (and not the supervisor) to initiate contact.

- Maintain contact with their supervisors and seek assistance through email exchange, virtual meetings, telephone, or face to face meetings as agreed with the supervisor

- Ensure ethics approval has been obtained to undertake the research in good time, that an appropriate risk assessment is in place and that the research complies with governance requirements, with the support of the supervisor.

- Take responsibility for their own research and to work independently, with the support of the supervisor.

- Take responsibility for the good conduct of their research, under the guidance and with the advice of the supervisor.

- Keep a progress log, recording dissertation/project activities and documenting discussions, proposals and the outcomes of the meeting.

- Conduct themselves in a professional and courteous manner in all meetings and correspondence.

- Let your supervisor see drafts early on. If you have a problem with your writing style you need to know about it when you have written 1,000 words, not when you have written 10,000.

Responsibilities of the supervisor, supervisors should:

- Assist the student by providing advice and guidance on how to prepare, produce and improve their dissertation or project. Supervisors should not collect data for the student, analyse it or write it up, or direct the research or ensure that work is of sufficient quality to pass; this is the responsibility of the student.

- Any member of staff who has serious concerns about a student should refer to the fitness to study or the safeguarding policy and procedure.

- Provide up to 15 hours contact time which would normally be 6 hours of direct supervision in the form of meetings, with the rest of the time spent reading and commenting on work answering correspondence, providing guidance, and marking.

- Conduct all meetings and correspondence in a professional and courteous manner.

- Acknowledge student queries within 3 working days and deal with them fully as soon as possible. Where this is not possible, use the out of office system to ensure it is clear when you will be able to respond.

- Alert the student to any holidays or other prolonged absence, and, if necessary, contact the dissertation co-ordinator to find cover for absence.

14. Document Revision History

Version	Date	Changes
1.0	20th September 2022	Initial Release
1.1		
1.2		
1.3		
1.4		

APPENDIX A – Assessment Weightings

Assessment weightings
ELEMENT 1: **Project Report (6000 - 8000 words) (50% of total marks)**

Aims and Objectives	10%
Requirements Analysis	20%
Product Design	20%
Software Development, Implementation and Testing	30%
Project Evaluation	10%
Report Quality	10%
	Total: 100%

ELEMENT 2: **Viva including demonstration (25% of total marks)**

Technical skills (demo contents)	80%
Presentation skills	20%
	Total: 100%

ELEMENT 3: **Project in Progress Poster (25% of total marks)**

Demonstration of early system implementation	30%
Poster	20%
Background chapter and references	40%
Engagement	10%
	Total: 100%

APPENDIX B - Marking Criteria

Component A element 1: **Project report**:

Percentage mark	100-86 Outstanding	85-70 Excellent	69-60 Very Good	59-50 Good	49-40 Adequate	39-30 Poor / Inadequate	29-0 Very Poor
Aims and objectives (10%)	• Aims and objectives **clearly stated.** • Aims and objectives have been **fully met**. • **Exceptional** work on a **very challenging** topic.	• Aims and objectives **clearly stated.** • Aims and objectives have been **fully met**. • **Excellent** work on a **challenging** topic.	• Aims and objectives **clearly stated** • Aims and objectives have been **fully met.** • **Very good** work.	• Aims and objectives **clearly stated** • Aims and objectives have been **met to a great extent.**	• Aims and objectives **could be more clearly stated.** • Aims and objectives have been **met to some extent.**	• Aims and objectives **could be more clearly stated.** • Aims and objectives have been **partially met**.	• Aims **barely** specified • Not clear if aims and objectives have been met.

Literature Review (40% of PIP milestone)	• **Outstanding analysis** of relevant works • Provides **critical review** of relevant applications **and** research projects. • Demonstrates **outstanding insight** into the problem. • **Excellent** use of sources (both in quantity - above 10 - and quality). • All sources are **appropriately cited and referenced**. • It leads to the requirements analysis sections • Excellent flow.	• **Excellent** analysis of relevant works. • Provides **critical** review of relevant applications **and** research projects. • Demonstrates **outstanding insight** into the problem. • **Excellent** use of sources (both in quantity - above 10 - and quality). • All sources are **appropriately cited and referenced**. • Some links with the requirements analysis.	• **Very good** analysis of relevant works • Provides **critical review** of relevant applications **and** research projects. • Demonstrates **excellent insight** into the problem. • **Good** use of sources (both in quantity - above 10 - and quality). • All sources are **appropriately cited and referenced**.	• **Good** analysis of relevant works. • Provides a **good review** of relevant applications **and/or** research projects, however it **could be more critical.** • Demonstrates **good insight** into the problem. • **Good** use of sources. • **Most** sources are **appropriately cited and referenced**.	• **Adequate** analysis of relevant works. • Provides **some** review of relevant applications **and/or** research projects however it **lacks depth**. • Demonstrates **some insight** into the problem. • **Good** use of sources. Sources need to be **appropriately cited and referenced**.	• **Poor** analysis of relevant works. • Demonstrates **little or no insight** into the problem.	• **Little or no** analysis of relevant works is provided.

Requirements Analysis (20%)	- **Outstanding** description, analysis, and presentation of the requirements - <u>Requirements are linked to the research</u>. - At least 10 **appropriate** functional and 10 non-functional requirements	- **Excellent** description, analysis, and presentation of the requirements - <u>Some links with the research are evident</u>. - At least 10 **appropriate** functional and 10 non-functional requirements	- **Very good** description, analysis, and presentation of the requirements. - At least 10 **appropriate** functional and 10 non-functional requirements	- **Good** description, analysis, and presentation of the requirements. - At least 10 functional and 10 non-functional requirements	- **Adequate** description, analysis, and presentation of the requirements. - At least 10 functional and 10 non-functional requirements	- **Poor** description, analysis, and presentation of the requirements.	- **Little or no** description, analysis, and presentation of the requirements.

Product Design (20%)	• **Provides and discusses in great detail** all design steps and appropriate diagrams (those applicable): class diagram, flow diagram, sequence diagram, state diagram, use case diagram, database design, test design. • **Outstanding** presentation and discussion of the diagrams.	• **Provides and discusses in detail** all design steps and appropriate diagrams (those applicable): class diagram, flow diagram, sequence diagram, state diagram, use case diagram, database design, test design. • **Excellent** presentation and discussion of the diagrams.	• **Provides and discusses clearly** all design steps and appropriate diagrams (those applicable): class diagram, flow diagram, sequence diagram, state diagram, use case diagram, database design, test design. • **Very good** presentation and discussion of the diagrams	• **Provides and discusses** the design steps **of most of the** appropriate diagrams (those applicable): class diagram, flow diagram, sequence diagram, state diagram, use case diagram, database design, test design. • **Good** presentation and discussion of the diagrams.	• Design steps are **not clearly defined.** • Provides **some of the** appropriate diagrams (those applicable): class diagram, flow diagram, sequence diagram, state diagram, use case diagram, database design, test design.	• Design steps are **not clearly presented.** • Most diagrams are **missing**.	• **Little or no** presentation of required design steps • Most diagrams are **missing**.

Software Development, Implementation and Testing (30%)							
• **Impressive** demonstration of programming and software development skills. • Demonstrates **outstanding insight** into the technologies employed. • Appropriate software testing; tests all aspects of the product in **great detail**. • **Outstanding reflection** on the tests' results.	• **Excellent** demonstration of programming and software development skills. • Demonstrates **excellent insight** into the technologies employed. • Appropriate software testing; tests all aspects of the product in **great detail**. • **Excellent reflection** on the tests' results.	• **Very good** demonstration of programming and software development skills. • Demonstrates **very good insight** into the technologies employed. • Appropriate software testing; tests all aspects of the product in **great detail**. • **Very good reflection** on the tests' results.	• **Good** demonstration of programming and software development skills. • Demonstrates **good insight** into the technologies employed. • Appropriate software testing; tests **most** aspects of the product in **detail**. • **Good reflection** on the tests' results.	• **Some** demonstration of programming and software development skills. • Demonstrates **some insight** into the technologies employed. • **Some or Poor** software testing; tests **some** aspects of the product. • **Some reflection** on the tests' results.	• **Little or no** demonstration of programming and software development skills. • Demonstrates **some insight** into the technologies employed. • Poor software testing; tests **some** aspects of the product. • **Limited reflection** on the tests' results.	• **Little or no** demonstration of programming skills. • Demonstrates **little or no insight** into the technologies employed. • **Little or no** software testing. • **Limited or no reflection** on the tests' results.

Project Evaluation (10%)							
	• **Outstanding evaluation** of the project. • **Demonstrates** outstanding reflection on **all aspects** of the project (research, requirements, methodology, design etc.). • **Discusses** in **great detail** limitations • Provides **realistic** suggestions for further work. • **Outstanding** use of the feedback provided in the PiP and during meetings with the supervisor.	• **Excellent evaluation** of the project. • **Demonstrates** excellent reflection on **all aspects** of the project (research, requirements, methodology, design etc.) • **Discusses in detail** limitations • Provides **realistic** suggestions for further work. • **Outstanding** use of the feedback provided in the PiP and during meetings with the supervisor.	• **Very good evaluation** of the project. • **Demonstrates** reflection on **most aspects** of the project (research, requirements, methodology, design etc.), • **Discusses** limitations • Provides **realistic** suggestions for further work. • **Good** use of the feedback provided in the PiP and during meetings with the supervisor.	• **Good evaluation** of the project. • **Demonstrates** reflection on **some aspects** of the project (research, requirements, methodology, design etc.), • **Discusses** limitations and provides **realistic** suggestions for further work more depth is needed in the analysis. • **Good** use of the feedback provided in the PiP and during meetings with the supervisor.	• **Poor evaluation** of the project. • Demonstrates **little reflection** on the aspects of the project (research, requirements, methodology, design etc.); • **Little discussion** of the limitations; provides suggestions for further work; more depth is needed. • **Little** use of the feedback provided in the PiP **and/or** during meetings with the supervisor.	• **Limited evaluation** of the project. • Demonstrates **little or no reflection** on the aspects of the project (research, requirements, methodology, design etc.); • **Little or no discussion** of the limitations; provides • **Little or no** suggestions for further work; • **Little or no** use of the feedback provided in the PiP **and/or** during meetings with the supervisor.	• **Little or no evaluation** of the project. • Demonstrates **little or no reflection** on the aspects of the project (research, requirements, methodology, design etc.). • **Little or no discussion** of the limitations; provides • **Little or no** suggestions or further work; • **Little or no** use of the feedback provided in the PiP **and/or** during meetings with the supervisor.

Report Quality/ Professionalism (10%)						
• Uses appropriate terminology **accurately**. • **Professionally** presented in both <u>layout</u> on the page and logical <u>structure</u>. • **Impressively** presented in an appropriate <u>style</u>. • <u>Grammatically</u> of an **extremely high** standard. • Results and products of the project **are** of <u>publishable quality</u> and/or of a standard **comparable to or better than** that found in the products of industry leaders.	• Uses appropriate terminology **accurately**. • **Professionally** presented in both layout on the page and logical structure. • **Very well** presented in an appropriate style. • Grammatically of a **very high** standard. • Results and products of the project are **likely to be** of publishable quality and/or of a standard **comparable to** that found in the products of industry leaders.	• A **good grasp** of the appropriate terminology. • **Well** presented in both layout on the page and logical structure. • Presented in an appropriate style. • **Good** grammatical standard. • Results and products of the project **would require some rewriting and improvement** to be of publishable research quality and are likely to be of a standard **slightly below** that found in the products of industry leaders.	• **Mostly uses** appropriate terminology. • **Well** presented in both layout on the page and logical structure. • Presented in **reasonable** way which allows it to be easily read. • **Lacking** in clarity and grammatical structure. • Results and products of the project **would require significant rewriting and improvement** to be of publishable research quality and are likely to be of a standard **significantly below** that found in the products of industry leaders.	• **Often fails** to use appropriate terminology. • **May lack** in layout and/or logical structure. • **May** show a **lack** of clarity and comprehension. • **Lacking** grammatical structure. • Results and products of the project are likely to be **poor and/or incomplete** and **well below** publishable quality and of a standard **significantly below** that found in the products of industry leaders.	• **Lack of or inaccurate** use of the appropriate terminology. • Typically **fails** to accurately or completely describe the work done • Will often contain **little indication** of which parts of the problem are understood and which are not. • **Often** shows a **lack** of structure, comprehension, clarity and grammatical quality. • Results and products of the project are **poor** and/or incomplete, **well below** publishable quality and of a standard very significantly	• **No use** of the appropriate terminology. • **Fails** to describe the problem and the work done. • Shows a **lack** of structure, comprehension, clarity and grammatical quality. Results and products of the project are **insignificant, poor** and/or **incomplete**.

					below that found in the products of industry leaders.	

Component A element 2: **Viva including demonstration**

Percentage mark	100-86 Outstanding	85-70 Excellent	69-60 Very Good	59-50 Good	49-40 Adequate	39-30 Poor / Inadequate	29-0 Very Poor
Technical aspects (80%)	• Provides a **fully working** software. • Demonstrates **outstanding insight** into the technologies employed. • **Outstanding** work on a **very challenging** topic.	• Provides a **fully working** software. • Demonstrates **excellent insight** into the technologies employed. • **Excellent** work on a **challenging** topic.	• Provides a **fully working** software. • Demonstrates **very good insight** into the technologies employed. • **Very good** work.	• Provides a **working** software. • Demonstrates **good insight** into the technologies employed. • **Good** work.	• Provides a **partially working** software. • Demonstrates **some insight** into the technologies employed.	• Provides **little** evidence of a working software. • Demonstrates **limited insight** into the technologies employed.	• Provides **little or no** evidence of a working software. • Demonstrates **little or no insight** into the technologies employed.
Presentation skills (20%)	• **Outstanding** presentation performance. • Answers **all** questions in **great detail**. • Confident. • **Outstanding** reflection.	• **Excellent** presentation performance. • Answers **all** questions in **great detail**. • Confident. • **Excellent** reflection.	• **Very good** presentation performance. • Answers **most** questions in detail. • **Lacks** confidence. • **Very good** reflection.	• **Good** presentation performance. • Answers **most** questions **to some extent**. • **Lacks** confidence. • **Good** reflection.	• **Adequate** presentation performance. • Answers the questions **to some extent**. • **Lacks** confidence. • **Adequate** reflection.	• **Poor** presentation performance. • **Most** questions are **not properly answered**. • **Lacks** confidence. • **Little or no** reflection.	• **Very poor** presentation performance. • Questions are **not properly answered**. • **Lacks** confidence. • **Little or no** reflection.

Component A element 3: **Project-in-progress poster**

	1 (100%)	0.75 (75%)	0.5 (50%)	0.25 (25%)	0 (0%)	
Aims and objectives clearly stated. Clear and appropriate scope.						Aims barely specified; scope limited or unclear.
Great **progress**. Presents appropriate literature review, requirements and design						Little evidence of progress. The project is behind schedule.
Clear and appropriate **planning and management**. Provides clear Gantt chart or similar project scheduling diagram.						Limited or no planning and management. The project is behind schedule.
Poster and video quality. Excellent use of sources. All sources correctly cited and referenced with full details listed. Appropriate style and structure. Good balance between visual and textual information.						Limited sources or sources of poor quality. Some citation of sources but some source details are missing. Style and/or structure needs improvement.
Provides evidence of **engagement** with the supervisor (meeting logs)						Little or no engagement. May have not contacted the supervisor yet.

APPENDIX C – Project Criteria for BCS Accreditation

The Digital Systems Project module has been designed to achieve the BCS accreditation criteria detailed below in an extract from BCS literature.

Guidelines on course accreditation
September 2010; updated Autumn 2012; current issue as of May 2018.
Information for universities and colleges
2.5 Projects

2.5.1 General project requirements

An individual project is an expectation within undergraduate, integrated masters, and postgraduate masters programmes. Students must be provided with written guidance on all aspects of the project, including selection, conduct, supervision, milestones, format of the report and the criteria for assessment.

All projects should reflect the aims and learning outcomes which characterise the programme to which they contribute as set out in the programme specification.

Project reports
Projects must involve the production of a report which should include:
• elucidation of the problem and the objectives of the project
• an in-depth investigation of the context and literature, and where appropriate, other similar products (this section is likely to be emphasised less for an IEng project)
• where appropriate, a clear description of the stages of the life cycle undertaken
• where appropriate, a description of how verification and validation were applied at these stages
• where appropriate, a description of the use of tools to support the development process
• a critical appraisal of the project, indicating the rationale for any design/implementation decisions, lessons learnt during the course of the project, and evaluation (with hindsight) of the project outcome and the process of its production (including a review of the plan and any deviations from it)
• a description of any research hypothesis
• in the event that the individual work is part of a group enterprise, a clear indication of the part played by the author in achieving the goals of the project and its effectiveness
• references

2.5.2 Undergraduate individual project requirements

It is expected that within an undergraduate programme, students will undertake a major computing project, normally in their final year and normally as an individual activity, giving them the opportunity to demonstrate:
• their ability to apply practical and analytical skills present in the programme as a whole
• innovation and/or creativity
• synthesis of information, ideas and practices to provide a quality solution together with an evaluation of that solution
• that their project meets a real need in a wider context

• the ability to self-manage a significant piece of work
• critical self-evaluation of the process

In the event of this major activity being undertaken as part of a group enterprise, there is a requirement that the assessment is such that the individual contribution of each student is measured against all the above learning outcomes.

For accreditation for CITP, CEng or CSci, the individual project should be worth at least 30 credit points at level 6 or above. The project must be passed without compensation.
For accreditation for IEng the individual project should be worth at least 20 credit points at level 5 or above. The project must be passed without compensation.