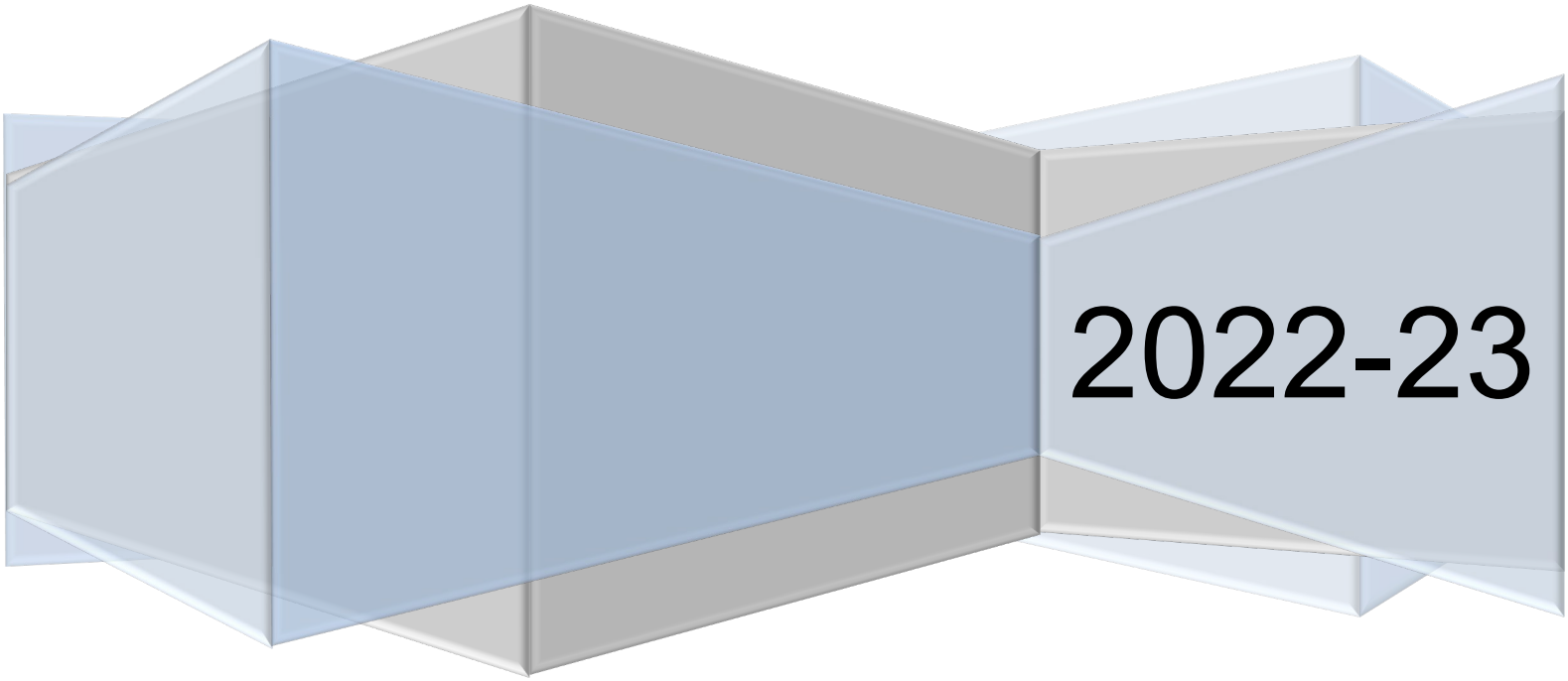
School of Computing, Engineering, and Intelligent Systems

Guidelines for the Submission of Final Year Projects

Mairin Nicell



Contents

1. Introduction

This handbook provides guidelines for students taking the module EEE521 Final Year Project. It offers guidance and information on all aspects of EEE521 to help make your project a success. Before beginning the project, it is important you familiarise yourself with the Module Specification, included in Appendix 1. Read through its contents so that you are aware of the learning outcomes for the module and what you are expected to complete and submit.

These guidelines describe how your project will progress throughout the final year and give advice on the structure and content of the reports required and explains how your work will be assessed.

The Final Year Project is very important to you and your course because:

- It represents a capstone project for your studies and an essential element of your employability portfolio. Many employers will look at your final year project for a measure of your technical and knowledge competencies.
- It is an individual piece of work, so you can control the quality and quantity of the results produced.
- It demonstrates the knowledge and skills that you have acquired on the course so far.
- It demonstrates your ability to produce high quality reports.
- It gives you a chance to improve/extend your knowledge and skills in a range of technical and professional areas.
- It demonstrates your organisational ability, especially in planning and managing your time.
- It demonstrates that you can produce a suitable computing solution to a realistic problem.
- It forms and essential part of professional accreditation for bodies such as the British Computer Society, the Institute of Mechanical Engineers (IMechE) and the Institution of Engineering and Technology (IET) (Appendix 2).

Useful Tips

- The project can be a deceptive experience. As the submission deadline is so far away when you start, there is a danger of wasting time in the early stages of the process.
- Start writing as soon as possible. There are dangers in putting off this task.
- Always allow as much time as possible for the final stages. Final amendments, organising, testing, debugging, word processing and doing a thorough job on the proof reading all take longer than you imagine. Something will always go wrong to thwart your schedule!

2. Assessment Schedule

The Final Year Project is assessed as follows:

- Semester 1: Students submit their Interim Report for marking and take part in an Interim Demo Assessment
- Semester 2: Students submit a video, deliver a presentation and showcase the demo/product/code to a panel of markers

The proposed Assessment Schedule for 2022-23 is: **(Subject to change)**

Semester One

Week 01	Students complete a **Project Statement** (PS) and submit it directly to BBL for the attention of the Project Supervisor, by **midnight** on **Friday 30 September**. The Project Supervisor checks the PS on BBL and agrees (1) or disagrees (0) with its contents. The 1 or 0 will be entered in the relevant column in the Grade Centre for students to view. The 0 indicates that the student must re-engage with the supervisor and rewrite the PS. The Project Supervisor **MUST** ensure details of the project have been entered into the Faculty Ethics Database and it meets the Professional Body Guidelines.
Week 08	In accordance with the Report Submission Guidelines, Appendix 7 of the handbook, submit a **DRAFT REPORT** for feedback, directly to BBL for the attention of the Project Supervisor, of the **Introduction, Analysis and Design chapters**, by **midnight** on **Friday 18 November.** **FORMATIVE FEEDBACK** will be returned to the student **at the face-to-face project meeting by midnight on Friday 02 December** (**Week 10)** Students can expect to have the work commented upon at this stage.
Week 12	In accordance with the Report Submission Guidelines, Appendix 7 of the handbook, an electronic copy of the **Report** must be submitted to EEE521 area of BBL TurnItIn Submissions by **midnight on Sunday 18 December** for **FINAL MARKING**.
Week 13	Beginning **Monday 09 January,** you will take part in an **Interim Demo Assessment** with your Project Supervisor and Second Marker. Exact dates and times will be arranged by the Project Supervisor for a time suitable to both staff and students. These should be completed by **Friday 20 January.**

Semester Two

Week 06	**Friday 10 March**, **by midnight**, submit to BBL a progress presentation (max 10 mins) which will be presented at a group meeting (Teams) with project supervisor and other supervisor's students in Week 07 for peer review. Group meeting to be completed once only for formative feedback. Where are you in the implementation of project and test plan? What tests will you choose? Why are they appropriate for what you are doing?
Week 07	Peer group meeting
Week 12	**Friday 05 May, by midnight,** submit the Testing video, software and/or relevant project files must be submitted to BBL.
Showcase	Beginning **Tuesday 09 May** Showcase begins. Students will be asked to deliver a presentation on the **Evaluation and Reflection** and demo project/code before a panel of four academic staff.

3. Project Roles and Responsibilities

You are in charge of your project and you lead the way! You must take ownership of the project from the beginning. This is your own work and the culmination of your degree.

There are a few deadlines that have been set for you, but the detailed plan and implementation are your responsibility.

Various academic staff provide support:

- Project Coordinator (Mairin Nicell): The Project Coordinator has overall management responsibility for organising and managing the projects; allocations, submissions and vivas.
- Courses' Coordinator (Mairin Nicell): The Courses' Coordinator handles any EC1 issues which may arise.
- Project Supervisor: The Project Supervisor helps guide your project and contributes to its assessment.
- Second Marker: A second academic member of staff is assigned to each project to mark each element independently of the supervisor.

3.1 Your Supervisor

- Your supervisor is there to guide you, not to do or write your Project for you. The Project is your responsibility.
- Your supervisor will be available to see you, every week, at a mutually agreed time.
- Your supervisor is there to guide you but can only do so if contact is regular and frequent.
- Your supervisor will keep a record of your attendance and be asked regularly to update the Project Coordinator on your progress.
- Your supervisor has the responsibility of bringing reasonable project resourcing requests to the appropriate person/committee.

3.2 Responsibilities of Project Supervisors

Your supervisor's role is to:

- Help the student refine the original Project proposal. The emphasis must be on what is achievable.
- Discuss approaches to the literature review and offer advice if necessary.
- Discuss the project ensuring that the student has thought through the process adequately and offer advice on how to refine the design/methodology process.
- Meet with student at agreed times, in groups or individually as appropriate, and keep a record of contact and advice given using the Weekly Journal tool of BBL.
- Monitor and discuss student attendance and progress and advise the Project Co-ordinator of any students causing concern.
- Read and provide verbal feedback during weekly meetings in each semester to help students identify any weaknesses in analysis and presentation.
- Read and provide written formative feedback on one complete draft of the Project during each semester as outlined in the Assessment Schedule.
- Mark the Project.
- Ensure resources (e.g. suitable equipment) are available for the project.
- Recommend any necessary changes to the original proposal to the Project Co-ordinator.
- Keep a record of the project meetings.
- Agree to all changes to the project proposal in conjunction with student and Project Co-ordinator.

3.3 Responsibilities of Students

A student is required to:

- Attend meetings with the supervisor on a weekly basis and occasional meetings with project co-ordinator.
- Adhere to the assessment schedule timetable and inform supervisor of any problems.
- Supply a draft of the project (as outlined in the Assessment Schedule) for reading and feedback. The student is responsible for accurate citation, the standard of English, overall presentation and proof reading of the work.
- Meet the deadlines associated with the Project.
- Attend the Showcase and answer questions about the project.
- Report any problems concerning project supervision to the Project Co-ordinator.
- Maintain a Weekly Journal and ensure it is shown to supervisor at regular intervals.

As a general point, the Project process and the production of the Project are primarily the student's responsibility. The supervisor is there to help and guide but not to do the work or write it for you.

Student attendance at project meetings with the project supervisors will be monitored closely and recorded, usually via Qwickly. Failure to attend project supervision meetings will be identified and students contacted as necessary.

3.4 Weekly Journal

Students may maintain a journal for the duration of the project. To do this you can use the Journal Tool in the BBL area for EEE521 Final Year Project.

This journal provides a record of your project progress and the learning experience you are having. It will be a valuable resource for you in the preparation of your Final Report especially the Reflection chapter. It is easy to forget important details of work carried out when writing up later.

In advance of your scheduled meeting with your Supervisor, submit a **weekly entry** which outlines the following:

- What you have worked on since the last meeting
- What issues you had and how these were resolved/will be resolved
- What you plan to do for the next meeting

During each meeting, your Supervisor may update the **Comment** section of each journal entry, to indicate what was discussed during the meeting, and what you have both agreed for the next one.
If you fail to maintain an accurate journal, this reflects poorly on your engagement with the module and the course.
The journal entries may be of any length and each one will be unique to you and your project. They will only be read by your Project Supervisor and the Project Co-ordinator (if necessary).

4. Project Supervisors and Topics

Each student is allocated to a Project Supervisor, who is a member of academic staff. Each supervisor has provided a list of suggested topics for projects which he/she is happy to supervise using the **Project Allocation Tool** (PAT).

Supervisors are also willing to discuss and advise students on any projects they suggest themselves. Students are often suggested a topic by their placement supervisor relating to their work experience. This must be carefully examined to ensure that the suggested work matches the module specification. The student should not produce a working solution to meet the workplace requirements only; it must meet the module requirements in the first instance. If you wish to define your own project you should write a short outline, up to a page, and email it to your proposed Project Supervisor prior to arranging a meeting to discuss topics.

5. Allocation of Project Supervisor

To improve the final year student experience and to get students started early on their final year projects we have changed the arrangements for allocating project supervisors.

Project allocation is made using PAT, to suit both students and supervisors in relation to their specific courses. Students choose **project topics** from the selection presented via the tool, and the algorithm, using the second-year average for each student, allocates students to an academic member of staff.

You should make every effort to engage with your supervisor as early as possible in advance of starting final year.

The objective is to have the **Project Statement** (Appendix 3) completed and agreed with your Project Supervisor in **Week One** of the first semester, with work ready to start immediately.

Each Project Supervisor is paired with another academic member of staff who will be the Second Marker.

The pairings for 2022-23 are as follows:

Professor Sonya Coleman	Mr Alex McDaid
Professor Liam McDaid	Mr Aqib Javed
Dr John Wade	Dr George Martin
Professor Girijesh Prasad	Mr Malachy McElholm
Mrs Mairin Nicell	Mr Marinus Toman
Ms Rosaleen Hegarty	Dr Pratheepan Yogarajah
Dr Dermot Kerr	Dr Bryan Gardiner
Dr Pryianka Chaurasia	Professor Joan Condell
Dr Kongfatt Wong-Lin	Dr Michaela Black
Dr Nazmul Siddique	Dr Emmett Kerr
Dr Ryan Harkin	Dr Shaun McFadden
Dr Bronac Flanagan	Dr Daniel Kelly
Dr Cormac McGarrigle	Dr Justin Quinn
Dr Karl McCreadie	Dr Philip Vance
Dr Darryl Charles	Dr Saugat Bhattacharyya
Dr Jim Harkin	Dr Sagar Nikam
Professor Kevin Curran	Dr Cian O'Donnell
Dr Debbie Rankin	Mr Aiden McCaughey

6. Project Statement

The next step is the Project Statement (Appendix 3). This is a one-page document which identifies the Project Title, Project Aims and Objectives, and provides a description of the project in the form of a Problem Statement. This statement will form the basis of the Introduction chapter in your report. Any risk/health and safety issues should be identified at this early stage. It is recommended that you discuss any potential risks/health and safety issues with your supervisor at the outset to identify anything that might affect the success of the project and consider ways of removing or reducing such risks. The University requires a risk assessment be completed for all projects. Typically, computing projects will have nothing more than the standard risks related to using a computer and monitor. However, some engineering projects may involve the use of electrical equipment or work in an environment containing hazards. All such risks should be identified, along with an indication of how they will

be managed. Managing such risks is a way of reducing potential problems that could affect the success of your project or the quality of what is produced.

Engineering students need to complete the Health and Safety Risk Assessment Form (Appendix 3) and confirm that this has been done.

The Project Co-ordinator also checks that the project details have been entered by the supervisor into the **Faculty Ethics database**. There is a university requirement that any research which makes use of human subjects must obtain ethical approval in advance. This includes techniques as simple as using a group of students to evaluate your project prototype. You should discuss ethical approval with your supervisor. For projects that just require the use of questionnaires, using non-vulnerable adult subjects such as fellow students, there is a stream-lined approval process.

The supervisor must also ensure that the project complies with the accreditation requirements of the professional body. The form must be signed by the student and submitted to BBL by the end of Week One.

7. Project Supervision and Feedback

Students are expected to maintain weekly contact with their Project Supervisor, in the form of face-to-face meetings, in groups or individually as appropriate, for a **maximum of 30 minutes**, usually in the Supervisor's office. Students can expect a minimum of **TWO face-to-face meetings** each semester, not to include assessments. Other meetings may be held via MS Teams if appropriate for both staff and students.

You should use this meeting to acquire feedback, guidance, and direction on any work you have produced or technical issues you may be experiencing. Supervisors will provide general verbal feedback on any draft written or other work you bring with you to the meetings. The work may be the focus of the meeting if necessary. The meetings should be arranged at a set time suitable to both and this arrangement should be maintained throughout the academic year.

Students can expect to receive **ONE** formal cycle of feedback of each chapter in S1 from their Project Supervisor on the written work.

8. Assessment

The project assessment will be completed in two semesters:

- S1: Interim Report (IR), (37.5%) & Interim Demo (ID) (12.5%)
- S2: Video (10%) & Showcase (SC) (40%)

It should be pointed out at this stage that the IR should be no more than **25 pages** excluding appendices and references.

Each subject area within the School has created a **report template** for students to use which includes indicative content for each section. These templates are found in the EEE521 area of BBL. Students are advised to read each section carefully and to note the details provided.

8.1. Semester One Interim Report and Interim Demo

In accordance with the Interim Report Submission Guidelines, Appendix 7 of the handbook, during semester one, students are expected to write the IR and to submit an electronic copy to the EEE521 Blackboard Learn area. A draft of each chapter of the IR will be submitted in Semester One in **Week 08 for formative feedback,** with the final submission due in **Week 12 for final marking**.

At this milestone you will be assessed on the following (out of 100%):

- Presentation (10)
- Introduction (10)
- Research & Analysis (30)
- Design (25)
- Interim Demo (25)

You can expect to have the work formally annotated/commented upon by your Supervisor at this stage. This formative feedback will be returned to the student in before Christmas via BBL. These comments **MUST** be acted upon to improve your final report submission.

In **Week 12** an electronic copy of the Interim report must be submitted to BBL TurnItIn Submissions by **midnight** on **Sunday 18 December** for **final marking**.

Students may submit drafts of the report to TurnItIn as many times as they so wish up to the deadline of semester one.

You will find the **EEE521 Final Year Project Assessment and Feedback Form** in Appendix 6 and the guidelines for the submission of the IR are outlined in detail in Appendix 7.

The IR represents approximately 37.5% of the module and producing a high-quality draft at this stage is important for your overall performance.
You need to be aware of the Criteria for Honours Classification for Final Year Projects in Appendix 4, and the Assessment Rubric in Appendix 11 as these will be used to assess your overall project. The Criteria for Honours Classification for Final Year Projects have been developed and agreed by those staff members who will be marking your project.

During semester one the student can submit multiple copies of their report to TurnItIn and the report will not go into its repository, until **Week 12**. Following this the final submission will be lodged in the repository.

Beginning **Monday 09 January**, you will take part in an **Interim Demo Assessment** to your Project Supervisor and Second Marker. Exact dates and times will be arranged by the Project Supervisor for a time suitable to both staff and students. During this demo, you will be expected to demonstrate the progress you've made to date in the creation of the implementation. You will be expected to demonstrate that you've an understanding of the technologies you will use in semester two and you have investigated the best solution to your problem.

8.2. Semester Two Video

Semester Two is when you will make most progress on your project, and it is during this semester that the analysis and design outlined in the IR are used to produce the implementation which is subsequently tested and evaluated. Students are still expected to maintain the weekly journal and weekly contact with their Project Supervisor.

The first milestone in Semester Two, is in Week 06. By **midnight Friday 10 March**, by midnight, you are required to submit to BBL a progress presentation, using MS PowerPoint presentation template provided in EEE521 area of BBL. This should be maximum 10 minutes long. You will deliver this presentation at a group Teams meeting attended by your project supervisor and other students in Week 7/8 for peer review. At this time, you should outline where you are in the implementation of the project and test plan, what tests will you choose, why are they appropriate for what you are doing. This group meeting will be completed once only.

The second milestone is in Week 12, when you are required to submit, by **midnight Friday 05 May**, you will produce a video of your project, and submit to EEE521 area of BBL. The video is NOT a replacement for the product you are working on, which you must submit and demonstrate at the showcase as well. The video will be used to assist in marking the **TESTING PHASE** of the final year project by your project supervisor and second marker and will also be used for moderation purposes.

The video will NOT be shared with anyone who is not involved with EEE521 marking or moderation.

Students are expected to produce a video 10 minutes long (maximum) to demonstrate the TESTING PHASE of the project. It is recommended you follow this structure:

- Introduce the project topic.
- Outline the project aim and objectives and state if these were met.
- Demonstrate the Model / Product Functions / Testing and Performance
- Finish by demonstrating the uniqueness of your project.

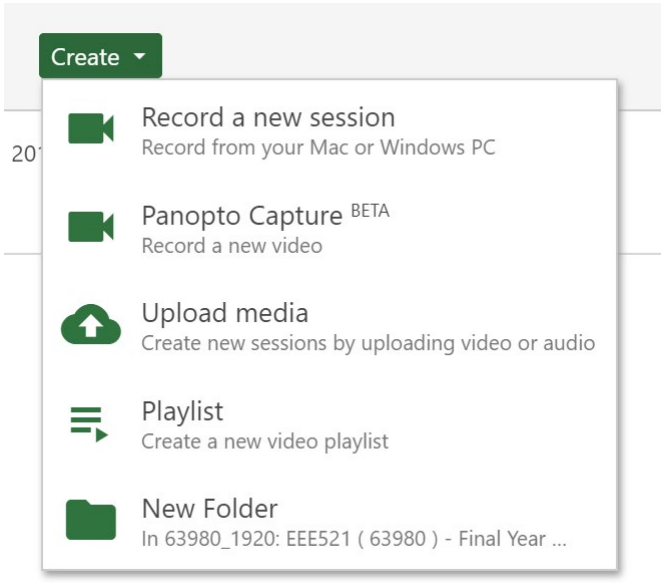
There are several tools you can use to record your video. Some suggestions are given here:

FOR DESKTOP / LAPTOP

- **Panopto** (Available through EEE521 Final Year Project Area in BBL)

  This tool can be used to capture on-screen interactivity or to record a video using the camera feature on your device.

  This tool is free for students to use through Blackboard Learn in the EEE521 area. You will find the link on the left-hand menu, it as an option on the main menu, under 'Students', 'Panopto for Video Creation'. You need to click 'Create' and choose 'Record a new session'. This will start screen capture:



  You will need to **DOWNLOAD THE VIDEO once completed.**

https://support.panopto.com/s/article/Assignment-Submission-Workflow-in-Blackboard

Free or Trial Software (For Both Windows and Mac Except Where Stated)

- Apowersoft Free Online Screen Recorder
  https://www.apowersoft.com/free-online-screen-recorder

- OBS Studio
  https://obsproject.com

- Flashback Express (Windows only)
  https://www.flashbackrecorder.com/express/

- TinyTake
  https://tinytake.com

- Debut Video Capture (Mac only)
  https://www.nchsoftware.com/capture/index.html

- Bandicam (Windows only)
  https://www.bandicam.com/free-screen-recorder/

- CamStudio (Windows only)
  https://camstudio.org

- Snagit (15-day free trial)
  https://www.techsmith.com/download/snagit/

Built-in options

- Windows 10 Built-in screen recorder
  https://betanews.com/2019/01/14/windows-10-screen-recorder-ultility/

- Mac Built-in Screen Recorder
  https://support.apple.com/en-gb/HT208721

For **Engineering** students who are doing research topics and delivering your project results using a PowerPoint presentation:

- Microsoft Office PowerPoint Presentation Recorder (Office 365)

  - The **Recording** tab gives you an easy way to insert any of the features from one place. To automatically turn this tab on:
    - File > Options > Customize Ribbon

- Main Tabs > select Recording > Click OK

- The Recording window has the following features available:
  - Record, Stop, and Start Preview buttons
  - A button for showing speaker notes that aren't visible in the recording
  - Settings for hardware (microphone, camera)
  - Current slide with Back and Forward arrows
  - Two timers (one shows time spent on current slide, other shows cumulative recorded time)

- Please re-watch recording before uploading as final video.

Additional Support: https://support.office.com/en-us/article/Turn-your-presentation-into-a-video-C140551F-CB37-4818-B5D4-3E30815C3E83

FOR MOBILE DEVICES

- Android Screen Capture (No ads)
https://play.google.com/store/apps/details?id=com.kimcy929.screenrecorder&gl=GB

- Screen Recorder With Facecam & Screenshot Capture
https://play.google.com/store/apps/details?id=com.screenrecorder.recorder.audio.videoeditor&gl=GB

- Screen Recorder, Video Recorder, V Recorder Editor
https://play.google.com/store/apps/details?id=screenrecorder.recorder.editor&gl=GB

- How to record the screen on your iPhone, iPad or iPod touch
https://support.apple.com/en-gb/HT207935

8.3. Showcase (Presentation and Demo)

The Showcase is an opportunity for the student to present and demonstrate his/her work in a face-to-face environment. It will take place in one of the labs and will involve a panel of four people drawn from the academic staff including the Project Supervisor and the Second Marker. The panels will be based around subject teams as far as possible.

On **Tuesday 09 May the** Showcase begins. Students will be asked to deliver a **presentation** on the **Evaluation and Reflection** and demo project/code before a panel of four academic staff. The presentation should be 10 minutes long (maximum).

Firstly, evaluate your project to assess the perceived value of your system to its intended users against the specified requirements. You are not expected to create a 'perfect' system so marks are awarded more for the thoroughness of your validation than any praise obtained. Indeed, criticism gives you an opportunity to explain the issue raised and suggest improvement. You should use evaluation tools and techniques which are appropriate to your subject area to ensure a thorough evaluation is carried out.
Secondly, in the reflection, you should indicate what lessons you have learned and so clarify what you might do differently if faced with the same situation again. You should identify and discuss how the project plan evolved as the project progressed.

A timetable will be circulated in semester two outlining the day/time/location when the SC will take place. Each one can expect to last approximately **30 minutes**.

If necessary, please set up your demo on a PC in your allocated lab prior to the day of the Showcase. It is ok to use your own laptop or PC for your demonstration. If you do so ensure in advance that you have all the necessary adapters and leads with you. The Showcase will proceed as follows:

- The student delivers the presentation, providing an opening introduction to the project in a succinct way to set the background and context for the panel. You are expected to describe the evaluation and reflection phases of the project (**10 minutes**).
- 20 minutes will be dedicated to a demonstration of the project/code and a question-and-answer session. You must convince the panel that you have a sound understanding of the issues and be able to illustrate how problems were overcome.
- The student will then leave the room and the panel will move to a separate area to complete the necessary paperwork. A final mark is given to each project at the end of the Showcase.

This completes the assessment of EEE521 Final Year Project.

Appendix 1: EEE521 Module Specification

MODULE TITLE: Final Year Project

MODULE CODE: EEE521

EFFECTIVE FROM: September 2020

MODULE LEVEL: 6

CREDIT POINTS: 40

MODULE INSTANCES:

Location	Semester	Module co-ordinator	Teaching staff
Magee	1 & 2	Mairin Nicell	Mairin Nicell

HOURS:	Lectures	6 hours
	Tutorials	24 hours
	Independent study	370 hours
TOTAL EFFORT HOURS:	400 hours	
ACADEMIC SUBJECT:	Electrical/Electronic Engineering	

RATIONALE

Students are required to undertake an individual project during the final year of the course. Its purpose is to provide an experience of developing a computing/engineering solution to a realistic problem. This work combines skills and knowledge acquired previously on the course with those acquired during the project. In particular students will have an opportunity to:

(i) strengthen their competence in project management, in taking an initial concept through to a successful implementation; and

(ii) enhance their communication skills, in producing a dissertation and defending the work.

AIMS

The aims of the module are:

- To provide each student with the experience of developing a software/hardware/engineering solution to a realistic problem, taking the solution from initial conception through to successful delivery.

- To provide each student with the experience of carrying out a programme of work within the framework of a management schedule.
- To provide an opportunity to apply skills and knowledge acquired earlier in the course.
- To provide an opportunity to enhance generic computing/electronic/engineering skills—in particular, an ability to identify requirements, design and implement a solution based on those requirements, and test and evaluate the resulting solution appropriately.
- To provide an opportunity for students to enhance their personal skills, especially an ability to work independently, plan and organise time appropriately, and critically evaluate both the prototype produced and the process through which it is created.
- To encourage the development of deeper knowledge and skills in the selected area of study.

LEARNING OUTCOMES

A successful student will be able to:

1. Demonstrate knowledge and understanding of the application of appropriate project management methods and personal time management tools and techniques for a computing/engineering project.
2. Appreciate the professional, legal, moral and ethical issues involved in the development and deployment of a computing/engineering solution.
3. Demonstrate an ability to analyse problem, devise an initial system design, implement and test a solution.
4. Present in writing and communicate verbally an in-depth analysis of the project topic.

CONTENT

The student will undertake project-specific study and investigation. Content will vary from project to project but will typically involve the analysis of a software/hardware/engineering related problem, followed by the design, implementation, testing and evaluation of an appropriate software/engineering solution.

The Project Supervisor will be responsible for guiding the student through the process and for monitoring student progress with respect to the overall project schedule.

Students will make use of the various hardware/software/engineering resources available within the university and, by prior arrangement, with industrial partners.

LEARNING AND TEACHING METHODS

Each student will be allocated a project supervisor, responsible for guiding the student through the process and for monitoring progress with respect to the overall project schedule. Weekly tutorial meetings will be held with each supervisor. The supervisor's role is one of verifying, encouraging and counselling rather than precise directing.

Students will be provided with guidance lectures delivered by the Project Co-ordinator at strategic points in each semester.

Students will be directed to read the Project Handbook, which provides a detailed explanation of all aspects of the project and its assessment.

Students will be expected to:

- work consistently throughout the project and meet regularly with their supervisor
- make use of the various hardware/software/engineering resources available within the University and, by prior arrangement, with industrial partners

The module is offered by Blended Learning.

ASSESSMENT AND FEEDBACK

This module has 4 essential assessment components:

1. An Interim Report (37.5% of the overall coursework mark)
2. An Interim Demo (12.5% of the overall coursework mark)
3. A Video (10% of the overall coursework mark)
4. A Showcase (40% of the overall coursework mark).

An End of Semester 1 Report is submitted, addressing issues such as:

- Project aims, objectives and plan;
- Investigation, literature review and assessment of the problem;
- Requirements analysis and specification;
- Initial design approach / proposed testing strategy.

Semester 1's report is assessed, and feedback given with respect to the following skills:

- Critical and evaluative skills
- Management and planning skills

The sources of evidence for assessing these skills will include:

- End of Semester Report
- Project Supervisor's and Second Marker's comments.

Semester 2 is assessed with respect to the following skills:

- Software/engineering development skills
- Evaluation and testing skills
- Communication skills
- Management skills

Continuous formative feedback is given at weekly meetings as the student develops his/her solution. Summative feedback is provided at the end of both Semester 1 and Semester 2.

100% Coursework 0% Examination

READING LIST

Required:

Project Handbook

SUMMARY DESCRIPTION

Students are required to undertake a major project during the final year of the course. The module offers students an opportunity to develop a realistic and meaningful piece of work during the final year. This module allows a chosen subject area to be researched in depth and a solution developed as a consequence.

Students will have an opportunity to integrate and apply the learning achieved from other modules in the course. The module runs during both semesters and allows students to develop a comprehensive approach to all aspects of working on a large project.

The project encourages innovation and creative thinking in the development of the solution. It also develops the entrepreneurial mindset, which can influence the challenges undertaken and final decisions made.

Appendix 2: Professional Body Accreditation

The course you are studying has been given professional accreditation by the relevant professional body. Computing courses are accredited by the British Computer Society (BCS). The BCS specifies what Computing courses need to contain to obtain accreditation for graduates (BCS, 2018). The accreditation requirements for computing courses state that the course must include a major student project that must be "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 practice to provide a quality 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" (BCS, 2018).

An extract from: BCS Guidelines on course accreditation, Information for universities and colleges, May 2018, p14-15.

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

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

Engineering courses receive accreditation from the Institute of Mechanical Engineers (IMechE) and the Institution of Engineering and Technology (IET). Broadly both institutions indicate that "All degrees accredited by the IMechE/IET include an individual project. This may be a "linked" exercise but individual input is essential and must be clearly identifiable as such and assessable independently. The project should form a major part of the final year of a degree and contribute between 15 and 25% of the available marks for the final year. The project should be of a technical nature and support the engineering orientation of the degree as a whole. It should not simply be a computer exercise, a non-technical assignment or a review (although a review will normally be part of the project). Although some projects may not contain all the following elements, the ideal project should involve:

- Reference to any relevant previous work
- Appropriate analysis
- Appropriate design
- Manufacture (if practical)
- Testing and interpretation of results
- Preparation of a final report including costing aspects and clear recommendations."

Appendix 3: Project Statement

EEE521 FINAL YEAR PROJECT: PROJECT STATEMENT

Student Name:			B00
Course Title:	BEng Hons BSc Hons *(delete as appropriate & complete course title)*		
Project Title:			
Project Supervisor:		Second Marker:	

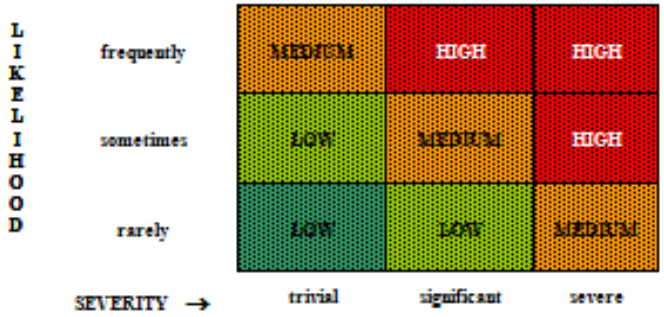
Project Aims and Objectives
Problem Statement (Max 100 words)
Are there any risk factors/health and safety issues? Yes ☐ No ☐
Has the projects been entered into the Ethics database? Yes ☐ No ☐
Computing Projects: Please confirm ☐ that the proposal satisfies the BCS requirements for (2.5.1) "General project requirements" and (2.5.2) "Undergraduate individual project requirements".
Engineering Projects: Please confirm ☐ that the Health and Safety Risk Assessment for Undergraduate projects is complete.

Student Signature:	**Date:**	

Health and Safety Risk Assessment– general hazards to staff 03/07

Work activity assessed Date:_____	**Faculty/School/Department reference** _____

Person(s) affected Staff Students Others **Numbers affected** _____	
Activity frequency Daily Weekly Other	
Campus (please tick) **J C M B**	
Room ref (if relevant)	
Review due	



Individual Tasks	Hazards	Controls required	In place Yes √ No ×	Risk rating (use matrix)	IMPLEMENTING THE CONTROLS	
					Action by whom?	Action by when?

This risk assessment will be reviewed at least annually where any significant changes are made, new equipment introduced or if there is any reason to suspect it is no longer valid.

Health and Safety Risk Assessment– general hazards to staff 03/07

Task Hazard Prompt

1. Falls or Falling Objects ☐
2. Manual Handling ☐
3. Portable Hand Tools ☐
4. Machinery/Plant ☐
5. Vehicles ☐
6. Fires ☐
7. Explosions ☐
8. Chemicals / Dusts ☐
9. Biological Agents ☐
10. Drowning (Near open water) ☐
11. Radiation ☐
12. Electricity ☐
13. Pressure Systems ☐
14. Thermal Environment ☐
15. Noise and Vibration ☐
16. Display Screen Equipment ☐
17. Hazardous Waste ☐
18. Lone Working ☐
19. Field Trips ☐
20. Entry into Confined Spaces ☐
21. Sharps Injuries ☐
22. The Working Environment ☐
23. Welding ☐
24. Violence ☐
25. Sports Injuries ☐
26. Foreign Travel ☐
27. Working at Heights ☐
28. Others (Not Listed) ☐

Assessor's Comments

Faculty/School/Department/Research Institute _____

Signature of assessor _____ Print name _____ **Designation** _____

Management Comments

Manager/supervisor _____ Print name _____ **Designation** _____

Risk assessment communicated to: Technicians ▫ Academic/supervisor ▫ Students ▫ PRD ▫ Others _____

Appendix 4: Criteria for Honours Classification for Final Year Projects

1st (80 - 100): Outstanding:
Here the candidate must demonstrate outstanding ability across ALL aspects of the project, in terms of background research, the project report, software/hardware/engineering implementation, oral presentation and project management. There must be evidence of originality and insight, and clearly supported by an extremely high level of innovation, initiative, motivation and independent work. The work must be at a level which shows clearly that the student can pursue doctoral research and the work itself is capable of publication as it is.

The project must be complete with all the project requirements outlined in the report implemented with further additions over and above, showing an outstanding level of detail, a significant amount of analysis or assessment of results, and an outcome which could be commercialised.

The student must use novel and appropriate technologies, and he/she must have shown a high level of expertise in the use of the tools. The student must display an outstanding understanding of the technical components of the project.

The student must have gone above and beyond the supervisor's expectations and impressed the examiners by providing original contributions to the project. The student must have an outstanding understanding of the relevance of the project within industry or research.

The oral presentation must demonstrate that the student is highly articulate and clearly knowledgeable of the subject. The student can 'think on their feet' and is confident in doing so.

The report has been written demonstrating an exceptional level of writing style and is perfect in terms of its adherence to the template, layout and presentation with no errors of any kind.

1st (70 - 80): Excellent:
Here the candidate must demonstrate clear excellence across ALL aspects of the project, in terms of background research, the project report, software/hardware/engineering implementation, oral presentation and project management. There must be evidence of innovation and creativity clearly supported by a high level of initiative, motivation and independent work. The work must be at a level which shows clearly that the student could pursue doctoral research.

The project must be complete with all of the project requirements outlined in the report implemented to produce an excellent solution. The student must use novel and appropriate technologies, and he/she must have shown expertise in the use of the tools. The student must display an excellent understanding of the technical components of the project. The student must have impressed the examiners by providing some original contributions to the project and a wide range of complexity. The student must understand the relevance of the project within industry or research.

The oral presentation must demonstrate that the student is articulate and very well-rehearsed without the need to read from notes. The student provided knowledgeable answers to the questions and can ‘think on their feet’.

The report has been written demonstrating an excellent writing style and is perfect in terms of its adherence to the template, layout and presentation with only minor errors found in the document.

2:1 (60 - 69): Good:
To achieve this level there must be significant evidence of wide-ranging and deep study in relevant material and texts. This must be placed in its wider academic and research context. There must be an imaginative approach, a balanced treatment of possibilities and comprehensive thinking.

The project must be basically complete with all of the project requirements outlined in the report implemented and no bugs/errors found during the demo. The student must use appropriate technology and show competence in the use of the tools.

All or most of the project report, software/hardware/engineering implementation and project management are considered good with some parts excellent although there will likely be a lack of originality or innovative flair. The project may not have been thoroughly tested or evaluated.

The student has given a good oral presentation but used notes to remain on track and provided good, sound answers to the questions.

The report has been written demonstrating a good writing style although there are aspects where improvements could be made. For example, the report adheres to the template, but there are some presentational errors found in the document.

2:2 (50 - 59): Satisfactory:
At this level the candidate has performed a study of the given project but there is a lack in-depth work and subject knowledge. All or most of the project report, software/hardware/engineering implementation, oral presentation and project management are considered adequate although some are not covered in depth. The student attempted to use appropriate technology and has shown some competence in the use of the tools, but the project is incomplete with several deficiencies.

There are several flaws in the software/hardware/engineering implementation and inadequate coverage of the original specification. The project fails to address many of the appropriate concerns, is unambitious, and lacks any analysis of the domain.

The student has given an adequate oral presentation but read extensively from notes. The answers to the questions were appropriate.

The report is adequate although the writing style may be unclear in places. The report adheres to the template, but there are several presentational and other errors found in the document.

3rd (40 - 49): Adequate:
At this level there is a reasonable attempt to complete a project but overall it falls below minimum standards, either in the academic report or the practical solution. Academically this could mean a missing chapter in the report, and practically, failing to translate a hardware/software/engineering design into an effective implementation.

There should be evidence of competence in practical areas indicating that the student can use relevant software/hardware/engineering technologies, but there are shortcomings in the work.

The student followed only what the supervisor told him/her to do. The project is very incomplete with only a small number of the project requirements outlined in the report implemented and numerous problems remain. The student has a limited ability, limited understanding of the different components of the project and limited knowledge of the subject. The work is considered redeemable with a reasonable amount of effort.

The student read extensively from notes during the presentation and showed a lack of knowledge in the answers given to questions.
The report is basic showing a basic knowledge and understanding of the subject. It does not adhere to the template, and there are several presentational and other errors found in the document.

Fail (0 - 39):
Here the student has completely failed to achieve a level of performance in one or more areas to the extent where the work is considered irredeemable. The project area is insufficiently understood, the results untenable, or the written and/or oral presentation of the work is completely flawed. There may be no software or hardware demonstration. There may have been a complete lack of background research, leading to a serious lack of understanding of the requirements or methodology appropriate to the topic under consideration.

All or most of the project report, software/hardware demonstration and oral presentation and project management are inadequate. The supervisor might have found the candidate not attending regular meetings or only providing work towards the end of the project rather than consistently throughout the period.

Appendix 5: Assessment Approach: 6Cs

(A variant of the 5Cs from Oxford CS)

- **Context:** Does the work show a good appreciation of the context to the work? Does it demonstrate suitable motivation, relevant background research, and knowledge of state of the art with appropriate references?

- **Clarity:** Does the work set out a clear set of aims and objectives (i.e., requirements)? Is the work presented in a way that is readable and clear for the non-specialist, but with appropriate level of detail for the degree being pursued? Does the work set out a clear set of requirements or is there a clear research question central to the project?

- **Completeness:** Does the report provide evidence of a systematic approach to research? Is there evidence that the work was well planned and that the student was engaged throughout the period of assessment? Has the work been completed to a level in accordance with the assessment stage of the award or is there more that the student could have done?

- **Competence:** Does the report demonstrate competence in the use of appropriate techniques, tools or technology at a suitable level of expertise and technical depth? Did the student require or obtain ethical clearance for the work?

- **Criticism:** Does the report provide appropriate critical assessment and evaluation of the work that has been done, and the process of doing it? Does the report provide evidence of reflection in the final evaluation? Has the student demonstrated that he/she has acted upon the feedback given in Semester 1? Has the student justified decisions made throughout the project?

- **Contribution:** Does the report show that the student has made some original contribution to the topic by analysing, designing and implementing an appropriate system? Is there an argument to suggest a contribution to either industry practice or the research field

Appendix 6: EEE521 Final Year Project Assessment and Feedback Form

FRONT PAGE

EEE521 FINAL YEAR PROJECT ASSESSMENT AND FEEDBACK FORM								
Student Name:		B00					Course Title: BEng Hons ☐ BSc Hons ☐ *(delete as appropriate & add course title)*	
Title:							Marker: 1st ☐ 2nd ☐	
S1 INTERIM ASSESSMENT: TurnItIn Similarity Report: % Flag for Plagiarism: Yes ☐ No: ☐								
Mark	**Sections:**	**Marks Feedback:**						**Comments:**
		Outstanding (1st)	Excellent (1st)	Good (2:1)	Satisfactory (2:2)	Borderline (3rd)	Fail	
/10	**Presentation of Report**	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	**PRESENTATION:**
/10	**Background/Problem Statement**	(5)	(4)	(3)	(2)	(1)	(0)	**INTRODUCTION:**
	Aims/Objectives	(5)	(4)	(3)	(2)	(1)	(0)	
/30	**Literature Review**	(5)	(4)	(3)	(2)	(1)	(0)	**RESEARCH & ANALYSIS:**
	Investigatory Process	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
	Requirements Specification	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
	Project Management	(5)	(4)	(3)	(2)	(1)	(0)	
/25	**Design Rationale**	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	**DESIGN:**
	Modelling	(15-13)	(12-10)	(9-7)	(6-4)	(3-1)	(0)	
/25	**Technology selected & setup (Methods / Techniques described)**	(5)	(4)	(3)	(2)	(1)	(0)	**INTERIM DEMO:**
	Evidence of work completed	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
	Ability to articulate the project idea and proposed solution	(5)	(4)	(3)	(2)	(1)	(0)	
	Ability to answer questions	(5)	(4)	(3)	(2)	(1)	(0)	
/100	**SUPERVISOR SIGNATURE:**							**DATE:**
/100	**SECOND MARKER SIGNATURE:**							**DATE:**
/100	**S1 AGREED MARK**	**/50 S1 WEIGHTED MARK**						

BACK PAGE

S2 FINAL ASSESSMENT: Flag for Plagiarism: Yes ☐ No: ☐

Mark		Marks Feedback:						Comments:
	VIDEO (1ST & 2ND MARKERS ONLY)	Outstanding (1st)	Excellent (1st)	Good (2:1)	Satisfactory (2:2)	Borderline (3rd)	Fail	
/15	Demonstrate the Model / Product Functions / Testing and Performance	(15-13)	(12-10)	(9-7)	(6-4)	(3-1)	(0)	
/05	Presentation of video content: Delivery, rhythm, and pace of speech. Video is both highly informative and engaging.	(5)	(4)	(3)	(2)	(1)	(0)	
	SHOWCASE: PANEL MEMBERS							
/05	**PRESENTATION** Structure, sequence, delivery, timing of presentation	(5)	(4)	(3)	(2)	(1)	(0)	**Panel No:** **Comments:**
/10	Evaluation: Did the student adhere to standard practices to evaluate project? Is there evidence of critical assessment?	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
/10	Reflection: Did the student act upon S1 feedback/justify decisions made/ evidence of reflecting on learning?	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
/08	**PHYSICAL PROJECT DEMO** Challenge: What is your most challenging feature? Complexity?	(8)	(7)	(6-5)	(4-3)	(2-1)	(0)	
/07	Creativity: How does project differ from other solutions? Novelty? Uniqueness?	(7)	(6-5)	(4-3)	(2)	(1)	(0)	
/05	Validation / Verification	(5)	(4)	(3)	(2)	(1)	(0)	
/10	Technical understanding	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
/10	Understanding of programming / engineering concepts	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
/15	Quality of the final solution How well does it do what designed to do	(10-9)	(8-7)	(6-5)	(4-3)	(2-1)	(0)	
/100	**S2 AGREED MARK**	/50 **S2 WEIGHTED MARK**						
/50	**S1 WEIGHTED MARK**	**Panel Members' Signatures:**						
/50	**S2 WEIGHTED MARK**	**Date:**						
/100	**GRAND TOTAL**							

Appendix 7: Interim Report Submission Guidelines

The Interim Report should be presented using the structure and content outlined in the report template for your subject area.

Each section should begin on a separate page, and you should ensure that you follow the correct template.

Length of Interim Report: **25 pages max** of text plus appendices and references

Submission: **1 electronic copy** submitted to Blackboard Learn

Formatting Guidelines:

- Type Font for main text: **Arial or Times New Roman**
- Font size: **12 points**
- Font colour: **Black**
- Alignment: **Justified, single column**
- Line Spacing: **1.5 lines**
- Margins: **1-inch** top and bottom of pages
    - 1.5 inches at the binding margin
- Page numbering: in bottom centre of each page
- Header identical as the template provided for your subject area

Sections and Subsections:

- Divide your report into clearly defined and numbered sections.
- Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc.
- The Abstract is not included in section numbering.
- Use this numbering also for internal cross-referencing: do not just refer to 'the text'.
- Any subsection may be given a brief heading.
- Each heading should appear on its own separate line.

Figures and Tables:

- Figures and tables must be numbered using the appropriate tool within MS Word to respect the logical structure of the document.
- Number the figures and tables separately (list of figures, list of tables) in accordance with their appearance in the text.
- Each figure and each table must have a meaningful caption (on the top for tables, on the bottom for figures). Each caption ends with a point.

- Each figure and table must be referenced as well in the text, to illustrate and complement what is described in the text.
- The figures and tables should be centred and respect the layout that is imposed by the document. There is no need of a fancy layout with some text on the side of a figure: it is not a magazine. However, you may group several figures in a panel.
- A list of figures and a list of tables must be present at the beginning of the document after the table of contents.

Equations and Algorithms:

- Each acronym, variable, and constant must be properly defined in the document.
- Ensure consistency of abbreviations throughout the document.
- For projects using many variables, they may be presented in a table after the table of contents.
- Each equation should be numbered and written using the appropriate tool of MS Word. Present simple formulae in the line of normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y.
- In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp.
- Number consecutively any equations that must be displayed separately from the text (if referred to explicitly in the text).

References:

- Ensure that every reference cited in the text is also present in the reference list (and vice versa). Each reference should include all the required fields.
- While you may find relevant information on some website (you must provide the full URL), you must priority to books, articles found in academic journals, conference and workshop proceedings.

Sections for the Interim Report:

- Introduction
- Research and Analysis
- Design

The Interim Report sections are worth 37.5% of the overall mark for the module, EEE521.

Appendix 8: EEE521 FINAL YEAR PROJECT ASSESSMENT RUBRIC

EEE521 FINAL YEAR PROJECT ASSESSMENT CRITERIA

CL	MK	Presentation of Report / Panel Presentation (15) (7.5%)	Introduction (10) (5%)	Research & Analysis (30) (15%)	Design (25) (12.5%)	Testing (20) (10%)	Evaluation (10) (5%)	Reflection (10) (5%)	Demo (80) (40%)
I (Outstanding Work)	80-100	Report has no errors in presentation or other demonstrating exceptional attention to detail. Perfect use of referencing and bibliography consistently and professionally applied.	Flawless introduction to the problem with an in-depth understanding of principles and concepts associated with the topic. Exceptional rationale for investigating the topic with supporting aims and objectives.	Exceptional critique of research-informed literature through the selection of relevant and credible sources. Exceptional analysis to outline an exceptional outcome. Outstanding ability to select appropriate techniques to deliver a unique solution.	Highly innovative and original design. Outstanding ability to investigate options and uncover unique approaches to the final design decisions. Highly persuasive conclusions.	Outstanding level of solution testing skills demonstrating a high level of expertise in a wide variety of testing methodologies. Assimilation and application of cutting-edge testing processes, tools and techniques. Demonstrates a deep understanding of the importance of testing.	Critical insightful evaluation and synthesis of issues and material which includes original thinking.	Critical self-reflection and reflective thinking evident.	Exceptional technical understanding of project and ability to answer questions. Exceptional understanding of programming/engineering concepts. Extremely complex project. Implementation extends over and above the requirements.
I (Excellent Work)	70 – 79	Report has minimal errors (max 5 in whole report) in presentation or other demonstrating excellent attention to detail. Perfect use of referencing and bibliography consistently and professionally applied, although some minor errors found.	Excellent introduction to the problem with an in-depth understanding of principles and concepts associated with the topic. Excellent rationale for investigating the topic with supporting aims and objectives.	A comprehensive range of research-informed literature embedded in the work, selected from relevant and credible sources. Excellent level of analysis developed independently to outline an effective outcome. Excellent ability to select appropriate techniques to deliver an excellent solution.	An innovative design demonstrating the ability to solve a highly complex problem. Excellent ability to investigate existing options and justify the rationale for final design decisions. Strong persuasive conclusions.	Solution testing extends beyond established conventions demonstrating expertise in the use of the tools. Advanced application of a range of testing methods, materials, tools and/or techniques. Application thoroughly tested.	Extensive critical evaluation and synthesis of issues and material which includes some originality.	Strong and justifiable recommendations and future improvements.	Excellent technical understanding of project and ability to answer questions. Excellent understanding of programming/engineering concepts. Highly complex project. Implementation meets all the requirements.
II (A) (Good Quality Work)	60 – 69	Report has minor errors in presentation or other (max 10 in whole report). Good referencing and bibliography although some minor errors found in the technique.	Good introduction to the problem with a good understanding of principles and concepts associated with the topic. Good rationale for investigating the topic with supporting aims and objectives	An extensive range of research-informed literature, including relevant sources retrieved independently. Sound, logical, analytical thinking. Demonstrates the ability to select appropriate techniques without guidance, to create a suitable set of requirements.	A good design, with some innovation evident. Demonstrates the ability to investigate established options and use these to make appropriate design decisions. Sound conclusions made to justify decisions.	Good solution testing skills demonstrating competence in the use of a range of methods, materials, tools and/or techniques. Evidence of thorough solution testing.	Evidence of the ability to evaluate and devise a persuasive argument. Ability to communicate ideas and evidence accurately.	Evidence of reflection upon the learning experience with significant evidence to support the narrative.	Good technical understanding of project and ability to answer questions. Good understanding of programming/engineering concepts. A good project. Implementation meets most of the requirements.
II (B) (Acceptable Work)	50 – 59	Report has several errors in presentation or other (max 20 in whole report). Satisfactory use of referencing and bibliography although some references missing.	Acceptable introduction to the problem with an adequate understanding of principles and concepts associated with the topic. Adequate rationale for investigating the topic with supporting aims and objectives	A narrow range of research-informed literature from mainly recommended sources. Evidence of some logical, analytical thinking. Demonstrates the ability to select appropriate techniques with guidance, to create a useful set of requirements.	An acceptable design. Provides an accurate description of the main issues involved in the design decisions. Provides knowledge of existing options and attempts to replicate established design patterns.	Demonstrates acceptable and appropriate application of standard testing methods, materials, tools and/or techniques. Flaws exist in the methodology and there is inadequate testing coverage.	Evaluation is evident and is satisfactory. Valid conclusions made and recommendations, where relevant.	Reflection is evident and is satisfactory but lacks evidence to support the argument.	Some technical understanding of project and ability to answer questions. Some understanding of programming/engineering concepts but gaps in knowledge exist. A satisfactory project. Implementation meets some of the requirements.
III (Adequate Work)	40 – 49	Report has lots of errors in presentation or other (20 plus in whole report). Adequate use of referencing and bibliography skills.	Basic introduction to the problem with a basic understanding of principles and concepts associated with the topic.	Evidence of basic knowledge, reading and understanding of the relevant concepts and underlying principles. Evidence of an attempt at analytical thinking.	A basic design. Provides a basic description of the design decisions but evidence of a lack the knowledge.	A basic application of standard testing methods, materials, tools and/or techniques. A reasonable attempt at testing the solution but there is only a basic appreciation of the context of the need for testing.	Minimal evaluation is evident. Some relevant conclusions and recommendations.	Minimal reflection. Basic content.	Basic technical understanding of project and ability to answer questions. Basic understanding of programming/engineering concepts but gaps exist. A basic project.
			Basic rationale for investigating the topic with supporting aims and objectives.	Some evidence of the use of established techniques to create some requirements, but weaknesses exist.					Basic implementation.
Fail (Poor Work)	35 – 39	Report has too many errors in presentation or other. Poor/incorrect use of referencing and bibliography skills.	Poor introduction to the problem with no understanding of principles and concepts associated with the topic. Poor rationale for investigating the topic with supporting aims and objectives.	Poor evidence of reading and omission of relevant material. Poor evidence of analysis and/or a lack of suitable requirements.	Poor and/or superficial knowledge of key principles and concepts.	A poor attempt at solution testing. Poor evidence of understanding testing in the context of solution development	Weak evaluation.	Weak reflection.	A poor demo with lack of prototype to demonstrate.
Fail	0 – 34	Unacceptable report.	Insufficient and largely irrelevant material.	A lack of evidence of analysis and/or a lack of suitable requirements.	Insufficient evidence of key principles and concepts.	Failure to implement solution testing.	Lack of evaluation.	Lack of reflection.	No demo or pitch.