Design and Implementation [30%]

Level	System Modelling (10%)	Level	System Development (10%)	Level	Use of literature to support development (10%)
Fail	Section missing, or unable to meet the next rubric level.	Fail	Section missing, or unable to meet the next rubric level.	Fail	No use of literature, or unable to meet the next rubric levell.
Unsatisfactory	Methods used maybe overly simplistic and/or not suitable for the intended application.	Unsatisfactory	Development is significantly lacking, and it is clear that little actual effort has been expended on the project.	Unsatisfactory	There is some attempt to reference where supporting material is used but it is unclear what aspects of the project are original work and which are from external material.
40% (Pass)	Student demonstrates the use of simulation and/or analytical methods to model/design their project. Analysis may be simplistic in application and demonstrate little to no original thought beyond that of reference materials. (e.g. software tutorials). LO8. Select and apply appropriate engineering tools to model and solve complex electrical and electronics engineering problems. C3. Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed.	40% (Pass)	Student demonstrates ability to take designed and modelled system into a 'real world' environment (note this may be through an actual build or a further refined simulation). Expected challenges from this process are discussed and compensated for. LO9. Apply a set of engineering principles to solve complex problems, where some of the knowledge is at the forefront of the topic. C1. Apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Some of the knowledge will be at the forefront of the particular subject of study.	40% (Pass)	Student makes clear referenced use of sources to support their project development. May be from poor sources or focussing on a single type (e.g. website). IEEE/IET style is, by-in-large, followed correctly. O1. Identify and evaluate the literature to address a complex electrical and electronic engineering problem. C4. Select and evaluate technical literature and other sources of information to address complex problems.
+++	Clear discussion of the limitations and/or trade-offs of the techniques with reference to the project specification, application area, and wider context.	+++	The development makes use of bespoke methods, created by the student, to meet the project specifications..	++++	Student clearly identifies how they have adopted and/or adapted the referenced material to add value to their project.
+++	Not present / Some / Most / Fully met / Exceeded — The methods / tools / techniques that are used are justified with respect to the project specification, application area, resources, and wider context.	+++	Student has demonstrated competency with a range of tools throughout the development of their project.	++	All materials are from high quality sources (e.g. manufacturer, peer reviewed, textbook) and a range of types (datasheets, app notes, tutorials, code samples, etc).
++++++	Demonstrate application of the methods / tools / techniques to successfully address the project specifications.	+++	The development shows a clear progression of their methodology adhering to engineering principles. All changes from the original methodology are both explained and justified well.	++	Limitations of the referenced sources are considered with respect to the project needs, application area, and specification requirements.
		+++	Clear evidence of sub-system testing to validate individual components before integration.	++++	Referencing is used consistently throughout the implementation section to support all aspects of project design and development.

Final System Testing and Validation 25%

Level	Specification validation (15%)	Level	Presentation of testing setup and results (10%)
Fail	Section missing, or unable to meet the next rubric level. Results are provided with no context.	Fail	No results have been presented.
Unsatisfactory	Results are not used to validate specification.	Unsatisfactory	Some results but the chosen format is unintelligible / confusing.
40% (Pass)	Student captures results from their project and uses these to validate against the specification list. Analysis of results may be rudimentary (e.g. only stating visible features/trends). LO11. Interpret and compare available data to substantiate a conclusion based on core principles of mathematics and engineering. C2. Analyse complex problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles.	40% (Pass)	Testing setup and results are presented using suitable figure types (image, bar, scatter, pie, etc). These are clear with suitable labels, readable axes and correct units etc. LO6. Communicate the solution to a complex engineering problem to a technical audience. C17. Communicate effectively on complex engineering matters with technical and non-technical audiences.
++++	Results are compared with expectations which may be from modelling, literature, or component/method performance differences. Pass/fail criteria is given. Unexpected results are explained well with suitable attempt to validate the explanation.	+++	Use of a range of figure/table types, as appropriate for the data being displayed, with suitable axis scales, units, and labels.
++++	Detailed statistical/quantitative analysis of results are carried out to ensure confidence in accuracy and repeatability.	+++	Clarity of comparison: highlighting/indication of key aspects and features for further discussion (e.g. subfigures, arrows, circles, etc).
++++	Every point in the specification list is validated successfully. Where specification points are not met there is clear explanation why, with analysis of the impact on the overall functionality/aim of the final system.	+++	Logical ordering of results, structured intuitively with the discussion sections.
		+++	Testing setup details the test conditions and procedures, with justification.

Conclusion 15%

Level	Consideration of system within the wider context (5%)	Level	Reflection on Management (10%)	Level	Communication Quality and Overall Completeness of Document (5%)
Fail	Section missing, or unable to meet the next rubric level.	Fail	Section missing, or unable to meet the next rubric level.	Fail	Section missing, or unable to meet the next rubric level.
Unsatisfactory	Student summarises their work but has limited or no discussion of the wider background.	Unsatisfactory	Very limited reflection with no lessons learnt.	Unsatisfactory	The dissertation is incomplete and/or poorly presented or written.
40% (Pass)	Student reviews their final system with respect to the wider background. This can include consideration of health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice, and industry standards. LO10. Design solutions to complex engineering that meets a specified requirement. C5. Design solutions for complex problems that meet a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health & safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards.	40% (Pass)	Student will reflect upon the progress of their project in terms of the project management. They must have an included an appendix containing copies of monthly progress review pro-forma's, which they refer to. Lessons learnt will be discussed but may be unclear how these would relate to future projects. LO7. Critically reflect on the process of solving a complex engineering problem and outcomes achieve.. C18. Plan and record self-learning and development as the foundation for lifelong learning/CPD.	40% (Pass)	The dissertation is given as a complete document that would allow another person, with a technical background but unfamiliar with the project, to continue or repeat the work. The overall document has an acceptable presentation with expected document features (section headings, page numbers, contents page.. LO6. Communicate the solution to a complex engineering problem to a technical audience.. C17. Communicate effectively on complex engineering matters with technical and non-technical audiences..
++++	Detailed considerations are made to how the system would next be developed these include details of resource (cost, time, etc) requirements. This covers both immediate and longer-term developments.	++++	Project management skills that have been developed are clearly described in a way that is suitable for future engineering projects.	++++	Consistent use of styles throughout the thesis including headings, page layout, captioning, etc.
++++	Assessment of the final project demonstrates a strong understanding of how it fits within a wide societal context. Including consideration of health & safety, diversity, inclusion, cultural, societal, environmental, and commercial matters, codes of practice, and industry standards; all as applicable to the project.	++++	Reflections on progress and any actions undertaken to keep the project on track supported by reference to the review documents.	++++	Inclusion of tables of figures, tables, abbreviations, and symbols where applicable. Correct use of cross-referencing throughout the document.
++++	Summary of the current state of the project including full listing of the status of every specification point and the overall project aim. Where points are not met these are accompanied by a suitable explanation, where everything is met the challenge posed by the project is clearly shown.	++++	The success of the risk mitigation strategies are evaluated, with suitable learnings that can be applied to future projects given.	++++	Overall quality of written communication is excellent. Concise with correct grammar, spelling, etc.

Moderator/Supervisor assessment

Level	[Moderator Only] Dissertation Defence (25%)	Level	[Supervisor Only] Professionalism and Self Management (25%)
Fail	Student did not attend, or unable to meet the next rubric level..	Fail	Little to no attendance at meetings, no evidence of progress between meetings.
Unsatisfactory	Student is unable to answer simple questions about the project..	Unsatisfactory	Student demonstrated limited aspects of self-management during the project and required micromanagement to make progress. Meetings often missed with no notice or explanation.
40% (Pass)	The work of the project (including aim) is well explained with suitable demonstration (e.g. live, video, results discussion) of the final system. Student clearly states which specification points have been met and discusses any deficiencies. Basic questions about the students experience of the project are handled well. LO6. Communicate the solution to a complex engineering problem to a technical audience.. C17. Communicate effectively on complex engineering matters with technical and non-technical audiences..	40% (Pass)	Student demonstrated limited aspects of self-management during the project and required micromanagement to make progress. Meetings often missed with no notice or explanation. LO6. Communicate the solution to a complex engineering problem to a technical audience.. C17. Communicate effectively on complex engineering matters with technical and non-technical audiences..
++++	Questions about the project specifics (including methods applied, reasoning, validity of results) are expertly handled.	+++++++	Purely self-motivated with a consistent high level of effort applied throughout the project..
+++	Questions about their personal development and experience working on the project are expertly handled..	++++	Student has a professional approach to supervisor contact and arrives to meetings prepared to maximise value of time spent.
+++	Questions reflecting on their planning process and how the project went are expertly handled.		
++	Student gives a high-quality delivery that is confident, enthusiastic, and professional, whilst providing genuine insight into the project work.		