The University Of Sheffield.

Aerospace

Final Year Project Handbook

2016 - 17

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Introduction

As part of your Aerospace degree it is important that you develop your technical knowledge and understanding, technical and personal skills and an appreciation of the wider context of your studies. Your project is an important part of this in building on your taught modules and developing a greater level of independence in your learning and work. The aim of the project is to give you the opportunity to apply and develop further your knowledge and skills to a specific problem area. You will be allocated a project and project supervisor from one of the five contributing departments who will provide overall guidance on the project. Your supervisor may also allocate a PhD student or research associate to help with supervising the project. However, you are expected to demonstrate initiative and independence and skills in creative and critical thinking, analysis, reflection, effective project management and communication. The project is very different from many of your taught modules where the lecturer takes the lead in your learning. **In the project you are expected to take the lead and the supervisor is expected to provide overall guidance and help.**

This handbook provides a summary of the project including the timetable and assessment, description of the deliverables and guidance on report writing and presentations. Copies of the actual assessment forms that will be used are also provided. It is strongly recommended that you read through this handbook and refer to it during your project. If you have any queries with respect to the project, discuss these with your project supervisor in the first instance and subsequently with the module leader, if necessary.

Note that you will be registered for your project in the corresponding department where your supervisor is based. The project modules codes are:

BEng, year 3, 30 credits – ACS389, COM389, EEE389, MAT389, MEC389
MEng, year 4, 40 credits – ACS488, COM488, EEE488, MAT488, MEC488

Every effort is made to allocate projects as fairly as possible. Please note, however, that the project allocation process is very complicated. It takes account of student preferences and works in a way that ensures as many students as possible are allocated a project of their choice. It also ensures that workloads are balanced across academics so that they can fully support projects. You may have been allocated a project that was not one of your first few choices. This is particularly the case where those projects are very popular. It is the mark of a good engineer that they make a good professional effort even when assigned work/projects that are of less interest to them individually. Many supervisors will also allow you to shape the aims and objectives of projects to your interests (within the limits of the scope of their area of expertise). Remember that you are expected to demonstrate initiative and independence in developing the project.

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1. Important Points

The pass mark for the BEng Individual Investigative project is 40.

The pass mark for the MEng Individual Investigative project is 50.

a. Achieving a project grade below 40: A BEng student whose project grade is below 40 (regardless of their aggregate coursework/examination mark) will be ineligible for the award of a degree with Honours. They may, however, be considered by the Examiners for the award of a Pass degree. An MEng student whose project grade is below 50 will be ineligible for the award of an MEng degree. They may, however, be considered by the Examiners for the award of a BEng degree, either with or without Honours. Please refer to the Assessment and Progression Handbook.

b. It is essential that throughout the course of your project you meet regularly with your project supervisor – see section 1.2 below. If you are having any difficulties in contacting your project supervisor and arranging regular meetings please report this to the Interdisciplinary Programmes office (IPO) and the module leader.

c. The use of unfair means, eg. plagiarism and collusion, is strictly forbidden. Students are warned that the piece of work affected may be given a grade of zero, which in some cases will entail failure of your project; for BEng students failure of the project means you cannot get an honours degree, and for MEng students means you cannot get a MEng. In such cases students will be referred to the University's Discipline Committee. We will use electronic software (e.g. Turnitin) to check for unfair means.

   You should thoroughly read and understand Appendix 4, the University's guidance to students on unfair means. If you are at all unsure about what this means and the implications for your work, then you should consult a member of staff, for example your project supervisor, the individual project module leader, your year tutor or your personal tutor.

d. If you have any concerns about, or difficulties with, your project that you are unable to resolve with your supervisor you should speak to the module leader.

1.1 Project Supervision Meetings and Communication

The Faculty of Engineering expects project supervisors to actively engage with project students (individually or in groups) at least every 3 weeks during semester time.

When a student has not been seen within 3 weeks the project supervisor should email the student and arrange an appointment as soon as possible. Records of correspondence should be kept as evidence that proactive support has been offered.

Students are expected to engage in scheduled activities and attend scheduled meetings with their project supervisor(s) and should let them know if they are unable to do so. More generally, students should act professionally in arranging meetings and conducting themselves during those meetings. This includes arriving promptly to meetings and providing as much notice as possible if they are unable to attend a meeting.

If students are having difficulties with contacting their supervisor they should contact the Interdisciplinary Programmes office (IPO) in the first instance and subsequently the module leader if the problem continues. However, please be reasonable with your expectations. Academic staff are often

very busy and sometimes away from the office. They may not be able to respond to emails on the same day so give a reasonable time (at least a week) before contacting the IPO.

1.2 Project Safety and Risk Assessment

You are expected to engage with required health and safety procedures at all times. You will be expected to conduct risk assessments and, depending on the project, may be required to carry out COSHH assessments in accordance with departmental procedures. Failure to engage with safe working practices may result in disciplinary action and in extreme cases you could be prevented from completing the practical element of your project.

2 Project Timetable

The project is worth 30 credits (BEng) or 40 credits (MEng) and you are expected to spend approximately 300 hours (BEng) or 400 hours (MEng) in total working on the project during the academic year. As a guide you should be spending, on average, 12-15 hours (BEng) or 17-20 hours (MEng) working on the project per week. You should not underestimate the amount of time you need to spend on the project and you must ensure you manage your time effectively. You will have other assignments and coursework during the year and therefore you need to ensure you manage deadlines effectively. Note that these hours are guidance and in practice you may spend more time on the project. In particular towards the end of the project you are likely to spend considerably more hours working on the project.

Summary of project deadlines:

Deadline	Deliverable
Semester 1	
Monday, 24 October 16 Week 5	Submit a Planning Report Cover Sheet: Aims and Objectives. and a project plan (Gantt chart). A cover sheet signed by the supervisor must be attached stating that they are happy with the aims and objectives and project plan. Two hard copies to be submitted to IPO.
Monday 12 December 16 Week 12	Submit interim report. One hard copy to be submitted to IP office and one electronic copy on MOLE – Final Year Project, 'Interim Report Submission'. Further details of the interim report are provided in the section headed 'Interim Report'.
Semester 2	
Monday, 8 May 17 Week 11	Submit final report. One hard copy to be submitted to IP office and one electronic copy on MOLE – Final Year Project, 'Dissertation Submission'. Further details of the final report are provided in Section 5. Detailed instructions on how to submit will be provided during the Spring semester.
Weeks 11-12 8 – 21 May 17	Oral presentation. You will give an oral presentation of your project. These will be conducted in the Department where you have undertaken your project. You will be provided with details of timings and venue during the Spring semester. Further details on the presentation are provided in Section 6.

2.1 Throughout the entire project period, keep a logbook

Keeping records is part of assessment and is included in the marking scheme of Supervisor's Report (see Appendix 6). Please note the following points:

- Keep a hard-bound log book of your work during the project if required; loose leaf notes are not acceptable and are easily lost.
- Show your supervisor your lab-book during meetings
- Take (multiple) back-ups of any computer files that you generate.
- Start writing the interim report as soon as is reasonable.
- Aim to complete any simulations, experiments etc with plenty of time to focus on completing the final report.
- Do not underestimate how long it will take to write the final report.

2.2 Autumn Semester

First part of the Autumn semester until the first deliverable (Monday, week 5):

- Background reading
- Formulating the specific project title
- Start writing the final report as soon as is reasonable.

- Aims and objectives
- Support with detailed literature survey work

The rest of the first semester should involve:

- More literature survey work
- Preliminary experimental, modelling or theoretical work

Note that the exact nature and balance of the work will vary between projects and should be discussed with your supervisor. This work will be summarised in the interim report submitted by Monday of week 11. It is expected that by the time you submit your interim report you will have made a solid start to your project and will be making progress with the actual work.

Week 1 or 2

- Meet your project supervisor to form initial contact and discuss the project
- Discuss the project area and gain advice on what to focus on
- Undertake background reading to gain further knowledge on the project area
- Formulate specific aims and objectives relevant to the project plan

By Week 4

- Finalise the project aims and objectives and effectively plan your project using the following guide:

AIMS	**OBJECTIVES**
A general statement outlining what the project is about.	More specific statements on what you expect to achieve in the project. They are usually presented as a bullet point list of statements such as design/simulate/manufacture/test/compare etc.

Note that at the end of the project you should be able to look back at the objectives and say whether or not you have achieved them.

Week 5: Aims, objectives and project planning - The project plan should be a detailed breakdown of the project into specific tasks (probably based on the objectives) and appropriate timings/deadlines, e.g. a Gantt chart. Make sure you include time for report writing, vacations and contingency in your project plan. The project planning report is not marked, however if you don't submit it 10% of your final mark will be deducted.

Weeks 5 – 11

- Further reading
- Experimental design
- Initial experiments

Note: Ensure you leave enough time to write the interim report and receive feedback from your supervisor. It is **strongly** recommended that you discuss your plans for the interim report with your

supervisor before writing it.

Weeks 12 – 15 – Although you will have to concentrate on your revision and examinations, especially in weeks 13-15, you should continue to engage with your project if you have time. This is particularly true if you have a gap in your timetable once your examinations finish. This will ensure continuity in your project.

2.3 Spring Semester

- Continue your project in the spring semester.
- Continued reading of relevant literature
- Undertake the work (simulations, experiments etc)
- Work on writing the final report.

Week 1 – You should meet your project supervisor to receive feedback on your interim report and progress to date and, if you have not done so already, re-start your project again after the exam period.

2.4 Extensions

Applications for extensions to the submission date for any assessed component of the project must be made directly to the module leader via email and the project supervisor and second marker must also be copied into this email (if you do not know who your second reader is please ask in the IP office). This email must contain the reason for the requested extension. Before an extension is formally granted a completed extenuating circumstances form (available from the SSID pages of the university website - http://www.sheffield.ac.uk/ssid/forms/circs) must be submitted to the IP office.

Please note that extensions will only be granted if a student cannot reasonably submit the specified assessed component within the original deadline and can provide a valid reason supported by appropriate evidence. Typically extensions will only be granted in the event of medical and/or personal circumstances beyond the control of the student. Failure to have backed-up your data and poor planning so that everything is being done at the last minute are not valid reasons. The decision of the module leader will be final in all requests for extensions.

3. Project Assessment: BEng and MEng

Deliverable	Weighting
Planning Report Cover Sheet: Aims and Objectives.	This will not be assessed directly but failure to submit this will result in a 10% penalty on your overall project mark. It is expected that the aims, objectives and project plan will be included in the interim report (potentially subject to revisions).
Interim report	Overall weighting 10%. Marked by both your supervisor (5%) and the second assessor (5%)
Final report	Overall weighting 70%. Marked by both your supervisor (35%) and the second assessor (35%).
Performance and professional skills	Overall weighting 10%. As part of the assessment your supervisor will also mark your overall professional conduct of the student during the project.
Oral presentation	Overall weighting 10%. Marked by both your supervisor (5%) and the second assessor (5%)

Further details of each of these are provided in Sections 4-7.

All reports should be word processed and professionally produced. You should use Times New Roman (11 or 12 point), Arial (11 or 12 point) or Calibri (10 or 11 point) type with 1.5 line spacing. You can print the report either single or double sided. Templates are available via this webpage.

3.1 Marking Criteria

Detailed marking criteria for each of the project deliverables are provided in Appendix 5 - 8. For each deliverable, marks are provided under various criteria based on the given guidelines. The overall mark will reflect these individual marks for each criterion but may not be simply the average of the marks. The overall mark will reflect the relative balance of the different criteria for the particular project and may vary between projects. For example, the relative importance of the literature review may vary depending on whether a project is more research or design focused. The comments by the marker should reflect how the project has been marked to ensure that the student can understand the mark given.

3.2 BEng vs MEng

BEng	BEng and MEng	MEng
• A project of 6,000 – 10,000 words	• Undertake work of a high standard • Demonstrate professionalism in how the project in undertaken • Excellent written and oral communication	• A project of 10,000 – 14,000 words • More ambitious aims and objectives • A higher level of independence and initiative • Demonstrate a greater level of knowledge, understanding and corresponding skills than BEng students.

3.3 Penalties for Late Submission

Late submission will result in a deduction of 5% of the total mark awarded for each working day after the submission date.

Day late	Marked reduced by 5%	Mark Awarded when reduced by 5%*	
	Multiply by	Eg. If original mark is 60	Eg. If original mark is 50
1	0.95	57	47.5
2	0.90	54	45
3	0.85	51	42.5
4	0.80	48	40
5	0.75	45	37.5

** standard mathematical rounding rules should be applied and marks should be rounded up.*

The 5 working day deadline for late submission is absolute and any work submitted after the 5 working day period without a special dispensation will receive zero.

For further information see http://www.shef.ac.uk/ssid/exams/policies.

3.4 Penalties for Exceeding Page Limits

If students substantially exceed the page limits for the interim and final reports they may be penalised as part of the overall mark for that element of assessment.

3.5 Moderation

Where an assessment is marked by two markers the overall mark for that assessment will be weighted as show in the **Project Assessment** table above. Moderation of the mark for any of the assessments by a third assessor will be required in the following cases:

- **The two independent marks differ by 7 or more:** In this case the supervisor and assessor will review their assessments; if, following review, the assessments still differ by 10 marks or more, a third assessor will be assigned by the module leader for the assessment of the report.
- **If following any moderation the average mark for the assessment of the dissertation is borderline pass (defined as a mark of 37-39):** A third assessor will be asked to independently

mark the dissertation with the view to determining whether the dissertation can be considered as a pass. In the event that a third marker has already been used for the case that the first two assessments differ by 10 marks or more, this mark will be used for the consideration of borderline cases.

4. Planning Report Cover Sheet: Aims and Objectives.

By week 5 you should have met with your supervisor at least once but probably 2 or 3 times. Together you should have finalised your title (which may be different from the project you applied for after discussions about the direction you would both like the project to take). You should also understand what the key aims of the project are, and what needs to be completed by the end of each semester. Based on these meetings fill in the 'Planning Report Cover Sheet,' obtain the signature of your supervisor, and submit it to the IPO along with your GANTT chart. The cover sheet and GANTT chart together should not exceed 3 pages.

5. Interim Report

The interim report is primarily focused on the project formulation, background, literature review, initial work and project planning.

The interim report word count guide is highlighted below:

Word Count:	BEng	MEng
Interim Report	**2000 - 4000**	**3000 - 5000**

Both BEng and MEng Interim Reports should include the following:

Background to project. This should be a brief summary of the subject area, why it is important and should explain the motivation behind your project in a broad way.

- **Introduction, aim(s) and objectives.** The aim(s) should provide a general idea of what the project is about and the objectives should be more specific. The objectives should be actions that you expect to do (e.g. simulate..., test..., compare...). At the end of the project it should be possible to assess which of the objectives have been achieved. The objectives will also link into the work programme (below).
- **Literature review and work progress to date.** The balance between literature review and technical work progress will vary between projects and this should be discussed with the supervisor. The literature review should provide a summary of relevant work for the project and provide motivation for the proposed work. A good literature review will demonstrate academic input through critical appraisal and a logical grouping of, and demonstration of links between, the literature.
- **Current status of the work.** This will include preliminary simulations, experiments etc. The balance between literature review and technical work progress will vary between projects and this should be discussed with the supervisor. Where experiments have been conducted include a full methods section as you would for your final dissertation.
- **Self-review**. You must include a short self-review of your progress to date. This should be no longer

than one page and be a critical evaluation of your progress, your development and how the project is going. This should also be used to highlight any issues with the project.

- **Project management.** This should include a programme of work to be completed for the rest of the project. This will often link to the original objectives of the project but will provide more detail on what work will be done. The programme of work should also be supported by a detailed Gantt chart included as an appendix and referred to in this section. This Gantt chart should be an updated version of the one submitted at the end of week 4 and should indicate the progress to date against the original plan.

If you would like formatting guidelines, please refer to the Dissertation Template, however this is not compulsory for the Interim Report.

There is no need to properly bind the interim report. A stapled report will be sufficient.

6. Final Project Report (Dissertation)

The Final Project Report will provide a concise report of the whole project. You should incorporate your Interim Report into the Final Year Project report.

The Final Year Project word count is highlighted below:

Word Count	BEng	MEng
Final Year Project Report	**6000 – 10000**	**10000 – 14,000**

The Final Year Project word count excludes appendices, references, title, contents and figure legends.

General guidelines on report writing are provided in Appendix 2 and a template in MOLE: Aerospace Engineering Final Year Project. You should discuss the structure of the report with your supervisor as different structures may be appropriate for different projects. However, it is important that you cover:

- **Abstract or Executive Summary** – this should be a concise summary of the project motivation, aims, key findings and conclusions.
- **Introduction** including background and motivation. You may then have an **'aims and objectives'** and **'overview of report'.**
- **Literature review.** This will build on the literature review from the interim report. The final literature review may be a stand-alone chapter or be embedded within other chapters depending on what is most appropriate. The size of the literature review will vary between projects as for some this will not be as relevant as for other projects. You should be guided by your supervisor on this.
- **Materials and Methods.** The Materials and Methods chapter should be written in a way that someone could read it and repeat the experiments. Every material you used should be stated. The methods should be written in the past tense not written in the form of a protocol.
- **Results chapters.** These will describe the main work done during the project. Think about how to logically divide this work up and to ensure a good "story" is told. Try to present a balanced report.
- **Discussion.** This may be within the results section as 'results and discussion or a separate section.

- **Conclusions and future work.**
- **References.** Ensure you use a consistent and correct approach to referencing throughout the report. It is very important that you reference correctly. It is recommended that you buy "References" by Kate Williams available from Blackwells bookshop. This is an excellent summary of how to reference.
- **Appendices.** These should contain additional information that is not essential to understanding the main report. This could include additional results, code etc. Appendices should not be used to simply keep within the word number guidelines. If it is essential for the reader to refer to something in an appendix then this should be in the main body of the report. Note that the appendices will not be marked and do not contribute to the word number guidelines.
- **Project management.** You should include a summary of the project planning including a revised Gantt chart of how the project actually went and highlighting actual progress against the original plan.
- **Self-review.** You must include a short self-review. This should be no longer than one page and be a critical evaluation of your progress, your development and how the project went.

Note that you can use the interim report as a basis for the final report. It is expected that to a greater or lesser extent, material from the interim report will be used in the final report. However, it is also expected that students will have significantly built upon the interim report when writing the final report. In particular you should be continually developing the literature review that formed the basis for the interim report. You will not be penalized for self-plagiarism for reusing text from the interim report in the final report, but a final report that does not significantly expand on the interim report is unlikely to get a good mark.

Supervisors will provide overall guidance on the final report and comments on a single draft of the report. They will not provide detailed editing and their comments will be more general about the overall structure and content. It is strongly recommended you discuss the proposed report structure with your supervisor before starting writing.

7. Oral Presentation

You will give an oral presentation of your project. This will be approximately 15 minutes with 5-10 minutes of questions. You should prepare the presentation slides in Powerpoint or pdf format and ensure that they work on the university network computers. The presentation should provide a concise summary of the project and you are recommended to use no more than 10-12 slides (so one to 1.5 minutes per slide). Make the presentation interesting and avoid being too technical. The structure of the presentation is likely to be similar to the final report structure so should include background, motivation, aim(s) and objectives, work done and conclusions/future work.

Guidance on giving presentations is provided in Appendix 3.

Appendix 1 – Guidelines for a Successful Final Year Project

- **Take ownership of your project**

  Overall responsibility for the project is yours. Show initiative. You should view yourself as the project leader. Your supervisor(s) should provide support rather than lead the project. Contact your project supervisor(s) as soon as possible to organise the first meeting. Organise regular meetings with your supervisor(s).

- **Be professional**

  You are training to be a professional engineer and your conduct during your FYP should reflect this. You should make appointments and keep them. You should approach each meeting with a clear idea of the points to be addressed and the desired outcomes.

- **Plan your project**

  The key to a successful project is good planning. You should timetable project work assigning time appropriate to a 40 credit module in the case of an MEng project or a 30 credit module in the case of BEng projects. Plan the project over the whole academic year giving realistic timings for each element. This should highlight the need for allocating equal time to each semester and the need to start the project as soon as possible. It is good practice to keep a log-book throughout the project. This will make the task of writing the thesis more straightforward.

- **Realise that resources are finite**

  There will be many other students who require access to testing/manufacturing facilities and technical support. It is therefore necessary to timetable the use of resources and not to leave things until the last minute.

Additional guidelines for projects with a design and manufacturing component

- **Plan your work**

  In carrying out your project you will need to follow a defined design process. Remember that at each decision point you will need to fully justify the choices you make. This may require some calculations, experiments or numerical modelling so this will have to be factored into your plans. You may be able to find some supporting data in the literature. Quantitative justification is much better than qualitative.

Additional guidelines for projects with a simulation component

- **Understand the purpose of the simulation**

  Be aware that simulation is not a simple add in to the project and that you need to be aware of why you are doing a simulation and allow enough time to undertake is properly.

- **Plan your work**

  Have a clear plan of what the aim of the simulation is, how it fits in with your project, what software is

available and why you would choose one piece of software over another.

- **Learn the software**

  This could mean learning completely new software or extending your knowledge of existing software. You might need to apply for an Iceberg account to use some types of software remotely. There are tutorials available on most software packages, so ask your supervisor for further details.

- **Validate your model**

Be aware that all simulations need validation. You should therefore plan how you are going to validate any results through experiment, calculation or complementary research.

Appendix 2 – Guidelines on Writing the Dissertation

- The reader is the most important person. Reading a well-written and well-presented report is a pleasure.
- Reading papers in the area of your project is a good way to develop a good writing style.
- Writing a dissertation is a time-consuming process. It is in your interests to make an early start on it. Do not wait until you have finished all the practical work before starting writing.
- Produce a draft for each chapter/section in turn and follow each up with a discussion with your supervisor. Note your supervisor will only read one draft of any individual section.
- Material from your interim report should be integrated into the final dissertation. Modifications will be made to it based on feedback from your supervisor, but also, the deeper understanding you will have developed through your own developments and analysis of your results means that you will be able to produce a better-analysed literature survey (or other type of survey).
- Plan your project time so that the supervisor has time to read drafts and make comments, and you have time to act on your supervisor's comments.
- Your supervisor is not a copy editor. They will comment on structure and content, but will not correct a multitude of grammar and spelling mistakes. That is up to you. The English Language Teaching Centre can offer assistance to international students on dissertation writing.
- Proof read your dissertation, and then proof read it again. A spell checker alone is not adequate. Note you will usually spot different errors on the screen and in print – you should check your dissertation both on-screen and once it is printed out.
- Every chapter/section apart from the introduction and conclusions should have an introductory section that sets the scene for the chapter, i.e. explains the reasoning behind the chapter's structure.
- You are writing a scientific document so DO NOT write "chattily" or in the first person singular. For example, do not write narrative such as "I made some samples" or I wrote a program" but instead write "Some samples were made" or "A program was written". The exception to this is in the Acknowledgements where you would normally write in the first person, eg. "I would like to thank my supervisor, Dr X".
- Write in clear, flowing English, avoiding the two extremes of either writing notes, or long winded sentences.
- The reader is probably a busy person, so be concise.
- It is important to make clear which parts of your work are original, and which parts are taken from the literature.
- Do not even think of passing off other people's writing as your own. Cutting and pasting from another author's work is easy to detect. If you have any doubts about the dividing line between a thorough literature review and plagiarism, then discuss it with your supervisor. This also holds for illustrations. Other people's illustrations that you have scanned in or obtained from the web can only be used both with their permission and with an appropriate reference.
- Where possible, all figures should be created using appropriate software tools.
- If you use abbreviations or acronyms they should be expanded when first used, e.g., "TLA (Three Letter Abbreviation)" and if they are used throughout the dissertation, a glossary should be provided as an appendix.

Aims of the report

You need to have a clear set of aims before starting to write a report. In formulating the aims you need to consider:

- what is the intended content of the report;
- for whom is it being written; and
- why is it being written.

You will find it helpful to list a set of objectives under each of these headings before starting to write a report.

What is the intended content?

This depends on what you were asked to do: build a mathematical model, design a controller; compare design techniques; or write some software. For example, if you were asked to design a controller you might list the intended contents as:

- Description of system to be controlled.
- Choice of design method.
- Details of design procedures and justification for decisions.
- Assessment of performance of the design.

There are many different types of project and so it is difficult to produce a detailed set of recommendations to suit every single dissertation. The type of project will dictate the content and structure of the dissertation and you should discuss this with your supervisor. For example, for a theoretical project it is likely that several chapters/sections will be devoted to constructing the theoretical foundations for the project and will consist of your own interpretation and synthesis of existing work with suitable examples discussed throughout. A sequence of chapters/sections that cover theoretical framework, conditions and assumptions and theory application and comparisons may be appropriate. For an experimental project, the experimental goals, design, execution and evaluation might be covered.

What you need to demonstrate

- Your technical competence.
- Your organisational skills.
- That you work hard and have initiative.
- That you can write clearly and concisely.
- That you can produce a good report.

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Producing the report

Having established the aims of the report (see section 1.2 above) you can begin collecting material: you probably have some already. You can begin organising the report before you have collected all the material. A good way of doing this is to separate the material into three categories:

1. Obviously important information which must go into the report.
2. Borderline information which might be of use to some readers, or which might amplify or substantiate other more important material.

3. Information that you find interesting (or cannot bear to throw away) but which is not relevant to the report.

Material in category 1 will probably go in the main body of the report and that in category 2 in an appendix. Material in category 3 you will probably eventually throw away (but not yet, for if you do you will find that it contained a piece of vital information which you had overlooked).

A report has to start and has to end but you do not necessarily start writing at the beginning and stop writing at the end. Frequently a good starting point is to decide what is to go in appendices and to assemble or write each appendix. The appendices should be used to remove information from the body of the report that is not essential to the majority of the readers. For example, details of how to use a particular computer program to obtain a controller design. This is valuable information for anyone who subsequently wishes to use the program but is not relevant to the reader who is interested in how the controller performs. Another use of appendices is to hold program listings or detailed tables of results.

An appendix can also be used to contain background information which most readers will know but a few need to be told. For example, detailed derivations of formulae or theorems.

General advice

Spelling: If you are using a word-processor there is no excuse for poor spelling. If the spell-checker fails to recognise a word then that should alert you that there may be something wrong. If you know for certain the word is spelt correctly, ignore the spell-checker; if you're not sure, check the spelling in a dictionary.

Grammar: Nowadays there are software tools to help you to get your grammar correct. However, there is no better way than a careful read-through. If possible get a friend to do it, or leave it alone for a couple of weeks. A fresh eye is far more likely to spot poor grammar.

Sense: It is perfectly possible to have perfect grammar and spelling and still to make no sense whatsoever. There is no way around this but to read the work through carefully. Again, getting a friend to check your project may help spot such problems.

Captions: Figure and table captions should be descriptive enough that the figure and caption alone are self-explanatory. This is not always possible, but is usually the case.

Symbols: Always define in the text what symbols mean. You can also include a table at the beginning.

Equations: Try to stick to conventional styles. Use the equation editor if you have a lot of equations or if they are complicated. If your work is essentially mathematical you might consider using LaTex instead.

Diagrams, graphs etc: Always label them and number them consecutively. Labels should make the figure self-explanatory. Make sure axes on graphs are labelled. Use a legend or key if needed. Sometimes you can spend more time using complex drawing packages than the picture is worth. Don't fall into this trap. Always refer to any figure in the text: if you haven't written about it in the text it shouldn't be in the document.

Length: Don't make your report longer than it needs to be. A short well-argued or described report, using references properly is preferable to a long-winded, unstructured ramble through the subject. If a maximum length has been specified for the report you are writing, which it will be for Aerospace Engineering project reports, then you should ensure you do not exceed that limit.

Appendix 3 – Guidelines on Giving Presentations

The outline below provides a brief introduction to effective oral presentation of your project and an overview of the key steps involved. Specific details may vary with the nature and requirements of individual projects and your supervisor can provide guidance.

Overcoming your fears. Speaking in public is considered as one the most feared activities. The presenter can overcome this fear by considering the audience no more knowledgeable than her/himself in the subject. An audience is there to listen to the presenter and learn from what the presentation has to offer.

Preparation. Prior preparation of the presentation is the key to preventing poor performance. Thus, it is important to prepare yourself beforehand. Study the material you are presenting and practice with your presentation, specifically paying attention to timing of your presentation.

Structure/content. Structure your presentation in a logical sequence of introduction, body, discussion and conclusion. The presentation should be a description of the project work carried out. This may typically include:

- A title slide containing title, student name and supervisor's name.
- Overview of the presentation or the contents slide
- Main presentation slides outlining aims and objectives of the project, an introduction to the problem, problem formulation, outline theory, experimental details, results and discussion
- Last slide on conclusions or summary and directions for future work

Develop a theme for each slide or collection of slides. Only include the main points, and avoid too many details. You can explain details during the presentation.

Presentation.

The presentation should follow a logical sequence.

The presentation may comprise a mix of audio/visual material. It is important to keep a balance between the various elements.

The use of written notes may be useful. Note, however, that head-down reading of a prepared scripts in a flat monotone will result in an audience losing attention and sympathy.

When speaking ensure you speak to the audience. Speak clearly and to the point, with continuity, and avoid using incomplete statements.

You may use animated text/images, but ensure that these serve the purpose of your presentation and help in conveying the intended message, and do not unnecessarily take up valuable presentation time.

Be organised. Place re-place your presentation slides/material so that they do not get mixed up and it is easy for you to find/re-use them.

Visual aids. The use of visual aids can contribute to the efficiency and quality of presentation if used effectively. Note the following points when formatting overhead/Powerpoint slides:

- Do NOT put too much information on any one slide.
- The text contained in the slides must be word-processed.
- The font used for the main text (other than for title slide) should be at least 18 point for overheads.

- Ensure that lines of text are reasonably separate from one another. The suggested spacing is 1.5 lines or more.
- Avoid using long sentences/paragraphs on a slide. Use short sentences and/or phrases and provide explanation during the presentation.
- As a general rule, present equations only if they provide critical information that cannot be presented by other means.
- All symbols used must be explained.
- Figures and Diagrams should be clear and of good quality. Hand sketches may be acceptable if they are drawn clearly and tidily.
- Plots and Graphs should have appropriately labelled axes and, where necessary, a key should be provided.
- Punctuation, grammar and spelling must be correct.

Discussion/Questions. Allow time for questions and discussion. This is useful both for the presenter to receive feedback from the audience as well as for the audience to obtain clarification to queries that may arise.

Provide concise, clear and convincing response to questions.

Be brief and to the point and avoid unnecessary details when answering questions.

It is understood if you do not know the answer to a question. It may be that if falls outside the scope of your work, and you are not necessarily expected to have 100% knowledge of the subject(s) relevant/related to your project.

Appendix 4 – Use of Unfair Means in the Assessment Process (non-vigilated assessment)

As taken from http://shef.ac.uk/ssid/exams/plagiarism.

The University expects its graduates to have acquired certain attributes. (See the Sheffield Graduate - http://www.shef.ac.uk/sheffieldgraduate) Many of these relate to good academic practice:

- a critical, analytical and creative thinker
- an independent learner and researcher
- information literate and IT literate
- a flexible team worker
- an accomplished communicator
- competent in applying their knowledge and skills
- professional and adaptable.

Throughout your programme of study at the University you will learn how to develop these skills and attributes. Your assessed work is the main way in which you demonstrate that you have acquired and can apply them. Using unfair means in the assessment process is dishonest and also means that you cannot demonstrate that you have acquired these essential academic skills and attributes.

What constitutes unfair means?

The basic principle underlying the preparation of any piece of academic work is that the work submitted must be your own work. **Plagiarism**, **submitting bought or commissioned work**, **double submission (or self plagiarism), collusion** and **fabrication of results** are not allowed because they violate this principle (see definitions below). Rules about these forms of cheating apply to all assessed and non-assessed work.

1. Plagiarism (either intentional or unintentional) is the stealing of ideas or work of another person (including experts and fellow or former students) and is considered dishonest and unprofessional. Plagiarism may take the form of cutting and pasting, taking or closely paraphrasing ideas, passages, sections, sentences, paragraphs, drawings, graphs and other graphical material from books, articles, internet sites or any other source and submitting them for assessment without appropriate acknowledgement.

2. Submitting bought or commissioned work (for example from internet sites, essay "banks" or "mills") is an extremely serious form of plagiarism. This may take the form of buying or commissioning either the whole assignment or part of it and implies a clear intention to deceive the examiners. The University also takes an extremely serious view of any student who sells, offers to sell or passes on their own assignments to other students

3. Double submission (or self plagiarism) is resubmitting previously submitted work on one or more occasions (without proper acknowledgement). This may take the form of copying either the whole assignment or part of it. Normally credit will already have been given for this work.

4. Collusion is where two or more people work together to produce a piece of work, all or part of which is then

submitted by each of them as their own individual work. This includes passing on work in any format to another student. Collusion does not occur where students involved in group work are encouraged to work together to produce a single piece of work as part of the assessment process.

5. Fabrication is submitting work (for example, practical or laboratory work) any part of which is untrue, made up, falsified or fabricated in any way. This is regarded as fraudulent and dishonest.

How can I avoid the use of unfair means?

To avoid using unfair means, any work submitted must be your own and must not include the work of any other person, unless it is properly acknowledged and referenced.

As part of your programme of studies you will learn how to reference sources appropriately in order to avoid plagiarism. This is an essential skill that you will need throughout your University career and beyond. You should follow any guidance on the preparation of assessed work given by the academic department setting the assignment.

You are required to attach **a declaration form** to all submitted work (including work submitted online), stating that the work submitted is entirely your own work.

If you have any concerns about appropriate academic practices or if you are experiencing any personal difficulties which are affecting your work, you should consult your personal tutor or a member of staff involved with that unit of study.

The **Library** provides online information literacy skills tutorials
http://www.shef.ac.uk/library/services/infoskills.html

The **Library** also has information on reference management software
http://www.shef.ac.uk/library/refmant/refmant.html

The **English Language Teaching Centre** operates a **Writing Advisory Service** through which students can make individual appointments to discuss a piece of writing. This is available for all students, both native and non-native speakers of English.
http://www.shef.ac.uk/eltc/services/writingadvisory

What happens if I use unfair means?

Any form of unfair means is treated as a serious academic offence and action may be taken under the Discipline Regulations. For a student registered on a professionally accredited programme of study, action may also be taken under the Fitness to Practise Regulations. Where unfair means is found to have been used, the University may impose penalties ranging from awarding a grade of zero for the assignment through to expulsion from the University in extremely serious cases.

Detection of Unfair Means

The University subscribes to a national plagiarism detection service which helps academic staff identify the original source of material submitted by students. This means that academic staff have access to specialist software that searches a database of reference material gathered from professional publications, student essay websites and other work submitted by students. It is also a resource which can help tutors to advise students on ways of improving their referencing techniques. Your work is likely to be submitted to this service.

For further information:

Unfair Means

Appeals Procedure

IMPORTANT NOTE:

You should thoroughly read and understand the above section on unfair means. If you are at all unsure about what this means and the implications for your work, then you should consult your project supervisor, the Individual Project module leader, your year tutor or your personal tutor.

Appendix 5 – Detailed Marking Criteria for each of the assessment

Interim report (Supervisor and Assessor marking separately)

Logical structure and clarity of writing (WEIGHTING 20%)	**Mark /10**
Little or no logical structure, poor sentence construction, difficult to extract information	0.0 – 3.5
Poorly structured, confusing prose, information can be extracted with perseverance	4.0 – 4.5
Satisfactory structure to report, prose conveys information successfully, occasionally confusing	5.0 – 5.5
In general, well structured and well written	6.0 – 6.5
Clear and logical presentation, articulate prose	7.0 – 8.0
Outstanding presentation and structure, reads like a review article	8.10-10.0
Review of literature (WEIGHTING 30%)	**Mark /10**
Little or no evidence of literature review	0.0 – 3.5
Patchy review, overview of few relevant papers with no critical appraisal	4.0 – 4.5
Satisfactory review, concise review of relevant papers, limited critical appraisal	5.0 – 5.5
Good, concise review of relevant papers, some critical appraisal, set into context of project	6.0 – 6.5
Excellent review, concise critical review, set into context of project, identifying gaps in knowledge	7.0 – 7.5
Outstanding review of publication quality	8.0-10
Summary of progress to date (WEIGHTING 20%)	**Mark /10**
Little or no evidence of summary of progress	0.0 – 3.5
Patchy, some evidence of progress but lacking continuity	4.0 – 4.5
Satisfactory, concise and coherent summary of progress to date	5.0 – 5.5
Good, concise and coherent summary set into context of project	6.0 – 6.5
Excellent, concise and coherent summary set into context of project with view to future work	7.0 – 7.5
Outstanding progress, many project goals already acheived	8.0-10
Forward plan (WEIGHTING 15%)	**Mark /10**
Little or no evidence of forward plan	0.0 – 3.5
Patchy, some evidence of forward plan but vague and / or confused	4.0 – 4.5
Satisfactory, concise and coherent forward plan with some specified objectives	5.0 – 5.5
Good, concise and coherent forward plan with clearly defined objectives	6.0 – 6.5
Excellent, concise and coherent summary, clearly defined objectives, set into context of project	7.0 – 7.5
Outstanding summary, professional quality project plan	8.0-10
Production standard (WEIGHTING 15%)	**Mark /10**
Little or no attempt to present report in consistent and intelligible format, little referencing and use of technical terms	0.0 – 3.5
Patchy presentation, frequent errors in formatting compromising meaning and readability, mistakes in referencing and use of technical terms.	4.0 – 4.5

Satisfactory presentation, minor errors in spelling and formatting but text conveys meaning, satisfactory use of referencing and technical terms	5.0 – 5.5
High standard of production, infrequent production errors, clear and labeled diagrams, good use of referencing and technical terms few mistakes	6.0 – 6.5
Excellent standard of production, report set out in clear and attractive format, few, if any, errors, few if any mistakes in referencing and technical terms	7.0 – 7.5
Outstanding standard of production, clear and attractive format, no errors in spelling, formatting, referencing or technical terms	8.0-10

Appendix 6 – Assessment: Marking Scheme for Supervisor's Report

Record keeping (refer to the logbook/labbook) (WEIGHTING 10%)	**Mark /10**
Little or no record keeping	0.0 – 3.5
Erratic and undated	4.0 – 4.5
Regular but incoherent in places, dated	5.0 – 5.5
Coherent but lacks detail, dated	6.0 – 6.5
Clear, detailed and dated	7.0 – 10.0
Intellectual input (WEIGHTING 20%)	**Mark /10**
Little or no input	0.0 – 3.5
Few ideas, occasional input	4.0 – 4.5
Constructive ideas, satisfactory input	5.0 – 5.5
Significant contribution, sustained input, some original thought	6.0 – 6.5
Leading contribution sustained over project duration, independent and original thought	7.0 – 10.0
Extent of supervision / student initiative (WEIGHTING 20%)	**Mark /10**
Continuous supervision, little or no student initiative	0.0 – 3.5
Frequent supervision, patchy student initiative	4.0 – 4.5
Regular supervision, satisfactory student initiative	5.0 – 5.5
Infrequent supervision, significant and sustained student initiative	6.0 – 6.5
Modest supervision, student assumed initiative	7.0 – 10.0
Communication skills – ideas, concepts and discussion (WEIGHTING 10%)	**Mark /10**
Student barely able to communicate basic ideas / concepts, little or no input into discussion	0.0 – 3.5
Understandable but occasionally unclear communication, contributed to discussion with prompting	4.0 – 4.5
Intelligible and generally clear communication, unprompted contribution to discussion	5.0 – 5.5
Coherent communication, significant contribution to discussion	6.0 – 6.5
Articulate and confident communication, student able to lead discussion	7.0 – 10.0
Organisation and planning (WEIGHTING 10%)	**Mark /10**
Little or no organisation / planning	0.0 – 3.5
Patchy organisation / planning, unable to prioritise tasks - supervisor set detailed task list	4.0 – 4.5
Satisfactory organisation, student able to prioritise tasks with help	5.0 – 5.5
Well organised, student able to prioritise tasks unaided	6.0 – 6.5
Excellent organisation and planning, student set and prioritised short and long term goals	7.0 – 10.0
Understanding of project objectives (WEIGHTING 10%)	**Mark /10**

Little or no understanding	0.0 – 3.5
Patchy understanding of basic ideas and objectives	4.0 – 4.5
Satisfactory understanding of basic project ideas and objectives, able to communicate to others	5.0 – 5.5
Sound understanding of project ideas and objectives, able to explain to others	6.0 – 6.5
Excellent understanding of project ideas / objectives, developed beyond initial project scope	7.0 – 10.0
Effort (WEIGHTING 10%)	**Mark /10**
Little or no effort	0.0 – 3.5
Patchy, inconsistent effort – bare minimum achieved	4.0 – 4.5
Satisfactory effort at recommended level to achieve adequate results	5.0 – 5.5
Commendable and consistent effort above level expected to achieve adequate results	6.0 – 6.5
Student showed exceptional dedication to project	7.0 – 10.0
Experimental / modelling competency (WEIGHTING 10%)	**Mark /10**
Little or no practical competency	0.0 – 3.5
Able to conduct simple practical tasks with assistance	4.0 – 4.5
Able to conduct simple practical tasks without assistance, tackled complex tasks with help	5.0 – 5.5
Able to complete complex practical tasks competently with some assistance / additional guidance	6.0 – 6.5
Able to complete complex practical tasks efficiently after instruction, with minimal guidance	7.0 – 10.0

Appendix 7 – Assessment: Marking Scheme for Project Report

(Assessment by the Supervisor and Independent Assessor)

Logical structure and clarity of writing (WEIGHTING 20%)	**Mark /10**
Little or no logical structure, poor sentence construction, difficult to extract information	0.0 – 3.5
Poorly structured, confusing prose, information can be extracted with perseverance	4.0 – 4.5
Satisfactory structure to report, prose conveys information successfully, occasionally confusing	5.0 – 5.5
In general, well structured and well written	6.0 – 6.5
Clear and logical presentation, articulate prose, interesting to read	7.0 – 7.5
Outstanding presentation, reads like a scientific article or professional technical report	8.0-10
Results (WEIGHTING 30%)	**Mark /10**
Little or no results, did not meet basic project aims	0.0 – 3.5
Patchy results, achieved some of basic project aims	4.0 – 4.5
Satisfactory results, achieved most of basic project aims	5.0 – 5.5
Commendable results, achieved basic and most of more demanding project aims	6.0 – 6.5
Excellent results, achieved more demanding project aims and advanced beyond these	7.0 – 7.5
Outstanding results, of sufficient novelty and quality that they could be presented at a conference	8.0-10
Understanding and analysis (WEIGHTING 30%)	**Mark /10**
Little or no understanding of project aims and results, no relation to literature review	0.0 – 3.5
Patchy understanding of project aims and results, clear deficiencies in understanding / knowledge, limited relation to literature review	4.0 – 4.5
Satisfactory understanding of project aims, results and analysis, a satisfactory attempt to set it in the context of the literature	5.0 – 5.5
Good grasp of project aims, competent analysis of results, conclusions set in context of literature	6.0 – 6.5
Excellent analysis, contrasted against the background and the literature, evidence of original contribution to or development in field	7.0 – 7.5
Outstanding analysis, publication quality discussion.	8.0-10
Production standard (WEIGHTING 20%)	**Mark /10**
Little or no attempt to present report in consistent and intelligible format, little referencing and incorrect if any use of technical terms	0.0 – 3.5
Patchy presentation, frequent errors in formatting compromising meaning and readability, mistakes in referencing and use of technical terms.	4.0 – 4.5
Satisfactory presentation, minor errors in spelling and formatting but text conveys meaning, satisfactory use of referencing and technical terms	5.0 – 5.5

High standard of production, infrequent production errors, clear and labeled diagrams, good use of referencing and technical terms few mistakes	6.0 – 6.5
Excellent standard of production, report set out in clear and attractive format, few, if any, errors, few if any mistakes in referencing and technical terms	7.0 – 7.5
Outstanding standard of production, clear and attractive format, no errors in spelling, formatting, referencing or technical terms	8.0-10

Appendix 8 – Assessment: Marking scheme for Oral Presentations

Organisation, structure and use of time (WEIGHTING 20%)	**Mark /10**
Little or no structure / organisation, talk largely difficult to follow; very poor use of time (e.g. less than 5 minutes or didn't finish within the allocated time)	0.0 – 3.5
Patchy / inconsistent structure / organisation, talk frequently difficult to follow, often confusing; poor use of time (e.g. 5 – 7 minutes or finished but didn't have time for questions)	4.0 – 4.5
Satisfactory structure, talk occasionally difficult to follow, sometimes confusing; Satisfactory use of time	5.0 – 5.5
Well structured, talk easy to follow, rarely confusing; Good use of time	6.0 – 6.5
Excellent structure – with only a few minor areas for improvement; Excellent use of time	7.0 – 7.5
Exceptional structure – little/no room for improvement (close to the level expected for a conference paper) ; Excellent use of time	8.0-10
Delivery (WEIGHTING 20%)	**Mark /10**
Poor, such as to render talk largely unintelligible	0.0 – 3.5
Patchy / inconsistent, often difficult to comprehend aims, results and conclusions	4.0 – 4.5
Satisfactory, conveyed aims, results and conclusions in largely understandable fashion	5.0 – 5.5
Good, conveyed aims, results and conclusions, in clear fashion	6.0 – 6.5
Excellent, confident and fluent presentation of aims, results and conclusions	7.0 – 7.5
Exceptional and engaged the audience with a clear and interesting presentation (close to the level expected for a conference paper)	8.0-10
Use of visual aids (WEIGHTING 20%)	**Mark /10**
Little or no use of visual aids	0.0 – 3.5
Patchy / inconsistent, sloppy production, ineffective at communicating content	4.0 – 4.5
Satisfactory, adequate standard of production, conveys basic content	5.0 – 5.5
Good, well produced, effectively conveys content and enhances talk	6.0 – 6.5
Excellent production which conveys content in professional fashion	7.0 – 7.5
Exceptional level of production (close to the level expected for a conference paper)	8.0-10
Technical content and accuracy (WEIGHTING 20%)	**Mark /10**
Little/no or completely over the top technical content; Contained multiple inaccuracies	0.0 – 3.5
Superficial technical content; Contained some inaccuracies	4.0 – 4.5
Satisfactory level of technical content but lacked appropriate depth; Minimal number of inaccuracies	5.0 – 5.5
Good level of technical content to describe the topic and work done; No errors	6.0 – 6.5
Excellent level of technical content which was well pitched for the audience and topic; No errors	7.0 – 7.5

Exceptional level of technical content which was well pitched for the topic and an audience of academics and students; No errors	8.0-10
Answering questions (WEIGHTING 20%)	**Mark /10**
Extremely poor understanding and a lack of coherent responses to questioning	0.0 – 3.5
Poor responses and understanding which indicates low level grasp of topic and work done	4.0 – 4.5
Satisfactory responses and understanding which indicates an adequate grasp	5.0 – 5.5
Good, well thought out responses showing a clear understanding of the topic and work done	6.0 – 6.5
Excellent and well argued answers showing very good knowledge of the technical, impact and broader implications of the topic	7.0 – 7.5
Exceptional, concise and well argued answers showing first-rate knowledge of the technical, impact and broader implications of the topic (close to the level expected for a conference paper)	8.0-10