

Department of Aeronautics

**UG Project Information for Students and
Supervisors: 2022-23**

**MEng Aeronautical Engineering
(H401,H410,H415,H420,H41E)**

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1. Introduction

Your Project constitutes a piece of individual research that must include some element of originality. The results from the study must be set in context against published work (i.e. there must be a literature survey).

Internal projects are a continuous activity from the start of the academic year to early June (Monday 5th June 2023).

External projects are carried out outside Imperial College, with students typically hosted on-site at another organization. External projects must be carried out full-time, from Monday 23th January 2023 to early June (Monday 5th June 2023).

Projects may be conducted outside the College in an industrial organisation. Students will then be under the guidance of an industrial supervisor whose expectations and experience of assessment may differ from those of the Imperial supervisors. The purpose of this document is to outline the procedure for the project so as to ensure that the conduct and assessment of the projects are performed to as uniform a standard as possible.

The Final Year Project forms a significant part of your final degree award and students are expected to devote significant effort towards achieving their project goals. Consequently, you should carefully plan your time throughout the year, devoting appropriate time to taught modules and your project. Note that the project is not restricted to term time only and students will expected to continue working on their projects over the Easter break.

2. Departmental Contacts

Administrative:

Aeronautics Undergraduate Office: ae.office@imperial.ac.uk

Academic Contact:

Dr Errikos Levis, errikos.levis@imperial.ac.uk

3. Project Process: Selection and Allocation

3.1 How to Make Your Selections – The Rules

Please follow any instructions given in the Project Topics List that accompanies this. **DO NOT** select projects for which you do not qualify i.e. you have not completed prerequisite courses, projects restricted based on fee status etc.

Further consider any limitations imposed by your project choices on the selection of elective modules and vice versa. More specifically, students choosing to carry out an external project may not choose any optional modules assessed by examination later than the external project start date. Similarly a number of projects have been highlighted as requiring student effort to be spread throughout the academic year, suggesting that effort on taught modules should also be more evenly distributed.

You will make your selections via the dedicated Sharepoint form no later than

- Monday 4th July 2022 for external projects, and
- Monday 19th September 2022 for internal project.

<https://imperiallondon.sharepoint.com/sites/foe/aero/student-portal/SitePages/Final-Year-Projects-2021-22.aspx>

Please make sure that you select your choice of projects carefully as mistakes cannot be rectified after the allocation has been made.

Please make sure that you adhere to the following:

1. You must select the appropriate number of projects for your programme
2. You should pick a range of projects types and must not exceed the limit on experimental projects for your programme
3. You should pick projects from a range of staff; this should be more than one or two academics.

H401, H420 Projects – minimum 10 choices (no more than 3 choices to be experimental)

H415 Projects – minimum of 5 choices from projects marked as **(S)** on projects list

3.2. External Projects

External projects can be based in the UK or abroad, at a university or industrial partner. External projects are allocated late in the Summer term of your Third year (deadline for selection is Monday 4th July 2022) so that you can plan ahead for the following academic year.

In addition to the project titles provided, students may choose to set up their own project. In contacting potential supervisors, students should ensure that the external organization is aware and agrees to the following requirements:

- They will host you for 4 months, starting late January 2023
- They agree to provide adequate supervision and any materials/equipment required for the successful completion of your project. Equipment and software provided by Imperial may not be used for commercial purposes.
- They agree to participate in the assessment of your project, participating in the oral assessments and assessing your carry-out and thesis.
- They agree for us to receive weekly updates, an interim report and your thesis for grading purposes.

Students who have organised an external project should contact the FYP coordinator no later than Monday 19th September 2022 with details of their project.

Some external projects may offer a small stipend. Note however that when applying for or organizing an external project, you should expect to be able to sustain yourself (transport, rent, food, etc) irrespective of the possibility of a stipend.

3.3 Contacting Supervisors

You are very welcome to contact supervisors before you make your choices in order to find out more about their projects. This is indeed encouraged in the case of some of the external projects or if you are interested in an experimental project but have not had much experience of this in your previous studies. However, this does not and should not be taken as an informal agreement that you will be allowed to undertake a specific project before the actual allocation is made.

3.4 Project Allocation

Projects are allocated to students by the FYP Coordinator, subject to a number of constraints. In the interest of fairness, the allocation is primarily done based on the students' past performance during the course. Steps are however taken to allocate you a project as close to your top choice as possible. Nevertheless, allocation must be made according to the following constraints:

- The project supervision workload needs to be reasonably distributed between staff members and take account of other workload activities they may have.
- Limitations in the availability of resources/facilities for experimental projects
- Some projects require a very specific knowledge of aptitude and in those cases the supervisor may want to approve the student allocated to the project.

You should therefore only choose projects that you would be willing to undertake, even if they are quite far down your preferences. Though we would hope to avoid such a thing, we simply cannot guarantee that we would never allocate a student to their fifth, sixth or eighth choice if we had to. We do our very best to allocate as close to the top of your preference as possible but our primary objective has to be that all students have a project from among the ones they have chosen.

3.5 External Project Allocation – Selection by Company

External projects are typically allocated following the same procedure as outlined previously for Internal ones. Some external partners however may wish to participate in the selection process, asking for a CV or meet with you ahead of confirming the project. Students who are successfully chosen for external projects will not be allowed to change projects at a later date or reject this allocation, so please be sure that you definitely want to do the project.

4. Project Process: Preparation, Progress and Attendance

4.1 Project dates and duration

Internal projects: Monday 10th October 2022 - Monday 5th June 2023

External projects: Monday 24th January 2023 - Monday 5th June 2023

4.2 Preparation and Initial Stage

Once projects have been allocated you should arrange to meet with your supervisor and discuss the details of the work.

For **external projects**, both the internal and external supervisors will normally participate in the discussion of project objectives and deliverables via emails and telephone conversations. Following this discussion the student must prepare a 'Statement of Expectations'.

This is a document to ensure the expectations of all parties are aligned. This document should consist of (as applicable for each project):

1. Project title
2. Statement of problem
3. Student's objectives relating to (for example):
 - a. Apparatus (design and commissioning)
 - b. Instrumentation and measurement
 - c. Analysis
 - d. Computation
 - e. Literature survey
 - f. Comparison with theory
4. Statement of external supervisor's expectations relating to (for example):
 - a. Apparatus
 - b. Experimental work
 - c. Computation
 - d. Analysis
 - e. New knowledge

This document must be agreed to by the student and two supervisors and emailed to the Undergraduate Office **no later than the end of the Autumn Term**.

Following the agreement of the 'Statement of Expectations' the student must prepare a 'Work Plan'. This document should outline the student's programme of work, on a week-by-week basis, for the project period, together with a summary of the work already completed. The Work Plan must be submitted to the IC supervisor for discussion, amendment and approval **within the first TWO weeks of the project**.

4.3 Registration of Experiment and Risk Assessment Foundation Training (RAFT)

This training is compulsory for all students undertaking experimental projects in the Department. You **WILL NOT** be able to start the experimental aspects of your project until this training has been completed and you need to complete **at least 4 weeks before experimental work is due to start**. For full details on RAFT please go to the website below, read and follow any instructions given.

<https://www.imperial.ac.uk/aeronautics/local/health-and-safety/>

4.4 Changes to Project

Please inform the Undergraduate office immediately if there are any changes to your project (e.g. change of title or for external projects, change of supervisor, location, etc).

4.5 Project Logbook

Students are required to keep a record of their progress throughout the project (take five to ten minutes at the end of your working day to record your progress). Typically that is done by keeping a log book, but the most appropriate method for your project can be selected in consultation with your supervisor(s).

Recordings might include a diary, ideas, thoughts, data, difficulties, intermediate results, preliminary analysis. The logbook will be very helpful during the preparation of progress reports, your interim report and the dissertation. Logbooks are a fundamental component of research/industrial work as it is a legal record of the work carried out as required, for instance, in patenting inventions.

4.6 Progress Reports

Students are expected to meet with their supervisor on a regular basis and provide reports on the progress and plans for the following week(s).

The recommended format is a short, written update that the supervisor can keep a record of. Some supervisors might prefer alternate reporting methods, such a short presentation with a few slides for example.

The exact format expected must be agreed to by the student and supervisor in their first meeting.

Date: DD-MM-YYYY

Previous week:

- *Prepared initial samples for analysis*
- *Collected data using exp. rig*
- *Read literature on experimental methods*

Problems Encountered:

- *Camera broken and will require 3 weeks to fix. Alternative plans?*

Next week:

- *Collect more samples*
- *Investigate alternative analytical techniques*
- *Study trends in already collected data*

For students undertaking external projects, a short progress report **must** also be sent by e-mail to their internal supervisor on a weekly basis.

4.6 Monitoring Project Progress and Student Attendance

If students do not keep in regular contact or fail to attend appointments it is the project supervisor's responsibility to inform the Undergraduate Office. The College has strict regulations with regards to student attendance during the project period and the onus is on the supervisor to ensure these are adhered to. This applies to the supervisors of both internal and external projects.

It is also the local supervisor's responsibility to monitor the progress of the student (i.e. for projects conducted externally, the external supervisor is responsible and for internal projects the supervising Imperial staff member). In any cases of inadequate progress the supervisor should notify the Undergraduate Office and FYP Coordinator.

4.7 Illness

Students are required to inform the Undergraduate Office if you are absent for more than one week as well as submit a medical certificate on return to studies (see your student handbook for further information). You should also separately contact your supervisor(s) to ensure they are aware of your absence.

4.8 Project Extensions

Extensions for the project report are **ONLY** granted in extreme circumstances e.g. illness for more than one week during the project period (medical documentation must be provided), minor breakdown of equipment, failure on supervisor to have materials in place (supervisors note this should not happen!). All such extensions **CAN ONLY** be signed off by the Senior Tutor and must be supported by the project supervisor. (Coursework extension forms available on Sharepoint). **All extension requests in the first instance must be passed directly to the Undergraduate Office. Please note that the project presentation date may remain unchanged even if an extension is granted.**

5. Project Assessment

5.1 Overall Project Weighting

Carrying Out	10%
Interim Assessment (*)	10%
Thesis	60%
Oral Examination (*)	20%
Total	100%

(*) for external projects the internal supervisor would typically attend remotely

Students who started after October 2019 should note that their project will have a pass mark of 50%.

5.2 Carrying Out

Students are assessed on their conduct (Carrying Out) throughout the project. This mark is produced at the end of the project, once the report is submitted. A student who communicates well with the supervisor, meeting regularly and constructively, organises their time well, takes ownership of the project, requires limited direction, takes initiative to think about problems before taking them to the supervisor, reads around the topic area, is careful and efficient with calculations, programming and/or experimental procedure, and (most importantly) takes an interest in the project, can expect to get an excellent Carrying Out mark.

5.3 Interim Assessment

For their Interim Assessment, students must present their project aims, progress to date and future plans for the successful completion of the project, to their supervisor and second marker.

The presentation should be 10 minutes long and will be followed by a 10-minute Q&A and oral feedback session. The presentation should be scheduled once the student has made sufficient progress to benefit from the oral assessment, and **no later than Friday 17th March 2023**, for a date and time agreed to by all three parties.

Students will be assessed on (i) their understanding of the material surrounding the project and (ii) their plans for the remainder of the project. A mark for the Interim Assessment will be agreed to by the two markers.

Following the Interim Assessment, students must complete the "Interim Assessment Report Form", summarising the feedback they received during their Interim Assessment session. The form should be signed by all three parties, confirming the veracity of its contents, and submitted as a scanned/digital copy on Blackboard.

5.4 Project Oral Assessment

Students undertaking a project at Imperial are required to present and defend their work. Your oral assessment will be scheduled for Thursday 15th June 2023.

Students cannot pick their preferred date/time and are required to keep the date free (any such requests will be rejected). Students should note that a further presentation slot will be reserved on Thursday 23rd June 2023 for students who have been granted a coursework extension.

The Oral Assessment will be attended by your supervisor, second marker and possibly an external examiner, who will have reviewed your thesis prior to the assessment. The Oral Assessment is comprised of a short 10 minute presentation, with appropriate visual aids, providing an overview of your work, followed by a 20 minute Q&A session.

Students will be assessed based on:

- the quality of the overview provided based on (i) the quality of slides and (ii) the clarity of the presentation (20%); and
- the student's ability to defend (i) the methodology/approach taken, (ii) the findings of the project, (iii) the validity of findings, and (iv) any improvements/future work necessary (80%).

For External projects, the Oral Assessment should be scheduled before the 16th June 2023, for a day and time that suits all three parties and provides sufficient time for the thesis to be reviewed by both supervisors following submission.

5.5 Project Report Guidelines

Each student is required to present the results of their research project in a report the deadline for which will be 5th June 2023.

On completion of the Project students should submit their Final Report, including an abstract, motivating introduction, background material and literature review, project aims and objectives, methods, results, analysis and conclusions (discuss the exact contents with your supervisor or both the internal and external supervisors if undertaking an external project).

The page limits for the reports (including tables and figures) is no more than 40 pages.

Tables of Contents, Reference lists and Appendices are not included in such limit but the markers are not obliged to read beyond the page limit and may ignore. Please note that we do not provide a standard template for the report.

Students will be offered the opportunity to (optionally) submit a draft of their written work, typically one of the early chapters such as a literature review (no more than 5 pages in total), to their supervisor for *feedback*. **Supervisors will not review any further drafts/parts of students' written work prior to the submission of the final report.**

Advice on report writing can be found in the Student Handbook, but students are advised to consult projects from previous years to see the standard expected. In particular, look at projects which in the past have won prizes. Please note that you will not be able to gain access to any confidential reports listed. Students can view past Project reports on Sharepoint.

There are penalties for late submission of project work on exactly the same basis as those for coursework (see "Coursework Submission Penalty Scheme" section in your student handbook).

5.6 FYP Marking Criteria

The mark-schemes can be found attached.

5.7 Turnitin

TurnitinUK is an online text matching service which assists staff in detecting possible plagiarism. Students will have the opportunity to run their project reports through Turnitin and use their originality report to address possible issues in their work. More information will be provided on this in due course.

6. Project Report Submission

Submission Information for Project Report & Logbook

Interim Assessment Report Form

- ONE pdf of your completed assessment report form, signed by both markers, submitted on Blackboard.

Final Report - Internal Projects

- ONE pdf file of your report to be submitted on Blackboard.
- TWO hard copies of report to be submitted to the Undergraduate Office or via your programme box.
- Logbook (if kept) to be submitted to the Undergraduate Office or via your programme box.

Final Report - External Projects

- ONE pdf file to be submitted on Blackboard.
- ONE hard copy to be submitted directly to your external supervisor (discuss with them the format they require). Note, we will only print project reports from Blackboard for external project students.
- The logbook (if kept) is to be submitted to your external supervisor.

7. Key Dates

Students issued with information on available projects and guidance document.	June 2021
Deadline for students to submit their online project selection forms on Sharepoint (external)	Monday 4th July 2022
Deadline for students to submit their online project selection forms on Sharepoint (internal)	Monday 19th September 2022
Internal projects allocated and issued to students (including internal supervisors).	Monday 3rd October 2022

Internal Project start date	Monday 10th October 2022
External Project start date	Monday 23rd January 2023
Defining Project Timeline (for External Projects only)	Monday 6th February 2023
Interim Assessment (Attended by Supervisor and Second Marker)	No later than Friday 17th March 2023
Interim Assessment Report Form Submission (Produced by student, signed and agreed to by both markers)	No later than Wednesday 22nd March 2023
Final Project Report Submission (Marked by Supervisor, Second Marker)	Monday 5th June 2023
Oral Assessment for internal projects (Marked by Supervisor, Second Marker and External Examiner if present)	Thursday 15th June 2023

Individual Project – Interim Assessment Marksheet

The Interim Assessment involves a 10-minute presentation where students must demonstrate their understanding of their project aims & objectives, the context in which the work is being undertaken, summarise their progress to date and their plans for its successful completion.

Following the presentation, through further questioning and discussion the examiners will (i) seek to clarify points made during the presentation, and (ii) offer feedback on the student's progress to date, approach to the work and plans for the remainder of the project.

Criteria	0-39% (F, D-) Poor	40-49% (D, D+) Satisfactory	50-59% (C-, C, C+) Good	60-69% (B-, B, B+) Very Good	70-89% (A-, A, A+) Excellent	90-100% (A*) Outstanding
<i>Aims and Objectives</i> [10%]	No or little understanding of the scope of the project. Aims and objectives not clearly presented.	Demonstrates an understanding of the aims of the project. Objective are presented, however are limited or somewhat inappropriate.	Demonstrates a good understanding of the aims of the project. Major objectives are clearly articulated and appropriate, however issues were identified in their formulation.	Demonstrates thorough understanding of the aims of the project. A number of appropriate objectives are clearly presented however minor issues are identified.	Demonstrates thorough understanding of the aims of the project. A number of measurable, clear and attainable objectives are presented and their relative importance and priority is identified.	Very little could be done to better it in any way
<i>Background and Progress to Date</i> [30%]	Demonstrates little or no awareness of past work in the field. Limited progress made to date.	Has identified major works in the literature and is able to set the project in context. Some progress has been made towards the stated objectives, however with significant weaknesses.	Has identified several relevant works in the literature and is able to set the project in context. Reasonable progress has been made towards the stated objectives, however some weaknesses.	A very good review of past works and contributions, relevant to the objectives, is clearly evident. Some inconsistencies identified in the student's work. Good progress towards the achievement of objectives has been made.	A thorough, well-rounded review of past works and contributions is clearly evident. Excellent progress towards the achievement of the objectives has been made using appropriate methods and reasoning.	
<i>Plans for Remainder of Project</i> [30%]	Demonstrates limited or no understanding of the work required for the remainder of the project. No significant plan for the remainder of the is presented.	Demonstrates an approximate understanding of the next steps required to meet the stated objectives. Some limited planning for the remainder of the project is presented.	Demonstrates a clear understanding of the next steps required to meet the stated objectives. An partially complete workplan has been presented with some reference to methods and approaches likely to be employed.	Demonstrates a very good understanding of the next steps required to meet the stated objectives. A complete workplan has been presented with methods and approaches likely to be employed identified for most elements.	Demonstrates a comprehensive understanding of the next steps with the approaches and methods to be employed thoroughly discussed. A well-developed plan with a clear breakdown of work and appropriate timescales is presented.	
<i>Quality of Viewfoils</i> [15%]	Poor or no use of visual media to support the presentation. Content exceptionally difficult to understand.	Visual media used to support the presentation, however there is significant room for improvement. Lack of appropriate detail with significant issues relating to layout, fonts and colouring employed	Good use of visual media to support the presentation, several improvements needed. Content presented to appropriate detail with appropriate layout, fonts and colouring employed, with significant issues.	Very good use of visual media to support the presentation, minor improvements needed. Most content presented to appropriate detail with appropriate layout, fonts and colouring employed, with some minor issues.	Excellent use of visual media to support the presentation. All content presented to appropriate detail with appropriate layout, fonts and colouring employed.	
<i>Quality of Presentation</i> [15%]	Poor presentation skills. Clumsy, disjointed, difficult to follow, or dull. Significantly under or over time.	Not always clear or easy to follow, unimaginative and unengaging. Significantly over time. Material fairly disorganised and rushed	Effectively conveys intended ideas, but is sometimes unclear or clumsy. More or less right length, but some material not covered properly as a result.	A clear, lively and engaging presentation. Good engagement with the audience. Well organised, more or less to time.	An excellent presentation. Clear, lively and engaging, presenting information in a logical order. Perfectly timed.	

Individual Project – Carry-Out Mark-Scheme

Criteria	0-39% (F, D-) Poor	40-49% (D, D+) Satisfactory	50-59% (C-, C, C+) Good	60-69% (B-, B, B+) Very Good	70-89% (A-, A, A+) Excellent	90-100% (A*) Outstanding
<i>Approach</i> [25%]	Student demonstrated little to no ability to plan and carry out independent research. Student took no ownership of the project and was unable to manage the project within the time-frame allocated.	Student demonstrated a very limited ability carry out independent research. Student took little to no ownership of the project and extensive supervisor input was necessary for objectives to be met within the time-frame allocated	Student demonstrated a limited ability to plan and carry out independent research. Student took ownership of aspects of the project, but extensive supervisor input was necessary. Some issues with time management.	Student demonstrated an ability to plan and carry out independent research and with supervisor's support. Student took ownership of aspects of the project, building on moderate supervisor input, and successfully managed the project within the time-frame allocated.	Student demonstrated an excellent ability to plan and carry out independent research and to overcome difficulties. Student took ownership of the project, exploring widely, setting appropriate goals and successfully managed the project within the time-frame allocated.	Very little could be done to better it in any way
<i>Technical Skills</i> [30%]	Student demonstrated little to no ability in developing and utilizing any computational, analytical and/or experimental tools necessary for their project.	Student demonstrated a limited ability to develop and use the computational, analytical and/or experimental tools provided for their project. Results were obtained with significant assistance.	Student demonstrated an ability to develop and use the computational, analytical and/or experimental tools for necessary for their project. Results were obtained with some assistance.	Student demonstrated the ability to identify appropriate computational, analytical and/or experimental tools necessary for their project, effectively developing and utilizing them with little support.	Student demonstrated an excellent ability to identify the most appropriate computational, analytical and/or experimental tools necessary for their project, effectively developing and utilizing them. Minimal to no support was required.	
<i>Reporting</i> [20%]	Student provided few or no updates on their progress. Limited information was provided and generally not in an appropriate format. Poor communication skills overall.	Student provided some updates on their progress, in a less-than regular basis, important information was often missing and significant probing by the supervisor was necessary. Limited communication skills evident.	Student provided good, regular updates on their progress, however some important information was often missing and significant probing by the supervisor was necessary.	Student provided very good, regular updates on their progress, however some probing by the supervisor was necessary. Very good communication skills overall.	Student provided excellent, regular updates on their progress in an appropriate format. Little to no probing by the supervisor was necessary. Excellent communication skills overall.	
<i>Diligence</i> [10%]	No significant student effort was evident throughout the duration of the project.	Some student effort was evident throughout the duration of the project, however falling well short of the expected level.	Student worked diligently throughout the project with effort however failing to meet the expected level.	Student worked diligently throughout the project with effort up to the expected level.	Student worked diligently throughout the project with effort well beyond the expected level.	
<i>Originality</i> [15%]	No originality in the approach employed and the findings presented. Work presented is of a poor standard.	No originality in the approach employed and the findings presented, however work is of satisfactory standard.	While not original in its approach, the work has developed some novel findings.	Good mixture of established approaches employed and novel ones developed. Some novel findings presented.	Innovative approaches and novel findings, that go beyond the scope of the task, employed.	

Individual Project – Thesis Mark-Scheme

Criteria	0-39% (F, D-) Poor	40-49% (D, D+) Satisfactory	50-59% (C-, C, C+) Good	60-69% (B-, B, B+) Very Good	70-89% (A-, A, A+) Excellent	90-100% (A*) Outstanding
<i>Introduction & Background</i> [15%]	Demonstrates very little evidence of having read basic background or understanding of the project objectives.	Demonstrates limited, fragmented knowledge of the background and literature; presents limited understanding of the project objectives.	Demonstrates a modest, partially integrated knowledge of the background and literature; presents some modest understanding of the project objectives.	Demonstrates well integrated knowledge of the background and literature through use of appropriate citations; presents pertinent understanding of the project objectives.	Demonstrates an excellent, well integrated knowledge of the background and literature through use of appropriate citations; presents exceptional understanding of the project objectives and their origins.	Very little could be done to better it in any way
<i>Methodology</i> [15%]	Chosen methods and assumptions not appropriate for the stated problem, very little detail of assumptions and reasoning provided.	Chosen approaches somewhat appropriate to problem statement. Some details related to assumptions and reasoning provided.	While somewhat limited in level of detail on reasoning, mostly appropriate methods chosen.	Appropriate methods and assumptions to the problem statement are employed. Good detail of reasoning provided.	Excellent choice of methods and use-cases. Rationale for choices clearly presented. Novel approaches to the stated problem found.	
<i>Validity of Results</i> [15%]	Presents poorly constructed set of results in inappropriate graphical, figurative or tabulated forms. The results are however mostly wrong and invalid.	Presents limited results in reasonable graphical, figurative or tabulated forms. Results are imprecise and to be questioned.	Presents most relevant results in a mostly appropriate graphical, figurative or tabulated form. Results contain errors and are sometimes elusive.	Presents all results in the most appropriate form. Results are mostly correct but minor issues identified.	Presents all results in in the most appropriate form allowing easy comparison and comprehension of trends. Results are accurate throughout.	
<i>Discussion of Findings</i> [20%]	Demonstrates incomplete or incorrect interpretation of trends indicating lack of understanding of results	Demonstrated limited thoughts and arguments; limited explanations of findings and ideas from results and literature; limited argument and discussion of the work.	Demonstrated a reasonable level of understanding of the key ideas and phenomena investigated; some key findings are related to ideas from literature; sustains some modest arguments; present some discussion of the work as a whole.	Demonstrated clear thoughts and arguments; explained findings and related well to concepts and findings from literature; provides clear and sound arguments that are well defended; presents a well round discussion of the work as a whole.	Demonstrated an independence of thought and arguments, indicating wide exploration; explains rationale clearly and provides lucid, cogent and sophisticated arguments that are well substantiated and defended; present a thorough and critical account of the work as a whole.	
<i>Conclusions</i> [10%]	Demonstrates poor conclusions; no evidence or attempt to answer the project objectives.	Demonstrated limited conclusions; limited evidence on attempt to answer the project objectives.	Demonstrated modest conclusions; presents some answers to the project objectives; shows ability to generate some limited recommendations for improvement and future work.	Demonstrated clear conclusions; presents answers to the project objectives; ability to generate robust recommendations for improvement and future work.	Demonstrates concise and reasonable conclusions; presents coherent answers to the project objectives; shows ability to generate robust, well thought out and innovative recommendations for improvement and future work.	
<i>Achievement of Objectives</i> [15%]	Little or no serious work, failure to address task; most work packages not addressed.	Little actual achievement, limited understanding.	Some weaknesses and limited in achievement, but implementation was diligent and major objectives have been addressed.	High standards, which, though failing to match up to total expectations nevertheless contained much actual achievement.	Highly competent work, with achievement up to or beyond the supervisor's expectation.	
<i>Presentation</i> [10%]	Document is poorly presented throughout indicating limited effort. A poorly organised, incomplete reference list not following appropriate style	Significant issues are present with captions and presentation of figures, tables and equations. Numerous grammatical/spelling errors. limited, structured reference list not following an appropriate style	Document is correctly formatted; Some issues with captioning and presentation of figures, tables and equations. Some grammatical/spelling errors. A modest, organised and structured reference list. Some small errors encountered.	Document is correctly formatted; Minor issues with captioning and presentation of figures, tables and equations. Presents a clearly organised and structured reference list. Minor issues in style used.	Document is correctly formatted. All figures, tables and equations correctly labelled and referred. A pleasure to read. Presents an excellent organised and structured reference list. Sufficient information to easily retrieve source given	

Individual Project – Oral Assessment Mark-Scheme

The Oral Assessment of the Individual Project involves a 10-minute presentation followed by a 20-minute Q&A session. For the introductory presentation, students must summarize their work throughout the project, clearly stating their objectives, methodology and key findings. Any issues encountered during the project (e.g., breakdown of instruments, etc.), which you think should be considered in the marking process, should also be highlighted.

Following the presentation, through further questioning the examiners may (i) seek clarification on aspects of the project as discussed in the Thesis submitted, (ii) ask the student to justify their approach to the work presented, and (iii) seek to confirm that students understand what they have written and can effectively defend it verbally.

Criteria	0-39% (F, D-) Poor	40-49% (D, D+) Satisfactory	50-59% (C-, C, C+) Good	60-69% (B-, B, B+) Very Good	70-89% (A-, A, A+) Excellent	90-100% (A*) Outstanding
<i>Fulfilment of Objectives [20%]</i>	Work presented is poor and fails to address the objectives.	Little actual achievement but work is relevant to the stated objectives.	Objectives are partially addressed and work presented of a good quality.	High standard of work, which fails to fully address all objectives nevertheless contains much actual achievement.	Objectives have been entirely addressed and even expanded upon. Work is of a publishable standard.	Very little could be done to better it in any way
<i>Defence of Work [30%]</i>	Student was able to provide little to no justification for the methods employed. A coherent rationale supporting the accuracy and veracity of their findings could not be provided.	Student was able to provide little justification for the methods employed. Limited argument to support the accuracy and veracity of their findings and conclusions were provided.	Student was able to broadly justify their chosen research method and the validity of their findings and conclusions. Significant weakness in supporting arguments with theory and literature.	Student was able to justify their chosen research method and the validity of their findings and conclusions. Some weakness in supporting arguments with theory and literature.	Student was able to thoroughly justify their chosen research method and the validity of their findings and conclusions with the support of well-developed arguments rooted in theory and literature.	
<i>Understanding of the Subject [30%]</i>	Demonstrated very little or no understanding of the subject and the wider context.	Demonstrated a limited understanding of the subject and the wider context. Was largely unable to explain relevant theory and physical phenomena.	Demonstrated an understanding of the subject however, significant weaknesses evident.	Demonstrated a well-rounded understanding of the subject and the wider context however some minor weaknesses.	Demonstrated an excellent, in-depth understanding of the subject and the wider context.	
<i>Quality of Presentation [20%]</i>	Poor presentation skills. Clumsy, disjointed, difficult to follow, or dull. Significantly under or over time. Poor or no use of visual media to support the presentation. Content exceptionally difficult to understand.	Not always clear or easy to follow, unimaginative and unengaging. Significantly over time. Material fairly disorganised and rushed. Visual media used to support the presentation, however there is significant room for improvement. Lack of appropriate detail with significant issues relating to layout, fonts and colouring employed	Effectively conveys intended ideas, but is sometimes unclear or clumsy. More or less right length, but some material not covered properly as a result. Good use of visual media to support the presentation, several improvements needed. Content presented to appropriate detail with appropriate layout, fonts and colouring employed, with significant issues.	A clear, lively and engaging presentation. Good engagement with the audience. Well organised, more or less to time. Very good use of visual media to support the presentation, minor improvements needed. Most content presented to appropriate detail with appropriate layout, fonts and colouring employed, with some minor issues.	An excellent presentation. Clear, lively and engaging, presenting information in a logical order. Perfectly timed. Excellent use of visual media to support the presentation. All content presented to appropriate detail with appropriate layout, fonts and colouring employed.	