

**Detailed Information on the Deliverables and Marking Scheme for**

**Final Year Project**

**BEng Agr/Bio/Energy/Mech (Honours) Engineering**

**September 2020**

**Department of Mechanical & Industrial Engineering**

**Final Year Projects**

**BEng Mechanical (Honours) Engineering**

**1.1 Introduction**

A total of 10 ECTS credits are available for the final year project of the BEng (Honours) programmes in Mechanical Engineering. This is 16.6% of the final year degree marks and hence the mark achieved in the project will have a major contributory effect on the academic standard of the final degree which a student is awarded.

**1.2 General Responsibilities of Students**

The student’s responsibilities include the transformation of the project requirements into a viable project plan, the research and synthesis of current state of the art in the relevant technology / scientific areas and the subsequent design and development of a working project implementation. In the case of a project with a biased towards scientific research, the implementation may take the form of the development or evaluation of experimental case studies or other analytical techniques. The student has primary responsibility for project planning, management and reporting and is also required to make regular contact with their assigned project supervisor.

**1.3 General Responsibilities of Academic Supervisors**

The academic project supervisor (and the project’s assigned co-supervisor) are decided upon at the start of the project. The supervisor will provide direction on the project requirements as well as overall guidance and feedback on the project methodology, progress and deliverables. It is not the responsibility of the project supervisor to conduct research on behalf of the student or to provide specific advice on the design or implementation technologies that may be used. The project supervisor and co-supervisor will subsequently evaluate and mark all elements of project work submitted by the student.

|  |  |  |
| --- | --- | --- |
| **Issue No** | **Date** | **Reason for update** |
| 1.3 | 17/09/07 | * Include breakdown of marking scheme
 |
| 1.4 | 15/09/08 | * Include penalties for late submission
* Include procedure for required extensions to deadlines
* Details of mid term report
* Student to provide the following
	+ Two soft bound copies of all reports
	+ Two hardcopies of presentations
* Softcopy ( in CD format) of Thesis report, poster & presentations
* Definition of co-operation with supervisor
* Full breakdown of marking schemes for all reports, poster, presentations & artefact
 |
| 1.5 | 15/12/08 | * Specify Microsoft word version
 |
| 1.6 | 02/09/09 | * Final Year Project is now a 10 credit year long module; overall marking scheme has changed to the following.
	+ 35% of total marks for semester 1.
	+ 65% of total marks for semester 2.
* A Declaration of Originality form must be included for each submitted report.
 |
| 1.7 | 10/02/10 | * Explanation of the writing tense and the application of the 1st, 2nd and 3rd person in report writing.
* Include the college procedure for plagiarism
 |
| 1.8 | 13/09/10 | * Badly written reports must be rewritten and marked out of 80%
* Submission of posters to be recorded and publicised.
* Web references not allowed.
* Turn-it-in software used.
* No proof reading by Supervisor.
 |
| 1.9 | 11/9/12 | * Change of overall marking scheme
 |
| 1.10 | 9/9/14 | * Addition of Video Presentation Deliverable with associated Marking Scheme Changes
 |
| 1.11 | 8/9/15 | * Change of marking scheme
* No hardback copy required
* Presentations after exams.
 |
| 1.12 | 13/9/2018 | * Video length reduced to 2 mins max
 |

**1.4 Important Dates**

|  |  |
| --- | --- |
| Two Copies of the Mid Module Report (Submitted to your supervisor **and** on moodle) | Friday January 15th, 2021 (5.00pm) Hard and Softcopies |
| Mid Module Presentation | Week beginning January 18thth, 2021  |
| Poster | Monday 19th April, 2021 (5.00pm) |
| Project Thesis, Video (Submitted on moodle)(This is the critical Deadline Date) | Friday 23rd April, 2021 (5.00pm) |
| Two Copies of Project Thesis (Printed and Ringbound version – These extra days after the submission deadline gives time to print the documents out and ring bind them) | Wednesday 28th April, 2021 (5.00pm) |
| Final Project Presentation/Demonstration/Oral Examination | After the May Examinations 2021 |

**1.5 Health and Safety Issues**

The procedures and regulations for access and safe working in laboratories must be adhered to while working on final year projects. Health and Safety statements and guidelines are displayed in all laboratories and additional Health and Safety documents are available for inspection on request. Each student has to submit a full safety statement after 4 weeks detailing the safety issues relating to their projects. This safety statement is then prepared in conjunction with a senior lecturer with experience in the area. The student should consult with their supervisor before the report is finalised.

**2.0 Project Procedures**

**2.1 Introduction**

Project work begins at the start of the year. A project specification document which details the aims and scope of the project will be provided to the student by the project supervisor. The following are the major project deliverables which each student must submit:

* Fully signed Supervisor/Student meeting sheet
* [Mid Module Project Report](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#initrep#initrep)
* [Mid Module Presentation](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#initrep#initrep)
* Final [Project Thesis](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#thesis#thesis)
* [Project Presentation\Demonstration\Oral Examination](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#demo#demo)
* [Poster](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#thesis#thesis)
* Video (Max 2 minutes duration)

###

### 2.2 Fully signed Supervisor/Student meeting sheet.

An A4 sheet will be dated and signed by both the supervisor and student after each meeting as shown in Table 2.1. The Supervisor will document your progress and outcomes of the meetings in supervisor comments section of the sheet. This meeting sheet provides a physical record of the student’s attendance at meetings with their project supervisor and is to be kept by your supervisor. It is the responsibility of the student to record project related issues such as a daily log of all work, experiments, programmes, tests, ideas, results, parts lists, notes, circuit diagrams and sketches and note-taking during meetings with project supervisor in a log book or equivalent as agreed with your supervisor.

**NB:**

**A COPY OF THE SUPERVISOR/STUDENT MEETING SHEET MUST BE INCLUDED AS AN APPENDIX IN THE FINAL THESIS.**

Failure to include this document will significantly reduce the marks awarded to the thesis.

Failure to satisfactorily meet with your supervisor will affect the final project mark.

**Table 2.1**

**Supervisor & Student Meeting Sheet**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Student Signature** | **Supervisor Signature** | **Supervisors Comments** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**2.3** [**Mid Module Project Report**](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#initrep#initrep)

Two soft bound copies and an electronic copy (by Moodle) of the mid module report must be submitted to your project supervisor before 5pm on January 15th 2021. This document should be approximately 20 pages, excluding appendixes. The document will be reviewed by the supervisor and notification will be given to the student as to whether the report is acceptable within five (5) working days of submission. If the report is unacceptable, then the student will have to rework the report and resubmit with five (5) working days. The resubmitted document will be marked out of 80% of the marks available for the report. Unacceptable reports are those that do not adhere to the guidelines detailed in this document (layout, use of passive tense, proper referencing system employed, etc), reports that contain spelling and grammatical mistakes etc. The supervisor will not proof read a draft document before the submission deadline. It is the student’s responsibility to ensure their work is up to standard.

The interim project report should contain the following chapters:

Title Page

Declaration of Originality (Must be signed and dated by the student)

Summary or Abstract

Symbols/Nomenclature

Glossary

Table of Contents

Table of Figures

Table of Tables

Main Text (The main section of the thesis should be structured, chapter by chapter description of the work carried out, including (where appropriate) the following

Introduction

Literature review

Materials & Methods

Work done to-date

Preliminary Results

Future Work

Discussion

Conclusions

Gantt Chart and project plan.

References

Appendices

**2.4** [**Mid Module Presentation**](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#initrep#initrep)

On the week beginning January 18th, 2021 a formal project review will take place. This review is part of the official examination procedure and failure to complete this review will result in project failure.

This will be conducted by the project supervisor, co-supervisor and a third lecturer, and will include the following elements:

***2.4.1 Oral Presentation***

The student must deliver a project presentation lasting no longer than 15 minutes. The student must provide three hardcopies of their presentation. This should be of a professional manner and must utilise computer based slide presentation technology. The project supervisor, the co-supervisor, and possibly a number of other students will attend each presentation. The presentation should provide an overview of the aims of the project and all project work completed.

***2.4.2 Oral Examination***

Following the project presentation and demonstration, the project assessors will interview the student and question them on aspects of the project. The thesis may be referred to during this assessment. The oral examination covers project requirements, research undertaken, technologies used, design/implementation details, final conclusions and any other details relevant to the project. The project demonstration and oral examination will last no more than 30 minutes.

### 2.5 Final Project Thesis

A softcopy of the report is to be uploaded by Friday 23rd April 2021, (5.00pm). Two soft bound copies of the thesis must be submitted to the student’s project supervisor before 5 pm, on 28th April 2021, (5.00pm). The thesis documents all aspects of the project work completed. The final thesis must be produced to a professional standard and MUST adhere to the departmental thesis guidelines. The document will be reviewed by the supervisor and notification will be given to the student as to whether the report is acceptable within five (5) working days of submission. If the report is unacceptable, then the student will have to rework the report and resubmit with five (5) working days. The resubmitted document will be marked out of 80% of the marks available for the report. Unacceptable reports are those that do not adhere to the guidelines detailed in this document (layout, use of passive tense, proper referencing system employed, etc), reports that contain spelling and grammatical mistakes etc. The supervisor will not proof read a draft document before the submission deadline. It is the student’s responsibility to ensure their work is up to standard.

Failure to submit a satisfactory project thesis by this deadline will result in project failure. This deadline for the submission of the project thesis will be strictly enforced. Extensions to this deadline will only be offered under the most serious of circumstances.

The project thesis and the Mid-Module Report will be run through the Turnitin software package when it is uploaded to Moodle. This software programme checks the report for plagiarism. If the report is deemed to have been copied from third party sources which are not properly referenced, then the full rigors of the Institute’s Disciplinary Committee will be employed.

***2.5.1 Beginning of Thesis***

The project thesis should contain the following before the main text section

* **Title Page** (See Below for more details of the format to be followed)
* **Declaration of Originality** (1 page, must be signed and dated)
* **Dedication** (1 page)
* **Summary or Abstract** (This is the very last thing that you write. It is the contents of the thesis re-written in 1 page, which outlines the project area, the project goals, reasons, materials and methods and the overall result/findings of the report. It should include a major conclusion.
* **Acknowledgements** (it is here that you thank those persons and organizations who have assisted you in your work)
* **Glossary** This may or may not be included. The glossary gives definitions of terms used throughout the thesis.
* **Symbols or Nomenclature** This should be in Alphabetical order starting with Capitals, Lower Case, Greek alphabet. It should be arranged in three columns which include the symbol, a brief description and its SI units.
* **Table of Contents** Should be tabular form, with three columns that include; a section number, section title and page number.
* **Table of Figures** Should be in tabular form, with three columns that include; the figure number, figure title and page no.
* **Table of Tables** Should be in tabular form, with three columns that include; table number, table title and page no.

###### *2.5.2 Main Text*

The main section of the thesis should be structured, chapter by chapter description of the work carried out, including (where appropriate)

* Detailed background theory.
1. Alternative solutions considered, reasons for selecting the final solution.
2. Structured design and implementation.
3. A clear description of all results and achievements should be included.
4. Include complete program/parts list in Appendix but highlight and fully explain the most interesting implementation details.

The following is a suggested structure breakdown. Sections may include one or more chapters.

* **Introduction:** Set the scene. This should be a general background on the project area, its application, its relation with respect to current technology trends etc, i.e. detail which will quickly help the reader to get a grasp of the project. Clearly (and briefly) specify the problem and all assumptions. This would include the aims or objectives and may include a clear system block diagram(s). Finish the introduction with a brief outline of each following chapter, i.e. indicate the structure of the thesis. Begin each subsequent chapter with an introductory paragraph detailing the chapter focus. Similarly end each chapter with a one paragraph summary.
* **Literature review.** This is the subject area background. Use your own words; copied text is generally quite obvious and overcomplicated. The literature review should analyse the relevant material (depending on information available on chosen topic) of at least 5 references for your chosen subject. Such references would include peer reviewed academic journal articles and text books and these can be obtained from the internet, library, library based databases etc. Internet referencing alone is only suitable for information on suppliers of various products needed for specific projects. If the situation arises that there is limited information available for chosen topic, then your supervisor will select a related topic on which you will research and review a number of academic papers.
* **Materials and Methods.** Describe the Analysis undertaken and problem description.Describe the engineering methodologies used to gather information, to generate and collect data either by experiments or by numerical simulation or analytical techniques.Describe the problems uncovered.
* **Results.** There should be an introduction and cross reference between text, rigs, models etc. There is to be a full explanation of the meaning of the results.
* **Discussion.** Bring together all of the points mentioned in the report.Describe your results for each project phase and give cross reference to figure nos. Describe fully the different strategies used and what methods worked, what didn’t and why. The difficulties which were encountered and which were/were not solved, unforeseen problems.Ways of achieving a better solution.Success of the methodologies used (design, test, assembly etc)**.** Don’t include an ‘excuse me but ...’ section.Highlight areas of difficulty and potential solutions. Discuss the points raised in the thesis that either confirm or contradict the work of others as quoted in your literature review. The logical flow of the discussion should lead into the conclusions.
* **Conclusions and Recommendations**. The conclusion should briefly recap the aim of the project and outline what elements have been achieved, how well and how close the project came to achieving the initial project goals (be specific and honest). Also, include recommendations for future work. Don't be afraid about repetition - you’re hammering home the important aspects of the project. Putting your results in context. Include a few short concrete points on the benefits obtained from performing the project work. Highlight any major pitfalls which a future student should recognise. The conclusions must be short and to the point, be drawn from the discussion and correlated with the objectives.

***2.5.3 End of Thesis***

* **References** (Can be in Alphabetical order **OR** in Numerical order). This is very important. If you don’t reference your document, this is considered plagiarism. Any information obtained from journals, conference proceedings, books, the internet etc must be fully referenced, examples on how to reference is shown in section 4.2.
* **Appendices** : include some of the following :
	+ - full parts list/supplier part numbers/supplier details
		- fully labeled and dimensioned 2d drawings
		- Specifications of equipment used.
		- further results which would clutter the main document.
		- copy of unusual (or difficult-to-get) device specifications
		- any useful background material used in developing the project which might clutter the main body of the report if included
* **Project Gantt Chart.**

**2.6 Writing Tense**

Scientific writing has certain verb tense conventions, these are;

1. Published work or established knowledge (results) should be given in the present tense.

Example: For 316 stainless steel, the Elastic Modulus is shown to be equal 200 GPa (Shigley, 1986).

1. Results described in your own work should be given in the past tense.

Example: For 316 stainless steel, the Elastic Modulus was found to be equal to 200 GPa

1. Work to be done, future work/experiments and recommendations should be given in the future tense.

Example: Tensile tests will be conducted to find the Elastic Modulus of 316 stainless steel.

1. Explanation of a Table or Figure is given in the present tense.

Table 1.1/Figure 1.1 shows a range of results of Elastic Modulus for different types of steels.

**2.7 The use of the 1st, 2nd and 3rd person**.

All reports must be written in the third person.

The following are examples of 1st or 2nd person pronoun sentences and how these should be rephrased into the passive voice.

|  |  |
| --- | --- |
| **Incorrect (1st or 2nd person pronoun)** | **Correct (Passive Voice)** |
| I (We) conducted tensile tests and found the material to be linear elastic. | The tensile test results showed the material to be linear elastic. |
| I (We) concluded that cardiovascular diseases is the leading cause of death … | Cardiovascular diseases is the leading cause of death … |
| You mix the resin and catalyst in a ratio of 4:1. | The resin and catalyst are mixed in a ratio of 4:1  |
| You concluded that cardiovascular diseases are the leading cause of death … | Cardiovascular diseases are the leading cause of death ………. |
| The experiment conducted by me (us) showed ……  | The conducted experiment showed …… |
| The procedure was explained to you proved | The explained procedure proved |
|  |  |

It is acceptable to write in the third person for the subject pronoun for the active voice, for example:

1. The surgeon performed the operation.
2. Richards, (2005) conducted a series of experiments ………
3. Researchers have concluded that cardiovascular diseases are the leading cause of death

It is also acceptable to apply the 3rd person for the object pronoun for the passive voice, for example

1. The operation was performed by the surgeon.
2. A series of experiments were conducted by Richards (2005).

### 2.8 Project Presentation/Demonstration/Oral Examination

After the completion of the May examinations, a formal project review will take place. This review is part of the official examination procedure and failure to complete this review will result in project failure.

This will be conducted by the project supervisor, co-supervisor, and may include other lecturers, and will include the following elements:

***2.8.1 Oral Presentation***

The student must deliver a project presentation lasting no longer than 20 minutes and not shorter than 15 minutes. This should be of a professional manner and must utilise computer based slide presentation technology. The project supervisor, the co-supervisor, other lecturers and possibly a number of other students will attend each presentation. The presentation should provide an overview of the aims of the project and all project work completed. The student must provide a two hard copies and soft copy of their presentations.

***2.8.2 Project Demonstration***

The student must provide a full practical demonstration of their project work. The student should clearly distinguish his or her own work from existing or off-the-shelf elements of the implementation. The demonstration should take place in an appropriate venue.

***2.8.3 Oral Examination***

Following the project presentation and demonstration, the project assessors will interview the student and question them on aspects of the project. The thesis may be referred to during this assessment. The oral examination covers project requirements, research undertaken, technologies used, design/implementation details, final conclusions and any other details relevant to the project.

The project demonstration and oral examination will last no more than 40 minutes.

### 2.9 Poster

The Poster is to be uploaded before your CAE Computer Lab on week Beginning on Monday 20th April, 2020 (10.00am). The poster is part of the official examination procedure and failure to complete this poster will result in project failure. Section 5 gives full details on the format which should be adhered to when creating this poster.

The best posters will be formally exhibited to all students and visitors of GMIT.

### 2.10 Video (2 minutes minimum duration maximum)

### Students must upload a video to the Moodle portal by Friday April 23rd 2021 (5.00pm). This video will give details on the background to the project, the methodology employed in completing the project and the major finding of the project. Typyically this video is roughly of 60 seconds duration (maximum 2mins) and should be seen as promotional video for the project.

**3.0** [**Project Administration and Marking**](http://learnonline.gmit.ie/pluginfile.php/Documents%20and%20Settings/pdelassus/My%20Documents/page3.html)

### 3.1 Project Deadlines

A [detailed schedule of deadlines](http://www.ee.nuigalway.ie/subjects/ee426/page1.html#dates) is provided for the various project deliverables. It is solely the responsibility of each student to ensure that they submit all reports and documents etc. to the required individual before the various publicised deadlines. In addition, it is solely the student’s responsibility to present themselves for examination at the correct time and location and to bring all relevant project material with them.

### 3.2 Penalties for Late Submission of Work

The Department of Mechanical & Industrial Engineering requires its undergraduates to have developed a responsible and professional approach to their work. One important aspect of this is the ability to complete work by the required deadline. You are expected to make allowance for delays which could be reasonably anticipated, e.g. due to everyday short illnesses, computer failures, travel delays, etc.

To ensure fairness to students who meet the deadlines, ***penalties for late submissions will be strictly enforced*.** For each week beyond the stated deadline a 10% penalty per week will be enforced. Exceptions will be made only in the most serious of circumstances. In such circumstances, if a student requires an extension, the student must:

**WRITE A LETTER ADDRESSED TO THE COURSE BOARD** and deliver this letter to the student’s supervisor detailing the reason(s) why an extension is being sought.

Failure to submit the final project thesis and attend (and complete to a satisfactory level) all aspects of the project examination process will result in complete project failure. All aspects (presentation, demonstration, oral examination, poster and thesis reports) must be successfully completed.

### 3.3 Project Pass Requirement

All students are given an indication (as part of the project specification document) of an expected level of achievement required in order to achieve a pass mark in the project. Most projects will require some element of hardware and/or software development and, in such projects, failure to produce a substantial working and packaged implementation of the project will result in the project being failed overall.

Students must achieve a clear pass mark of 40% in the final year project in order to pass the final year as a whole. As the final year project is a lab-based subject and is assessed during the academic year, there is no facility to repeat the final year project (or any component of the project) in the Autumn examinations. If you fail the final year project, then you will have to repeat the project during the following academic year.

### 3.4 Plagiarism

Plagiarism in any form is an unacceptable behaviour and, if it is detected, it will result in the student being referred to the Plagiarism Committee as described in the GMIT Code of Practice on plagiarism as explained in section 4.2. This rule covers all aspects of plagiarism from copying portions of documents or web-sites, and presenting this as your own work, or getting other individuals to completely develop the work for your project.

**4.0** [**Format of Final Project Thesis**](http://learnonline.gmit.ie/pluginfile.php/Documents%20and%20Settings/pdelassus/My%20Documents/page4.html)

###### 4.1 Overview

The Final Project Thesis will be reviewed by the supervisor and notification will be given to the student as to whether the report is acceptable within five (5) working days of submission. If the report is unacceptable, then the student will have to rework the report and resubmit with five (5) working days. The resubmitted document will be marked out of 80% of the marks available for the report. Unacceptable reports are those that do not adhere to the guidelines detailed in this document (layout, use of passive tense, proper referencing system employed, etc), reports that contain spelling and grammatical mistakes etc. The supervisor will not proof read a draft document before the submission deadline. It is the student’s responsibility to ensure their work is up to standard.

###### 4.2 Copyright and Plagiarism

It is an Institute requirement that the thesis submitted should be wholly the original work of the author. It is expected that elements of your assignments and projects involve will make use of the published and unpublished work of others. This is an everyday part of academic and commercial work. However, it imposes on you a responsibility to ensure that, in using the work of others, you neither steal their intellectual property, nor mislead others as to the identity of its owner or originator. All source material must be referenced in the normal way.

The Institute defines plagiarism (the representation of another person’s work as one’s own), and related misconduct very clearly in the various College Statutes and regulations. All project work, written or otherwise, submitted by students (or project groups) to their supervisors, is expected to be the result of their own thought, research or self-expression. If your project involves the use of existing ideas, algorithms, source code or other related material, you must clearly acknowledge its use and properly identify the origin of this material. In cases where students feel unsure about a question of plagiarism in any element of the submitted project work, they are obliged to consult the project supervisor on the matter before submission. If there is evidence of plagiarism in any element of the submitted project work, the student or project group involved will face disciplinary action. The following is the GMIT Code of Practice on plagiarism that is implemented by the Institute.

**4.3 GMIT’s Policy on Plagiarism**

Students are strongly advised to familiarise themselves with GMIT’s Policy on Plagiarism. Further details can be obtained at the following web address:

http://www.gmit.ie/sites/default/files/public/directorate/docs/academic-policy-no2.pdf

**4.4 Declaration of Originality**

As described in the project assessment information, the assessment of written work of which reference to work by other author’s forms an integral part, requires the unambiguous identification of the true author of each argument, item of evidence, deduction and opinion. Therefore, the following declaration shown on the next page must be included at the beginning of each submitted report and the main thesis and must be signed and dated by the author (candidate).



**DECLARATION OF ORIGINALITY**

April, 2016

The substance of this thesis is the original work of the author and due reference and acknowledgement has been made, when necessary, to the work of others. No part of this thesis has been accepted for any degree and is not concurrently submitted for any other award. I declare that this thesis is my original work except where otherwise stated.

 (Signature of Candidate)

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Candidate

(Name Typed)

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date

This declaration of originality constitutes an assertion that full and accurate references and citations have been included for all material, directly included and indirectly contributing to~~,~~ the thesis.

The following aspects of the assessment relate specifically to the discouragement and detection of plagiarism:

* Students will record their weekly activities and this will be discussed during arranged meeting times with your supervisor.
* Students will be examined in the course of the viva-voce examination to determine their understanding of the material in the thesis.
* Students will include a signed **Declaration of Originality** at the beginning of each submitted report and the main thesis, of the form shown in the previous page.

Much of the intellectual property which you will make use of in your studies will be covered by copyright law. Guidance on this is available from the Copyright Licensing Agency. Where you present material and ideas based on the work of others, you must provide adequate referencing (see below), to ensure that you do not mislead others as to the extent of your own contribution. Failure to provide adequate referencing will result in you being guilty of plagiarism. If you quote directly from the work of another, i.e. copy material verbatim, the quotation must be clearly set in quotation marks, "", and the origin of the quotation referenced in the usual way. Where the quotation is extensive, e.g. more than ten words, it should be set as a separate paragraph, still in quotation marks, and given a wider than normal left hand and right hand margin. Note carefully, however, that even if you modify the original material, e.g. by changing some of the words, re-drafting a diagram, or re-formatting a table, you will be guilty of plagiarism if you do not give clear and accurate reference to the original material, directly adjacent to your version.

**IF IN DOUBT CONSULT YOUR SUPERVISOR.**

###### 4.5 Referencing

Referencing is a standardised method of acknowledging sources of information and ideas that you have used in your thesis. Direct quotations, facts and figures, ideas and theories from both published and unpublished works must be referenced. Referencing is necessary to avoid plagiarism, to verify quotations, and to enable readers to follow-up and read more fully the cited author’s arguments. Using web addresses as references is not allowed as the veracity of the information referred to cannot be confirmed. Only in exceptional circumstances will web addresses be allowed and only with the express consent of the supervisor. The referencing method that is to be is applied for your thesis is based on the Harvard Referencing Style.

***4.5.1 How to create a Reference List.***

A reference list of all the work cited in the thesis which was completed by others is placed in the Reference Chapter towards the end of the thesis. The reference list can be either arranged alphabetically by authors name or numerically (with numbers either placed in square brackets), assigned serially in order of first appearance as cited in the thesis. The Harvard referencing style for the different types of reference materials is given in the next few pages.

**Article in a Journal**

Florin, J. (2003) 'A social capital model of high-growth ventures', Academy of Management Journal, 46(3), 374-384.

**Article in an e-Journal - Web only**

Silversides, A. (2000) 'Fighting for fairness for the strangers at the gate', Canadian Medical Association Journal [online], 162(1), 176-80, available: http://search.epnet.com/login.aspx?direct=true&db=beh&an=2697832 [accessed 27 Jul 2005].

**Book**

Hall, S.J. (2003) Basic Biomechanics, 4th ed., Boston: McGraw Hill.

**Book - Edited**

Cohen, L., Manion, L. and Morrison, K., eds. (2000) Research Methods in Education, London: Routledge.

**Book on the Web - eBook**

Beck, K. (1999) Extreme Programming Explained, Safari Tech Books [online], available at: http://proquest.safaribooksonline.com/0201616416/pref01 [accessed 10 Oct 2005].

**Conference Paper - Published**

Kaunitz, J. (1985) 'Database backup and recovery in transaction driven information systems', in Katashev, S. P. and Katashev, S., eds., Supercomputing Systems: Proceedings of the First International Conference, St Petersburg, Florida, 16-20 December, 1985, Washington, D.C.: IEEE Computer Society Press, 265-272.

**Course Material - Print**

Ni Bheachain, C. (2001) 'Guide to referencing', CM4203: Communication, University of Limerick: Department of Management and Marketing.

**Course Material - on the Web**

Jones, T. (2004) 'Dissertation preparation materials', AR4321: Research Methods for MA Archaeology [online], available: http://elearning.ul.ie [accessed 28 Nov 2004].

**Patent**

Sano, Y., SRI Sports Limited (2005) Golf Club Head and Method of Manufacturing the Same, U.S. Pat. 6,929,566.

**Thesis**

Callaghan, B. (1994) Voices from the Margins: Postmodernism and Latin American Fiction, unpublished thesis (M.A.), University College Cork.

**Document on world wide web (WWW)**

Using web addresses as references is not allowed as the veracity of the information referred to cannot be confirmed. Only in exceptional circumstances will web addresses be allowed and only with the express consent of the supervisor. However the following format should be used:

Dawson, J, Smith, L, & Grey, S 2002, *‘S’ Trek 6: referencing, not plagiarism*. Retrieved October 31, 2002, from <http://studytrekk.lis.curtin.edu.au/>

**Document on WWW (No article title)**

*Galway Mayo Institute of Technology* 2004. Retrieved October 16, 2005, http://www.gmit.ie

**Document on WWW (No author)**

*Leafy seadragons and weedy seadragons* 2001. Retrieved November 13, 2002, from http://www.windspeed.net.au/~jenny/seadragons

**Document on WWW (No date)**

Royal Institute of British Architects n.d., *Shaping the future: careers in architecture.* Retrieved May 31, 2005, from <http://www.careersinarchitecture.net/>

**Work by an Organisation or Institution**

Health Promotion Unit (1997) A National Survey of Involvement in Sport and Physical Activity, Dublin: Health Promotion Unit.

**Work by a Government Department**

Ireland, Department of Health and Children (2005) Statement of Strategy 2005-2007, Dublin: Department of Health and Children.

**Work by One Author**

Buckroyd, J. (1996) Eating Your Heart Out: Understanding and Overcoming Eating Disorders, 2nd ed., London: Vermilion.

**Work by Two Authors**

Beardsworth, I. and Keil, T. (1997) Sociology on the Menu: an Invitation to the Study of Food and Society, London: Routledge.

**Work by Three or More Authors**

Cohen, L., Manion, L. and Morrison, K. (2000) Research Methods in Education, London: Routledge.

**Work with No Author**

Black's Medical Dictionary (1992), 37th ed., London: A & C Black.

**Multiple works published in the same year by the same author (This is ordered alphabetically by title in the reference list)**

Napier, A 1993a, *Fatal storm,* Allen & Unwin, Sydney

Napier, A 1993b, *Survival at sea,* Allen & Unwin, Sydney

***4.5.2 In text examples of referencing***

**Single author**

This technique was successfully applied (Connors, 1997)

**OR**

This technique was successfully applied [5].

**2 authors**

This technique was successfully applied (Madden & Smith, 2003).

**OR**

This technique was successfully applied [4].

**3 or more authors**

This technique was successfully applied (Lee et al., 2004)

**OR**

This technique was successfully applied [8].

**Applying more than one reference for a statement**

This technique was successfully applied (Connors, 1997; Madden & Smith, 2003; Lee et al., 2004).

**OR**

This technique was successfully applied [4,5,8].

***4.5.3 Other examples of in text referencing***

**Alphabetical method**

Zarins et al., (2001) reported that ………..

As demonstrated by Moore (1998) the velocity profiles………….

**Numerical method**

Zarins et al. [12] reported that ………..

As demonstrated by Moore. [10] the velocity profiles………….

***Note:***

Another function of a citation is to invoke the authority of the cited source as support for your assertions and arguments. Bear in mind that sources of information are not all to be given the same credence. This applies equally to spoken, printed and electronically delivered information. Be critical of the quality and veracity of all information, however it is published. WWW pages are produced for a wide variety of reasons, advertising and other forms of commercial promotion are common reasons. As a consequence, such information may be presented in a way which is accidentally or deliberately misleading. Many WWW sites are not what they may appear to be; do not rely on an apparently obvious word or phrase in a URL to identify the source of the information. You should establish the real identity of the author of any information cited, and the owner of the site whence the WWW page is made available.

Similar comments apply to the different quality of information to be expected from refereed journals and the proceedings of highly regarded conferences, books, the proceedings of minor conferences and colloquia, and newspaper and magazine articles. Consult your supervisor for guidance regarding the credibility of your cited sources of information.

###### 4.6 Final Thesis Submission

Two soft-bound copies and one hard-bound copy should be handed in to the student’s supervisor **not later than** the appropriate deadline. A softcopy should also be uploaded to Moodle for the same deadline. The thesis copies will be retained indefinitely by the School.

######  *4.6.1 Project Thesis Length*

Quality of content takes precedence over quantity. The information given here should be taken as a reasonable guideline to the expected size of the submitted document. The number of words specified is based on the number of pages given, assuming typical thesis content, layout and font. The conversion guide is that a page contains three hundred words, each word being five characters plus a space or other punctuation. Those pages preceding the main text of a project thesis are not counted in the numbers given below. Those pages following the main text of a project thesis are counted.

* For honours degree projects, the thesis should comprise not more than 60 pages (18000 words as calculated above) of text, with a maximum of 100 pages including diagrams, graphs and tables. At least 15 equivalent pages of diagrams will be expected.
* The proportion of space taken up by the figures will be no more than twenty percent. The criteria for their selection will be that they :
* carry key data/information in a concise manner
* amplify or clarify a written description
* bring coherence to several threads of written argument/description
* do not, as clip art, waste space!

###### *4.6.2 Thesis Style*

**Concise, grammatical prose composition**. For examples consult IEE publications for examples of acceptable style ([www.iee.com](http://www.iee.com/)).

###### *4.6.3 Thesis Structure*

* Front cover
* [Title page](http://www.ee.nuigalway.ie/subjects/ee426/#_4.9_Title_Page)
* Declaration of Originality
* Dedication
1. Summary or Abstract
* Acknowledgements
* Glossary
* Symbols or Nomenclature
* Table of contents (chapters, sections, sub-sections, page numbers)
* [Main text](http://www.ee.nuigalway.ie/subjects/ee426/#_4.11_Main_Text), addressing the subject of the title (formatted in single-column style)
* [References](http://www.ee.nuigalway.ie/subjects/ee426/#_4.11_Listed_References)
* Appendices
* Back cover

Tables, diagrams, graphs and photographs (if any) are to be inserted in the body of the text, if necessary on separate sheets, as close as possible to the passage to which they refer *and facing the same way as the rest of the text.* Colour may be used, but monochrome line drawings are normally expected and are preferred for reproducibility. Where colour or continuous shade images are used, all copies must be clearly reproduced to the same standard. Where any such material is not wholly your original work, the legend must include a reference to the origin.

###### *4.6.4 Thesis Format*

Thesis to be typed or printed to meet the following specification:

* A4 paper typed on one side only.
* At least 30cm left-hand margin for binding and 25cm for top, bottom and right hand margins.
* One and half line spacing
* Times New Roman font to be used with 12 point font for main text and 14 point bold font for headings.
* Paragraphs must be justified.
* **Chapters, sections, sub-sections of chapters** to be numbered decimally
* **Page numbers** located at the bottom right-hand corner of pages to run serially 1, 2, ... from the beginning of the main text, earlier pages being numbered i, ii,...
* **Diagrams, graphs and figures** (upright wherever possible) should be computer generated or boldly drawn in dense black ink. Labels should be numbered serially with a title which is placed directly below them as shown below. The numbering should be done chapter by chapter (e.g. in chapter 4, the first figure is Figure 4.1 the next Figure 4.2, etc.).



**Figure 4.2:** Pressure and flow waveforms in the human arterial tree (Fung, 1998)

The following standard symbols should be used on line drawings:



* **Tables.** Should also be numbered serially and contain a title which is placed directly above the table as shown below

**Table 5.4:** Valves of radial pulsation of arteries (Nicols and O'Rourke, 1998)

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Artery** | **Pressure (mmHg)** | **Radial pulsation (%)** |
| Human (40-50 years) | Ascending aorta | 124/80 | 3.3 |
| Human 19 – 35 years) | Abdominal aorta | 116/64 | 4.6 |
| Conscious dog | Thoracic aorta | 127/74 | 4.8 |
| Anesthetized dog | Abdominal aorta | 110/60 | 2.0 |

* **Equation** **numbers** to be placed on the right-hand side of the page and to be numbered serially, chapter by chapter, (e.g. in chapter 3 the first equation is (3.1), the next (3.2) etc.) as shown below.



Equation 3.6

* **SI units** to be employed throughout.
* **Standard symbols** to be used wherever possible.
* **Mathematical symbols** to be typed or (where necessary) inked in consistently and carefully in dense black ink.
* **Appendices** to be numbered A.1, A.2, ... ; **equations** in Appendix 1 to be numbered (A.1.1), (A.1.2), etc.

###### *4.6.4 Title Page*

**Name, reference legend, approved title and date** to appear in standard form on the front cover accurately positioned and is shown on the next page.

The approved title will normally be that given on the mission statement, subject to any approved variation agreed with the supervisor.

**Title of Thesis**

AUTHOR

**Authors Name**

A THESIS SUBMITTED FOR THE DEGREE OF BACHLEOR OF ENGINEERING (HONOURS) IN MECHNANICAL ENGINEERING,

AT THE SCHOOL OF ENGINEERING,

GALWAY-MAYO INSTITUTE OF TECHNOLOGY, IRELAND

SUPERVISOR

**Supervisors Name**

DEPARTMENT OF MECHANICAL & INDUSTRIAL ENGINEERING,

GALWAY-MAYO INSTITUTE OF TECHNOLOGY, IRELAND

SUBMITTED TO THE GALWAY-MAYO INSTITUTE OF TECHNOLOGY

**Date**

***Proof read the thesis !***

Avoid copying long descriptive background information. Instead, summarise concisely and refer the reader to more detailed sources of information (indicated in references or appendices).

**5.0 Poster.**

The final date for submission of the poster will on Monday 19th April 2021 (5.00pm). A poster describing the project must be delivered by each student using Moodle. The poster is part of the official examination procedure and failure to complete this poster will result in project failure.

The poster is an important element in transferring the findings of your final year project to your fellow students, your peers and the general public. The page-setup should be **A2 sized paper**. **The poster must be generated in Microsoft Powerpoint.** This Powerpoint file (not a PDF) should be uploaded to Moodle by the appropriate deadline. Students **SHOULD NOT PRINT** their posters as the Department will make arrangements for printing.

**5.1. Poster Layout**

* The poster may be in landscape or portrait
* Must be A2 paper size.
* Must be in color
* Must have some form of pictures, diagrams, figures etc.
* The use of formulae and equations is encouraged to give a background to the methodology.
* The information on the poster must include the following as a minimum requirement. (N.B. You are not required to apply these elements as specific headings but the poster **MUST INCLUDE** these elements in some form).
	+ Title of project
	+ Your name, supervisors name, your course name and Departmental address.
	+ Introduction
	+ Aims/Objectives
	+ Methodology/Material and Methods Applied
	+ Results
	+ Conclusions
	+ Recommendations
	+ References
	+ Acknowledgements (may be included if any external assistance was required).
* The overall design/layout/color scheme/ background is totally at the students’ discretion but try to have some organised flow to your poster in order for the reader to be able to easily understand and read.

The best posters will be formally exhibited to all students and visitors of GMIT.

**6.0 Marking Schemes**

### 6.1 Project Marking

A joint mark is awarded by the supervisor and co-supervisor. For projects performed in industry, the institute supervisors will make the principal assessment, taking into account the feedback obtained from a formal report by the industrial supervisor during the course of the project. All students are informed of indicative milestones required to achieve certain award levels as part of the initial project specification. However, if a student achieves these milestones, they will only be awarded a mark at the indicated level if they have performed also at that level in all other aspects of the project (e.g. all reports, posters, presentations etc).

**6.2 Mid Module Marks: (Overall Allocation is 25% of Total Marks)**

25% of the marks for the Final Year Project will be allocated to the work completed in the first half of the year. These marks are broken down as follows.

* [Mid](http://www.ee.nuigalway.ie/subjects/ee426/page2.html#initrep#initrep)-Module Report **15%**

Topics which should be addressed, at a minimum, in the Mid-Module Report may include:

Introduction, Literature review, Materials & Methods/Work done to date/Preliminary results, Future work/Gantt Chart/Project plan, Discussion/conclusions

* Mid-Module Presentation **10%**

Students may be judged on their presenting skills, the quality of their slides, layout & structure of the presentation, their visual aids (if any), the students overall understanding of subject matter, the technical content of the presentation.

 **Total for Mid Module**  ` **25% of total**

**6.2 Second Part of Module**

75% of the marks for the Final Year Project will be allocated to the work completed in the second half of the year. These marks are broken down as follows.

* Final Project Thesis **55%** Topics which should be addressed, at a minimum, in the Final Project Report may include:

 Introduction, Literature Review, Material & Methods, Results, Discussion, Conclusion & Recommendations.

* Poster **5%**

Topics which will be considered when marking the poster include: Layout and structure; Clarity and readability; the use of graphics, photos, diagrams; technical content.

* Mid-Module Presentation **10%**

Students may be judged on their presenting skills, the quality of their slides, layout & structure of the presentation, their visual aids (if any), the students overall understanding of subject matter, the technical content of the presentation.

* Video **5%**

** Total for Second half of Module ` 75% of total**