



**FACULTY OF TECHNOLOGY**

**SCHOOL OF ENGINEERING**

***BSc (Hons) Mechanical Design and Manufacture***  
***BSc (Hons) Mechanical Design and Manufacture with Business Studies***  
***BEng (Hons) Marine and Composites Technology***  
***BSc (Hons) Marine Sports Technology***

***BSc (Hons) Mechanical Design and Manufacture 'Top-up'***  
***by Distance Learning***  
***In association with Partner Colleges:***  
***City of Bristol College***  
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***North Devon College***  
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## **HONOURS PROJECT HANDBOOK**

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## 1. INTRODUCTION

The Project is an integral part of the Honours programme, successful completion of which is necessary to satisfy the regulations for the award of an Honours degree. All students in the final academic year of the BSc (Hons) degrees undertake a project, which is chosen during Stage 2 of the course. The project contributes 20 credits to the overall assessment of the final stage of the programme. Your project report may provide the focus of a viva-voce examination conducted by our External Examiner; it may provide useful evidence to a prospective employer of your involvement and competence in areas of mutual interest.

Registration of the project includes enrolment on PRMD306 or MST301; the BSc (Hons) project modules, and reflects the commitment of about 200 + hours of project work culminating in the publication of a substantial report document of approximately 5000 words in length forming the permanent record of the outcome of your investigative work.

This Handbook aims to:

- (a) Describe the procedures for selection, registration and supervision of Honour's projects.
- (b) Identify the responsibilities of the Project Student and role of the Project Supervisor.
- (c) State the procedures and criteria for assessment of the project.
- (d) Offer advice on the practical conduct of a project.
- (e) Summarise the guidelines for the preparation and publication of the project report.

Initial steps in project preparation include appraisal of the contents of this Handbook, discussions with the Projects Co-ordinator at the advisory meeting on project administration and development culminating in the formal registration of your selected topic and the definition of the objectives of your project work.

Academic tutors may advise you on the selection of a suitable area of work, and will act as Supervisors to provide support and monitor the project work and the writing of the report. The Supervisor will eventually assess it (in conjunction with another academic tutor acting as moderator).

The BSc Projects Co-ordinator is responsible for prescribing the guidelines for registration, presentation and assessment. Contact him with any queries relating to project arrangements or the contents of this Handbook.

## **2. AIM OF THE PROJECT**

The general aim of a project is to provide you with the opportunity for integrating and extending knowledge relating to your undergraduate programme of study by exercising skills of initiative, resourcefulness, creativity, analysis and communication.

## **3. SELECTION AND REGISTRATION OF PROJECTS**

This phase involves consultation with a prospective Project Supervisor and registration with the Projects Co-ordinator.

### **3.1 Types of Projects**

Broadly, projects fall into one of three categories:

- (a) Standard projects which have been tackled before, and have a known result or proven methodology. Students may wish to improve on one of these, or use one in a different context or location.
- (b) Innovative projects which are proposed or formulated by a supervisor, often they are linked to the particular interests of the supervisor.
- (c) Original projects proposed by students themselves and approved (possibly with modification) by the supervisor.

### **3.2 Choosing Your Project Topic**

The range of acceptable topics and methods of investigation is clearly very wide. They may lie within any discipline/s of the mechanical/manufacturing systems/composites engineering/marine technology spectrum, e.g., fluids, stress analysis, thermodynamics, control, tribology, design, structural integrity, production, computing, systems analysis, CAE, CAM etc. Projects may comprise an experimental study, a computer investigation, a design study or a combination of these types. In all cases, an analytical literature review will be required.

Normally the topic will be chosen by the student. Guidance is available from staff. The Projects Co-ordinator maintains a list of previous project titles which will be made available to assist you. Start thinking seriously now about possible topics and discuss your ideas with members of academic staff to ensure they are both worthwhile and workable. It is important to select a topic which you are confident will maintain your interest.

The aims and objectives need to be clearly defined at the outset (they may be modified as the project develops). Any special needs, e.g., components

manufacture, materials purchase, technician support, etc., must be identified and approved from the outset.

### **3.3 Seeking a Supervisor**

The nomination of a Supervisor is determined by the relationship of the project theme to an identifiable Subject Area. Advice from Subject Leaders and Module Leaders can help target a specific staff member to provide supervision. In many instances a liaison will develop as a consequence of regular contact through teaching.

The Supervisor cannot do work for you, but as your investigation progresses he or she will act as a useful 'sounding board' for you to try out your ideas and plans. He/she will also be capable of providing direction when needed and suggestions for sources of information.

Talk to your Supervisor. Set up an arrangement to meet regularly with him/her, and don't forget to bring your logbook with you every time.

### **3.4 Registration of Project**

All prospective final year project students are requested to choose a project title by registration of project interest with the Projects Coordinator at the end of the stage 2. The form of 'Registration of Project' should be delivered to the Projects Coordinator by **16 June, 2005**. This will help the allocation of suitable project supervisors and the preparation work for the project to start before and during the summer holidays.

Early consultation with prospective supervisors is strongly recommended since each member of academic tutor will be supervising a limited number of students, (normally 7-8 including BEng project students), during the forthcoming year. It is therefore in your best interests to complete the registration process as early as possible.

After registration of your project, involve your supervisor in discussion of feasibility, aims and objectives, as well as resource and safety implications. Follow up references suggested by your supervisor and locate sources of information by starting a literature search. Contact industrial companies that may be interested in supporting the project by providing advice, equipment or material.

Formulate ideas for experiments and devise a plan of work (Gantt chart). Be aware of the importance of statistics and sensitivity analyses in design of the experimental programme, and make sure that adequate consideration is given to these aspects. Prepare drawings and materials specifications.

### 3.5 Project Specification

It is imperative that your project specification is formally registered with the Projects Co-ordinator before the deadline date of **30 September 2005** via the Departmental Office.

The form "**BSc Honour's Project Specification**" (Appendix A) together with the proposed project plan of work (**Gantt chart**), must be signed for approval by the Supervisor and submitted to the Projects Co-ordinator by the above deadline. Retain copies of your registration/specification forms, and the project Gantt chart.

***NB Failure to comply with these registration arrangements may mean you will be unable to proceed to the Honours programme.***

### 3.6 Special Note on Projects Requiring Materials or Manufacture

Project drawings and materials specifications are to be submitted by individual student to their supervisors, who will check that they are acceptable and then pass them on to Mr B Lord (Technical Manager) for approval before any machining/fabrication is authorised.

- (i) Drawings: Detailing and general standard of presentation must be satisfactory, i.e., adequate to enable manufacture to be carried out with the minimum supervision of technicians. Assembly drawings are essential.
- (ii) Materials: Materials must be specified by the student and should either be available from existing stocks or purchased from laboratory funds, although these funds are very limited. Bear in mind that suppliers of materials often stipulate a minimum cost or quantity order. Free samples of materials may often be supplied by industrial firms who may be interested in the results of the project and students should consider this avenue of approach.
- (iii) Manufacture: Students should submit completed drawings to their supervisor who will forward them to the Senior Technician for distribution to the appropriate area. Owing to the other calls on technician time, especially during term time, it is of paramount importance that drawings/specifications for equipment that is required for the project work should be completed as early as possible. Ideally this would be no later than the end of September for the start of the project in the first term of the final year, and the end of January for work required during the second term of the final stage.

### 3.7 Policy on Industrially Sponsored Projects

It may be possible for students to accomplish a project in partnership with their sponsor or the company that employs them during their industrial placement year. However, registration of projects which have been virtually completed within the period of industrial placement will not be allowed. Such retrospective registration causes problems in respect of :-

- (i) ability of supervisor to assess the work components, and
- (ii) lack of fairness to other students who have not had such an opportunity and consequently have more commitments in the final year.

In order to ensure equitable treatment of all students and yet not to discourage industrial sponsored projects, the student must obtain approval before commencing an industrially sponsored project. In general, such approval will be granted provided the following conditions are met:

- (i) Pending approval, the academic supervisor must be drawn into the discussions with student and industry at an early stage and project specification must be agreed.
- (ii) The project must involve a substantial body of work to be done during term time when the student returns to college for the final year. This means work in addition to writing to project report.
- (iii) The student's academic supervisor must be kept fully informed with developments while the student is working on the project in industry, including, if necessary, a site visit by the supervisor or industrial tutor. Regular progress report may be required.
- (iv) The project work should be additional to, and not a substitute for, the normal industrial placement work.
- (v) Any hardware required to complete the work during the final year should be transported to the University, or made readily accessible to the student while studying at the University.
- (vi) The Supervisor and Moderator should be able to satisfy themselves that the project is being conducted by the student at all stages and be made aware of any specialist assistance or documents available to the student.
- (vii) The project may not commit the University to any expenditure without the prior approval of the Head of School or nominee.
- (viii) Where work of a commercially sensitive nature is involved, the supervisor and student will take reasonable precautions to protect the interest of the company involved, e.g., by not divulging information on the project to a third party.

#### **4. RESPONSIBILITIES OF THE PROJECT STUDENT**

You will be expected to:

- (a) Identify the aim and objectives of the project and complete registration by the nominated deadline date.
- (b) Maintain a formal record of progress of work and achievement of objectives in a project log book.
- (c) Arrange and attend regular consultative meetings with your Project Supervisor.
- (d) Advise your supervisor of factors affecting the progress of work.
- (e) Prepare and submit the interim progress and the final project reports according to published guidelines and deadlines.
- (f) Prepare and present the project results and findings via the project viva and the initial appraisal interview as instructed by the Projects Co-ordinator.

## 5. ROLE OF THE PROJECT SUPERVISOR

The role of the Project Supervisor complements the responsibilities of the student. The Supervisor confirms the suitability of your project proposal with special regard to resource support, monitors progress and provides advice compatible with the general aim of an honours project. Feedback on performance during the period of the project work can be expected, unsatisfactory progress may merit consultation with your Project Supervisor, Personal Tutor and the Programme Co-ordinator.

Apart from acting as "customer" from the point of view of defining the Project Specification, the supervisor may frequently review the progress of the project but not control or direct it. The student is responsible for running the project but should seek the supervisor's advice and discuss decisions which have been made and affect the conduct of any practical investigation.

A supervisor is not the fount of all knowledge. Students may need, and are encouraged, to consult other members of staff. Academic staff, research staff and technicians, have a very broad spectrum of expertise between them. When in doubt, find out which of them may be able to help and ASK. Supervisors should be kept informed at all times when things are not going as well as expected.

## 6. PROJECT ASSESSMENT

There are a number of elements to the assessment of a project:

- Initial Appraisal by the External Examiner and Project Moderator;

- Project Log Book;
- Final Project Report;
- Project Viva.

## **6.1 Initial Appraisal by the Project Moderator and Sampling by the External Examiner**

During the first and/or the second weeks of the Second Term in January 2006, an interview will be held with the Project Moderator for the initial project appraisal. The External Examiner will visit the Department and interview a sample of students selected by him. The students selected for interview by the External Examiner will be advised via the final year notice board and by e-mail.

All project students are required to submit an interim progress report outlining progress and preliminary results, and including a revised Gantt chart (maximum 5 one-sided A4 pages) to the BSc Projects Co-ordinator **through the Departmental Office by 14 December 2005**, and these will then be forwarded to the External Examiner. This gives the examiner an opportunity to give due consideration to the projects and assess their suitability for the BSc degree. The project logbook should be handed in to the Project Moderators **via the Departmental Office by 9 January 2006**, prior to the interview.

**IF PROJECT INTERIM REPORT IS NOT SUBMITTED AND THE INTERVIEW IS NOT ATTENDED, 10% OF THE OVERALL PROJECT MARK WILL BE FORFEITED.**

## **6.2 Project Log Book**

The log book will provide a means of assessing the progress of a project, both during the execution of a project and afterwards during the final assessment phase. It must be handed in, together with the two copies of the final project report, to the Projects Co-ordinator. Although the logbook is not a formal part of the project presentation, it will be referred to during the assessment of your project. The logbook, together with the second copy of your final report, will be returned to you, and will be ready for collection from the Departmental Office after the final assessment phase in June 2006.

## **6.3 Final Project Report**

The project report is the major contribution towards the overall project classification and should be approximately 5000 words in length. Maximum limit in length is 6000 words.

### **6.3.1 Delivery of Project Report**

Two copies of the final project report together with the project logbook must be submitted to the Projects Co-ordinator **via the Departmental Office by 26 April 2005**. Both copies must have approved card covers and spiral binding which will be provided by the School (binding machines located in Media Services).

### **6.3.2 Assessment of the Project Report**

The report will be assessed on the following criteria:

- Project originality and difficulty
- Use of available literature and external enquiry for information
- Critical examination or analysis of information/data
- Student understanding and coverage of the project as titled
- Contents
- Relevance and accuracy of conclusions
- Literacy, style, appropriate length, consistence and layout of the project report
- Proper reference to sources and inclusion of a full bibliography
- Relevance of appendices

### **6.4 Project Viva**

Project Viva (project student, supervisor and moderator) will take place during the period **1 May 2006 - 12 May 2006**. Project students are required to arrange their Project Viva with their supervisor and moderator.

**IF THE PROJECT VIVA IS NOT ATTENDED, 10% OF THE OVERALL PROJECT MARK WILL BE FORFEITED.**

### **6.5 Project Formal Procedures**

In addition to this handbook, the following will be issued to all project students :-

- **BSc Projects Timetable 2005/2006**
- **Registration of Project Form**
- **Project Marking Scheme**

Please retain them for information and strictly adhere to all specified deadline dates in the timetable.

All projects are double marked by the allocated internal moderator and the project supervisor. The initial assessment will be based on the initial appraisal and the interview with the students (10%). In the final assessment, the supervisor and moderator will award marks out of 40 for the final report, and out of 40 for the work elements throughout the whole investigation of the project. The project viva contributes to the final 10% of the overall mark. The moderators and supervisors may work together to adjust the final marks awarded in the light of all the projects moderated.

In fairness to all, each student should complete project work within the same time period. **Late submissions cannot be accepted** under current university regulations, which read as follows :-

‘A final stage assessment, which is essential for the award of an honours degree, and for which compensation cannot be applied, shall be deemed to be handed in at the correct time provided it is submitted by the close of office hours to the relevant School office on the day of the deadline. Thereafter the penalty of **zero** for late work will be applied.’

Office staff, supervisors and Projects Co-ordinators therefore have no latitude to authorise, or accept, late submissions.

## 7. EXECUTION OF PROJECTS

### 7.1 Design Methodology

It is difficult to define precisely the way in which a project should be tackled since projects can differ considerably in scope and content. For example, a project may be part of a current research field, in which case you may be breaking genuine new ground and a more "scientific" approach is called for. Alternatively, the project may contain a large proportion of practical work, or perhaps the development of an existing idea or piece of equipment. In general, however, the major elements of the projects can be considered to be:

- (a) Definition of aim and objectives
- (b) Literature survey
- (c) Project specification
- (d) Investigation phase
- (e) Project report.

### 7.2 Definition of Aim and Objectives

The success of any project depends upon having an overall strategy carefully worked out at the very beginning. A systems approach takes into account the

many influences which can range from the application of scientific principles to their social consequences. In simplistic terms, it can be reduced to five steps:

- (a) Defining the aim - to specify what is required and to what standards.
- (b) Identifying the objectives - to produce and compare alternative solutions for the achievement of the aim.
- (c) Designing the solution - to develop and specify the optimal solution with the available information and expertise.
- (d) Implementing the solution - to execute the solution within the planned resources and to measure the results.
- (e) Evaluating the results - to analyse the results and to compare the performance with the original aim.

There may be several ways of achieving the aim of the project and each should be explored and decisions made on the way forward. In considering each choice the availability of resources may be a deciding factor, investigations may need the assistance of specialist technicians. Only after all the factors have been carefully considered and decisions made will it be possible to refine the outline programme into a timetable of events which can be achieved.

### **7.3 Literature Survey**

Projects should always begin with a survey of relevant literature in order to put the project into perspective and to ascertain the extent of work carried out by other investigators. It has a considerable bearing on the practical work you perform and the way in which you interpret any results you obtain. Perhaps a market survey or manufacturers' sales literature, product catalogues or trade journals may help. It is even possible to arrange visits to commercial firms in cases where your project is in some way linked with industry.

You should become familiar with the learned JOURNALS which are pertinent to your studies, and information can be found by means of the numerous ABSTRACTS (including CD-ROMs) which give compilations of the most recent publications in relevant fields. Usually, indexes are available which provide further assistance in finding out. It is important that this time-consuming operation is started at the earliest possible time since the retrieval of printed material can be a very lengthy process. Seek the advice of the library staff: they are there to help you. When project work is in an area of current research interest, information may not yet be available in text books since most science and technology books are three or four years out-of-date by the time they are published.

Remember, a literature survey carried out well, in the early stages of the project, is extremely useful later on, especially in the writing up stage when it often supports significant sections of the project report. The report of the literature survey should

be suitable, with appropriate modification, for use as part of the main text of the project report.

A literature survey is **not** to produce a list of books and journal papers for references.

#### **7.4 Project Specification**

The project specification is a critical element of the project and is a yardstick by which the success of the project can be measured. It is a detailed listing of the aim(s) and objectives of the project and represents a form of contract between student and supervisor.

If the project is to develop or needs to hire equipment then details of the mechanical, electrical, software, environmental and operational requirements should be given. The specification will also give an outline costing of the final product, and all consumable and/or capital expenditure associated with the project. This should be carried out at the earliest possible stage of the project, and details of the costing and funding of the project should be included in the Project Specification Registration Form, if applicable. Failure to do so may mean funding will not be available for the project.

#### **7.5 Investigation**

Once the aims of the project are firmly established then an in-depth investigation can commence. The execution of the project is much easier if the work has been planned carefully to avoid either too many activities being attempted at the same time or long delays due to the incorrect scheduling of any critical activities.

##### **7.5.1 Log Book**

You must keep a Log Book throughout the project. Its function is to record the progress of the work, including all the decisions made, the reasons for the conclusions reached, computations, drawings, field tests, and of course the results obtained (whatever the quality). Include graphs, diagrams, photocopies and photographs, etc in the Log Book, as long as they are firmly and permanently attached to the pages.

Log Books represent the complete record of project work and must be available for inspection by the Project Supervisor and the External Examiner. There is no definite format for the Log Book but it should be reasonably legible and each entry should be dated. A properly kept Log Book allows the project report to be written with a minimum of effort, since most of the details, results and references, etc; are already recorded.

##### **7.5.2 Plan**

Large projects often require the use of Programme Evaluation and Review Techniques (PERT) or similar techniques to optimise the scheduling of activities. Final year projects are relatively straightforward to plan and a simple Gantt chart, such as the example shown in Appendix B, should suffice.

The timescale chart allows you to indicate key dates to be met, such as the dates of the interim and final presentations etc; it is also a performance indicator. It should be reviewed regularly by both student and supervisor and revised when necessary.

Retain copies of the timescale in the Log Book so that a complete and accurate record of the progress of the project is maintained.

### **7.5.3 Safety and Risks**

It is easy to envisage project work which involves potentially dangerous activities and it is essential that such activities are considered carefully by you and your supervisor. Before carrying out any activity you should attempt to assess the risks involved. An assessment of risk is simply a careful identification of what, in your work, could cause harm to people, this process will enable you to identify and implement sufficient precautions relevant to all aspects of your work.

**You must complete a University General Risk Assessment Form with your supervisor before conducting any practical work** and include the form in your project logbook.

### **7.5.4 Ethical Issues in Project Work**

The University has a formal policy for the management of ethical issues which arise during the definition and execution of project work.

**Please give careful consideration to the safety and ethical issues related to your project.**

## **8. PREPARATION OF PROJECT REPORTS**

### **8.1 Introduction**

Above all, remember that your Project Report is an exercise in communication. You are trying to explain and get someone else to understand what your project work is all about. Keep in mind, therefore that someone else has to read your

project, word by word, (not only your supervisor who knows what you have been doing, but also a second member of staff and an external examiner who do not).

An engineering project report must be submitted with the preferred spellings of the Oxford English Dictionary and type written with each page having the layout shown in Appendix C. The text is to be typed with 1½ line spacing, with the exception of the abstract and any quotations which are to be single spaced. Pages are to be numbered consecutively. If possible all mathematical symbols should be typewritten; otherwise they should be written very clearly by hand. SI units are to be used wherever possible; however, imperial units may be given in parentheses.

The text of the project throughout should be written in the third person in an objective, formal and impersonal style.

## **8.2 Layout**

Most of the sections listed below will appear in an honours project report, those that are optional will be discussed as such later in the guidelines.

- a. Title Page/Cover
- b. Abstract
- c. Acknowledgements
- d. Contents
- e. Nomenclature
- f. List of Figures
- g. List of Tables
- h. Introduction
- i. Literature Review
- j. Body of Text
- k. Conclusions
- l. Recommendations
- m. References
- n. Bibliography
- o. Appendices.

## **8.3 Title Page/Cover**

This should give the following information:

- (a) Title of the project. This is to be informative and yet concise.
- (b) Full name of the author.
- (c) Statement of requirements.
- (d) Supervisor(s).
- (e) The month and year of submission.

See Appendix D for an example of a title page/cover.

#### **8.4 Abstract**

This should not be more than 300 words in length. It should cover:

- (a) The aim of the work.
- (b) Methods used.
- (c) Results obtained.
- (d) Conclusions.

Note the abstract is NOT an introduction to the project, but an abbreviated descriptive summary of the whole project investigation.

#### **8.5 Acknowledgements**

These should be used to thank those who have assisted the author(s) during the course of the work being reported and in the preparation of the report itself.

#### **8.6 Contents**

In sequence, this gives, with page numbers, all section and sub-sections including appendices.

#### **8.7 Nomenclature**

Where applicable such a section should be included.

#### **8.8 List of Figures**

A full list of figures should be included.

#### **8.9 List of Tables**

A full list of tables should be included.

#### **8.10 Introduction**

The purpose of the Introduction is to involve the reader in the subject matter of the project and explain the reasons for undertaking the study reported. The aim and the objectives of the project should be clearly specified. Also the Introduction should be used to relate the work to earlier work or similar studies, if relevant.

## 8.11 Body of Text

Most projects have as their main constituents,

- (a) Theory/problem analysis
- (b) Investigation
- (c) Results
- (d) Discussion

However, before rushing into what may appear to be water-tight compartments, assemble your notes and material and prepare a framework that suits best your project. Divide the work into sections and sub-sections, write down facts and discussions that you will use in each section and then arrange the material in a logical sequence to develop progressively.

The main text of the project report (introduction, literature review, body of text, conclusions and recommendations) must be set out in logical sections in an numerically orderly manner. Tables and figures are to be numbered consecutively as they appear in the text, tables in Roman numerals (I, II, III, etc) and figures in Arabic numerals (1,2,3, etc). Each figure and table is to be accompanied by a suitable title/caption, a common mistake is to introduce a figure or a table into a report without referring to it in the text.

Furthermore when referring to a figure in the text then the following practice should be adhered to:

- (a) The abbreviation "Fig" may be used when it appears within a sentence, e.g., "The results shown in Fig. 3 confirm the model predictions."
- (b) If the word shown is used to begin a sentence then it is written in full as "Figure", e.g., "Figure 3 shows the results which confirm the model predictions."

Also where a figure or table has been extracted from another source, this should be referenced at the end of the figure or table caption e.g.,

"Figure 4 Caption (After Spock (2049))."

Abbreviations may be used but the titles should be given in full the first time they appear in the text with the abbreviation in parentheses e.g., Department of Transport (DTp), Global Positioning System (GPS).

All equations should be sequentially numbered.

Three levels of headings are allowed in the project and it should be clear what level each is, for example:

**1. CHAPTER HEADING (in bold)**

Text follows here.

**1.1 Sub-Heading (in bold)**

Text follows here.

**1.1.1 Sub-Sub-Heading (in bold).**

Text follows here.

**8.12 Conclusions**

A review of the major findings and results of the work are given here.

**8.13 Recommendations**

This indicates further development and work.

**8.14 References**

Authors are named in the text by their surname only (and the date of publication is given in parenthesis). When reference is made to more than one paper of the same year, these should be distinguished by suffix letters a, b, c, immediately after the date. If a paper has two authors both names are given. If there are more than two, all names are listed the first time the paper is cited, and for later citations the name of the first author is followed by 'et al'.

Examples: Smith (1989)  
Smith, Richards and Brown (1990a)  
Smith et al (1990b).

In each reference, ensure the following information is given:

- (a) Names of all the authors.
- (b) Year of publication
- (c) Title of the paper
- (d) Full title of the journal
- (e) Volume number
- (f) First and last page numbers.

For a book, the author(s), book title, publisher and year of publication should be stated.

References should be listed in alphabetical order.

### **8.15 Bibliography**

This is a list of articles or books for further reading on the subject of the report to which no reference is made in the text. When listing these works the same format should be adopted as for references.

### **8.16 Appendices**

These should be used for lengthy mathematical proofs and derivations, and any other material which it is felt necessary to include but which would fit uneasily in the main body of the text.

Please note that the Reference, Bibliography and Appendices Sections are not designated with a heading number.

## **9. REFERENCES FOR PROJECT WRITING**

The following may be useful sources of reference for the preparation of your Project Report.

ALLISON, B (1983). A Guide to Dissertation Presentation.

BOOTH, V (1984). Communicating in Science: Writing and Speaking. Cambridge UP. Paperback.

LINDSAY, D (1984). A Guide to Scientific Writing. Longman Cheshire. Paperback.

DAY, R A (1989). How to Write and Publish a Scientific Paper. Cambridge UP. Paperback.

## **10. STUDENT FEEDBACK**

This Handbook is designed to help you think about the choice of your project and guide you with the development and writing up of your work.

Any feedback about the contents of this Handbook, or suggestions for additional information to be included in future editions, will be gratefully received by the author.

## *APPENDIX A*

**UNIVERSITY OF PLYMOUTH  
SCHOOL OF ENGINEERING**

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**BSc HONOUR'S PROJECT SPECIFICATION**

**Name :-**

**Degree programme :-**

**Project Title :-**

**Project Specification :-**

Outline of AIMS and OBJECTIVES (continue on back if necessary):

Workshops/materials/equipment specification (if required):

Supervisor's remarks (if any):

PROJECT STUDENT'S SIGNATURE:

DATE:

SUPERVISOR'S SIGNATURE(S):

DATE:

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BSc (Hons) Projects Co-ordinator : J W Barlow

## *APPENDIX B*

PROJECT TITLE:    The Performance of Marine Screw Propellers :  
**An Analysis Using Circulation Theory and Open Water Tests**

TACK NAME	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
PROJECT SPEC AND LITERATURE SEARCH										
CIRC THEORY PROGRAMMING			(1)							
PREPARATION AND UNDERTAKING OF OPEN WATER TESTS										
COMPARISON OF RESULTS										
PROJECT WRITE UP										(3)

- (1) Due date of Project Specification Registration Form and Gantt Chart.
- (2) Initial Appraisal Interview and External Examiners' Visit (Project Progress Interim Report due).
- (3) Project final report and logbook hand in date.

**NOTE :    THIS IS FOR GUIDANCE ONLY. STUDENTS WILL BE EXPECTED TO PRODUCE A FAR MORE DETAILED PLAN**

## *APPENDIX C*

A4 Sheet

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25 mm

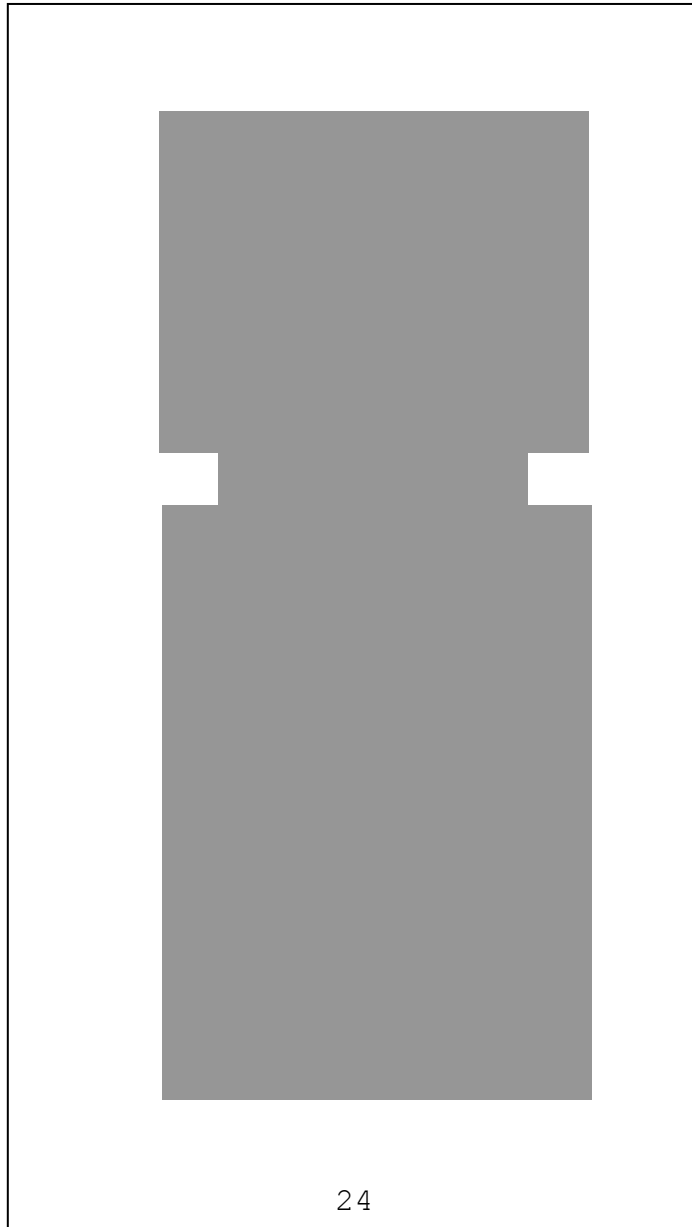
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24

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## *APPENDIX D*

**ADVANCED CONTROL STRATEGIES  
FOR STARSHIPS**

by

JAMES T KIRK

Department of Mechanical and Marine Engineering  
Faculty of Technology  
University of Plymouth

Honours project submitted in partial fulfilment of the  
requirements for the degree of  
BSc (Hons) in Mechanical Design and Manufacture

May 2056

Supervisor Dr F Gordon