Faculty of Engineering & Environment

BSc (Hons) Product Design Engineering

Programme Handbook 2015 - 2016




northumbria UNIVERSITY

Contents

1 Welcome from the Programme Leader

Welcome to BSc (Honours) Product Design Engineering. The aim of the programme is to provide you with the opportunity to pursue the high quality education necessary for a successful career in product design. My role and aim is to help you to make the best of that opportunity.

Best wishes,
Dr Chris Connor

2 About this handbook

This handbook is designed to provide a guide to your programme of study at Northumbria. It should be read alongside the University and Faculty Student Handbooks which contain more general information about being a student at Northumbria within the Faculty of Engineering & Environment.

It does not provide all of the information that you will need although it attempts to tell you where to find most of that information. The latest version of much of the further information that you need is to be found in a comprehensive and definitive form on the Northumbria website. A key page is titled *'New Students'* http://www.northumbria.ac.uk/browse/newstud/ (this is also available by clicking on '*New Students'* on the University home page).

3 Who's Who and Communication?

3.1 Who to go to for help

You will meet a broad range of academic, administrative and technical staff throughout your studies. The majority of staff will be drawn from the various subject areas within the faculty. However, we also draw upon subject specialists outside the faculty and external consultants, industrialists and advisors.

Staff from the faculty and from the wider university (such as University Library, IT Services and Student Support and Wellbeing Services) are here to help you get the most out of your Programme. In this section, we introduce you to some of the key people who will support you at faculty and subject area level.

Faculty Office

Office Location: Ellison Building Room B201

Email: ee.studentsupport@northumbria.ac.uk

Telephone: 0191 227 4722

Office hours: 8.30 am – 5 pm Monday to Thursday, 8.30 – 4.30 pm on a Friday

This is a dedicated point of help for students. It should be your first point of contact for most queries.

Programme Leader: Dr Chris Connor

Office Location: Wynne Jones Building, Room 106a

Email: chris.connor@northumbria.ac.uk

Telephone: 0191 227 3229

The best way to contact me is by email.

Your Programme Leader is the academic leader for your Programme and is responsible for managing the programme, working with other faculty and University staff – academic, administrative and technical, as needed, to ensure its development and delivery. Your Programme Leader is committed to helping you get the most out of the Programme and, where relevant, will liaise with your Module Tutors and other relevant staff to make sure that they are aware of your needs and programme issues.

Year Tutors

Your Year Tutor is a member of the academic staff and is responsible for students on this particular year of the course. They work closely with the programme leader and programme administrator to support you on your programme. They should often be the first point of call for any issues related to your studies in that year stage.

1st Year Tutor Dr Wai Ming Cheung (Denny)

Office Location: Wynne Jones 202

Email: Wai.M.Cheung@northumbria.ac.uk

Telephone: 0191 243 7584

2nd Year Tutor Dr Yifan Li

Office Location: Wynne Jones 212

Email: yifan2.li@northumbria.ac.uk

Telephone: Extension 5936

Final Year Tutor/Placement co-ordinator Dr Ben Xu

Office Location: Wynne Jones 106a

Email: ben.xu@northumbria.ac.uk

Telephone: 0191 227 3608

Module Tutor

For each module of study, you will have a designated Module Tutor. The Module Tutor is responsible for the organisation of the module and supporting your learning and assessment on that module.

Further details on all modules including tutor, reading list, aims etc. can be found here: http://nuweb.northumbria.ac.uk/live/webserv/mod.php

Programme Administrator

Your Programme Co-ordinator holds all the key information regarding your programme. This is the person who manages such processes as enrolment, option choice, day to day correspondence, confirmation of attendance letters, marks entry, etc. They can be contacted via the Student Office.

Programme Co-ordinator: **Catherine Hambley or alternatively Linda Scott**

3.2 Communication

Contacting Your Programme Leader

The best way to contact me is via email (chris.connor@northumbria.ac.uk).

PLEASE ALSO ENSURE YOU MAKE USE OF YOUR YEAR TUTOR! They should be your first point of call for many issues that may arise, such as timetabling issues, missing lectures/other academic sessions, absence due to illness or other problems with your course.

Important - Contacting Academic Staff in General

You may wish to note that at University, many of your teaching and academic staff may not be available at all times for individual support. Instead, they may be carrying out a variety of other roles and activities that mean they are not always available at short notice; they may be away attending a conference for several days, carrying out some research or consultancy activity, working with collaborating partners at other establishments, or performing other such actions that mean they may not immediately be available to help you with your studies.

There are a number of ways to contact staff.

Appointment

You may occasionally wish to talk to academic staff, including module teaching staff on your programme. Academic staff may teach on many modules and programmes. In addition they may have other roles and responsibilities which take them from their office. Thus it is advisable to make an appointment if you wish to see them. You can do this via email (this is the best way) or you can just turn up at their office and request a future appointment (you may sometimes find them in their office, but they may be otherwise engaged on other activity and unable to always speak to you immediately). Occasionally you may be able to have an immediate appointment, but do not be

disappointed if you are asked to return at a mutually convenient time. Please contact staff to cancel if you are unable to make the arranged appointment.

Please note that appointments should normally be requested at least 48 hours beforehand. Also, be aware that a member of staff may have been held up by unforeseen events. If they are late for an appointment, please wait. If you are late or cannot make an arranged appointment, please contact the tutor, for example by e-mail, to let him/her know as soon as possible.

Telephone

Please note that tutors will not always be able to answer your call straight away: they may be in a meeting, teaching, doing research, working off-campus or… on holiday! If you cannot reach a tutor immediately by phone, try again later, preferably by e-mail taking into account the above guidance.

Email

Email is used extensively throughout the University and is a very effective method of communication between students and staff. You will be automatically allocated an email address by the University once you have enrolled. Do remember that the Northumbria email address is the one that should be used when contacting University and faculty staff. It is also the one that is used by staff to make contact with you, so do make sure that you check it regularly, particularly if you also use a personal email account. Please be aware that staff may not reply to your email immediately due to their other duties and activities (as described earlier). If you do not get a reply within a few days, then email again to remind them of your initial request, or if other people may be able to deal with your issue e.g. Faculty Office, Year Tutor, other member of module teaching team, etc. then please try them.

eLearning Portal

The eLearning Portal (eLP) is a very important resource for students. You will find specific information related to the modules you are taking, such as copies of lecture and seminar handouts, assignment briefings, instructions, and announcements. Your Programme Leader uses the eLP to pass on information concerning programme matters. Faculty office staff may also make use of the eLP to inform you of things. It is therefore important that you check the eLP regularly – at least daily – for new announcements and new material.

Plasma Screens

The faculty owns a number of plasma screens in Pandon and Ellison Building. These are also used to display announcements, events and opportunities such as visits from potential placement providers.

PLEASE NOTE: *IT IS VITALLY IMPORTANT THAT IF YOU HAVE AN ISSUE YOU CONTACT US AS SOON AS POSSIBLE – WE ARE HERE TO HELP*

4 Programme Information

Here you will find specific information on your programme of study:

4.1 Programme Aims

The programme aims to:

- Produce graduates with the necessary skills and attributes to take up careers in manufacturing industry as product designers.
- Produce creative and innovative designers with the skills of an industrial product designer and general knowledge of an engineer as applied to design.
- Equip students with a holistic approach to product design.
- Offer a challenging programme that is current and relevant which is influenced by professional experience, consultancy and research.
- Provide wide opportunities for personnel and professional development

4.2 Programme Learning Outcomes

a) Knowledge and Understanding

On completing the programme we want students to know and understand:

A1. Basic mathematics which is relevant to product designers.

A2. The basic principles of mechanical and electrical engineering.

A3. Business and management techniques which are relevant to product designers.

A4. Detailed knowledge and understanding of the essential facts, concepts, principles and their relevance to the profession of product designer.

A5. The role and influence of design and the designer in society and the constraints within which product design decisions will be made.

A6. The impact of design in a global context and the international role of the product designer.

b) Intellectual Skills

The most important intellectual skills developed on the programme are to:

B1. Plan, execute and report on a design or re-design of a major commercial product.

B2. Analyse and solve design problems using a range of engineering concepts.

B3. Be creative in the solution of problems in the area of product design.

B4. Evaluate product designs and make improvements.

B5. Integrate and evaluate information and data from a variety of sources.

B6. Take a holistic approach in the area of product design, applying professional judgement to balance risk, aesthetics, costs, benefits, safety, reliability and environmental impact.

c) Practical Skills

The most useful practical skills, techniques and capabilities developed are:

C1. Design and make an appearance model of a product design idea.

C2. Design and make a working prototype of a product design idea.

C3. Prepare sketches, drawings and organise a visual presentation of all aspects of a product design idea.

C4. Give a presentation which includes design, technical and aesthetic aspects.

C5. Use product and technical literature effectively.

C6. Use laboratory and workshop equipment effectively.

C7. Use technical and design orientated computer program packages effectively.

d) **Transferable/Key Skills**

The student will be able to:

D1. Transfer techniques and solutions from one field of product design to another.

D2. Use Information and communications technology effectively.

D3. Manage resources and time.

D4. Learn independently in familiar and unfamiliar situations with open-mindedness and in a spirit of critical enquiry

D5. Learn effectively for the purpose of continuing professional development and in a wider context throughout their career.

D6. Understand the professional and ethical responsibility of the product designer.

4.3 Programme Structure

Year 1						
S1 S2	EN0143 Engineering Product Design I	DE1096 Design Development Communication	EN0103 Design	EN0146 Materials and Manufacture	EN0144 Technology and Its Application	EN0416 Engineering Skills in Experimentation and Presentation
Year 2						
S1 S2	EN0558 Engineering Product Design II	DE0711 Product Design Practice II	EN0260 Electronic Product Design	EN0576 Engineering Economics and Professional Skills	EN0577 Application of Mechanical Systems	EN0274 Digital Product Design
Year 3 (Optional Placement Year)						
CM0567 CEIS Professional Placement						
Year 4						
S1 S2	EN0634 Product Design Project			EN0635 Product Design Practice Competition	EN0619 Design for "X"	IS0619 Graduate Enterprise for CEIS

The modules currently on the course are outlined in this diagram. Please note that more information can be found on the individuals modules by using the module search facility (http://nuweb.northumbria.ac.uk/live/webserv/mod.php) on the University web site– here you look up a module by module code (e.g. EN0146).

4.4 Professional Accreditation

Whilst the BSc Product Design Engineering programme itself is not presently accredited with any professional body, the content and nature of the programme mean that students on the programme can apply for and become student members of several professional bodies such as the Institution of Engineering Designers, Institution of Mechanical Engineers and others. Exact requirements and application processes vary; please see the specific organisation for details.

4.5 Learning Teaching and Assessment Strategy

The programme aims to provide students with a wide range of learning opportunities in an exciting, challenging, stimulating and dynamic quality learning environment. The programme learning outcomes are aligned with module learning outcomes and the learning methods applied to address the module learning outcomes are specified in module descriptors. Students have a variety of learning opportunities including lectures, seminars, tutorials, practicals, research, case studies, online using Blackboard, guest / expert input and task based learning in guided and independent study modes. The variety includes methods for individual as well as group learning. Students will be encouraged to develop independent learning skills and techniques in Level 4 and these will be used increasingly in levels 5 and 6. Students will be supported in their skills development in each module and through reference to the University's "Skills+" programme. At levels 5 and 6 students are increasingly expected to incorporate critical analysis and critical evaluation into their learning. Students will be supported in developing these skills throughout the programme. The development of transferable skills permeates the whole of the programme, particularly with regard to communication and presentation of the results of investigations in a product design environment.

The assessment methods used in the programme aim to reflect the wide range of teaching and learning practices, and diversity of subject matter across the discipline of Engineering and the subject domain of product design technology. Assessments are designed to align with the module learning outcomes and assess the learning outcomes of each module in the most appropriate way whilst ensuring a full-range of assessment methods across the programme.

Whilst learning and the measurement of learning will be linked closely to assessment, it is hoped that the learning environment and learning opportunities presented to students will encourage students to be motivated to learn for educational reasons, and not simply to pass summative assessments. The aim is to avoid surface learning and focus on the need for learning opportunities that elicit a deeper more reflective learning response from students.

Formative assessment and feedback is incorporated into modules and students are encouraged to participate in formative activities to develop the skills, techniques and expectations of summative assessment. Summative assessment methods include assignments, exams, technical reports, case study analyses, presentations, portfolio and project work.

4.6 Feedback

Formative assessment and feedback is incorporated into modules wherever appropriate and students are encouraged to participate in formative activities through linking those activities to PDPs and using the formative activities to develop the skills, techniques and expectations of summative assessment. Summative assessment (this is not marked but rather is designed to help you improve your work) methods include assignments, exams, technical reports, case study analyses, presentations, portfolio and project work.

Student Representatives are elected in Induction Week (if possible). Being a Student Representative is a responsible task and one that is important, not only to help the University operate effectively, but also to make sure that you and your fellow students are getting the best experience possible whilst at Northumbria. The students in your Year Group elect the Student Representatives for the coming academic year. The Reps' commitment will be to gather 'issues and ideas' from fellow students and feed these back each semester at Staff Student Liaison Committee (SSLC) meetings with the Year Tutors and Programme Leader and at Programme Committee Meetings with the Programme Management Team. The results of such discussion between the Reps and programme

team may then be auctioned as appropriate, and results fed back via published minutes and through the Reps.

The main role of the Student Rep is to represent the students in the faculty on programme related matters at the programme committees, however their role need not be limited to participation in programme committees, nor need they wait for the committee to meet to act on any issues affecting the student body. They can represent students at various meetings in the Students Union, including the Student Council as well as the annual General Meeting.

5 Programme Schedule and Assessment Schedule

2015-16 Programme Schedule (correct at time of going to press, may be subject to change).

Semester One		
Enrolment	Saturday 12 September 2015	1 day
Welcome/Induction Week	Monday 14 September to Friday 18 September 2015	1 week
Teaching Weeks	Monday 21 September to Friday 11 December 2015	12 weeks
December Congregation for courses completing after June Examination Boards	Monday 7 & Tuesday 8 December 2015	2 days
Winter Break	Monday 14 December 2015 to Friday 1 January 2016	3 weeks
Assessment Weeks	Monday 4 January to Friday 15 January 2016	2 weeks
Semester Two		
Welcome/Induction week	Monday 11 January to Friday 15 January 2016	1 week

Teaching Weeks	Monday 18 January to Friday 18 March 2016	9 weeks
Spring Break	Monday 21 March to Friday 8 April 2016	3 weeks
Teaching Weeks	Monday 11 April to Friday 29 April 2016	3 weeks
Assessment	Tuesday 3 May to Friday 20 May 2016	3 weeks
Final year results published	Friday 24 June 2016	1 day
Summer Award Congregation ***(provisional)***	Thursday 7 July to Wednesday 13 July 2016	1 week
Reassessment Period	Monday 22 August to Friday 26 August 2016	1 week

Students must note the above dates and ensure their availability to fulfil all academic requirements for their programme of study. This may include term time dates even after your last assessment is completed.

2015-16 Assessment Schedule

(correct at time of going to press, may be subject to change – please see the eLP for any amendments and a more easily viewed version).

BSc Product Design Engineering/Technology - Assessment Schedule 2015-16

	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44			
	Induction	1	2	3	4	5	6	7	8	9	10	11	12	Christmas	Christmas	Christmas	Feedback week	Feedback week	1	2	3	4	5	6	7	8	9	Easter	Easter	Easter	10	11	12	Exam	Exam	Exam			
Module Tutor	14/09/2015	21/09/2015	28/09/2015	05/10/2015	12/10/2015	19/10/2015	26/10/2015	02/11/2015	09/11/2015	16/11/2015	23/11/2015	30/11/2015	07/12/2015	14/12/2015	21/12/2015	28/12/2015			18/01/2016	25/01/2016	01/02/2016	08/02/2016	15/02/2016	22/02/2016	29/02/2016	07/03/2016	14/03/2016	21/03/2016	28/03/2016	04/04/2016	11/04/2016	18/04/2016	25/04/2016	02/05/2016	09/05/2016	16/05/2016	CW %	Exam %	Other %	
Wai Ming Cheung (Denny)			H1				A1		H1				A2				Day Schools		F							H3							A3				100			
Chris Connor	Portfolio																																				100			
Kian Tan												T1																				T2					50	50		***
Fawad Inam										T1	F														T2	F											30	70		***
Haydn Jenkins										H1							A1			F							P1											100			***
Benjamin Salem Bernard	Portfolio																Portfolio																				100			
Chris Connor	Portfolio																Portfolio																				100			
Krishna Busawon						H											A1														A2						100			***
Islam Shyha																	A1															A2	F		F					
Phil Hackney										H1							A1		H2		A2-A	F1					A2-B							F2			100			
Chris Connor	Portfolio																																				30	70		
Benjamin Salem Bernard	Portfolio																Portfolio																				100			
Jenna Tudor						A1																										A2	A3	A3			100		Plan doc/Disertation/Viva-Poster	
Chris Connor							H																											A			100			
Phil Hackney																		H1			A1	A1			F												30	70	Group presentation - 30	
Steve Ball				H-A,B							A-A1/A2	A-A2	A-A2					F-A1/A2																	B		100			

*** = details not confirmed at time of publication

Blue Highlight = Lab | Green Highlight = Exam | Grey = Holiday | H - Handout week | A - Assignment Deadline | F - Feedback week | L1 - Lab Report deadline

6 Resources and Laboratories

The faculty is housed in Pandon Building and Ellison Building and most of your classes will take place in these buildings. Computing laboratories abound – some are open to all University students, such as those in the Library or Pandon Basement. Some of the computers in the open access Pandon Basement lab also have specialist software. Guidance as to appropriate specialist facilities will be provided by the module tutors as required.

7 Other Course Specific Information

7.1 Timetables

Timetables are subject to change at short notice and should be checked regularly, and your notice board will display timetable and other related information.

To check online timetables for teaching weeks and examination periods, please see

http://nuweb.northumbria.ac.uk/timetabling/tt/ttreports.htm

Also Look at MYNorthumbria for your personal timetable.

7.2 Absence Monitoring

Registers of attendance are taken in several scheduled teaching sessions (e.g. in workshops). These are used to monitor attendance and if students are found not to be attending they will be contacted to determine the reason. If there is a problem causing poor attendance it may be that the University can help. Experience shows that that good attendance helps students to pass and do well.

Please note that continued non-attendance can result in the student being asked to leave their programme of study.

7.3 Industrial Placement

Students without industrial experience are strongly encouraged to undertake a one-year placement in industry (36 weeks minimum). The placement does not contribute directly to the degree classification but may count towards a graduate training programme. The placement year is found to be invaluable in developing knowledge and skills. These are helpful during the final year and are valued by employers after graduation. Students often gain sponsorship (and the offer of permanent employment) from their placement employer. There are opportunities to work abroad for this period.

All placement enquiries should be directed to the Faculty Placement Office who will offer support in all aspects relating to placements.

7.4 Coursework Guidelines

As well as ensuring that you prepare yourself properly for the end of Module examinations, it is important to maintain a high standard of course work, and that you submit all the course work required from you. Some subjects such as Design may be 100% course work, while in many lecture based subjects course work may count for only 20-30% of the marks. Briefly the types of course work are:-

- Assignment;
- Class Tests;
- Short Laboratory Report;
- Formal Laboratory Report;
- Design Report;

7.4.1 Coursework Styles

7.4.1.1 Assignments

These are usually questions to research and require you to submit a solution. They may be mathematically based, requiring calculation, or they may involve a technical report on a topic. The lecturer will specify the length of the report that is required and deviating from these guidelines could carry a penalty. References should be presented as in "Cite them right" which is available from Learning Resources or online at http://www.unn.ac.uk/central/isd/cite/. The lecturer will provide a summary of the

assessment criteria for your guidance. You will have at least TWO WEEKS to complete each assignment. Sometimes assignments are undertaken in 'test' conditions where you are presented with a question paper and have to answer it immediately. This happens particularly in the first year. These tests are designed to focus your efforts and to ensure that you tackle the tutorial work systematically for each subject. They also give you a rapid feedback on the success of your study pattern, and enable you to judge the pace of work you must maintain in order to cope with each subject.

7.4.1.2 Short Laboratory Reports

A short report is required for every first year experiment

For each Laboratory session, you will be given information on the theory and the procedure for completing the practical work. You must complete ALL of the data collection before the end of the Laboratory session (usually 2 or 3 hours).

During the session, you will be given a laboratory sheet. For each experiment you will be required to submit for marking:-

1 The set of results that you obtained during the Laboratory period - on the original piece of paper provided - you should NOT spend time rewriting these results - record them CLEARLY in the first place.
2 Any graphs that you thought necessary or were asked to produce.
3 Any calculations (hand written normally).
4 Conclusions based on the results and calculations.
5 Answers to the questions on the question sheet.

If a logbook is not being used, the reports must be submitted on A4 paper stapled together, and as a guide it is anticipated that no more than 2 additional sheets per laboratory report will be needed. (The report MUST NOT be placed in any kind of plastic folder or wallet).

Since this Report represents a piece of experimental work which you have done, it follows that you cannot submit a report if you were absent from a particular laboratory REGARDLESS OF THE REASON.

7.4.1.3 Formal Laboratory Reports

In the second year you will complete a formal report for a sample of your experiments. Your Tutor will tell you which experiment you have to submit at the relevant time. You must keep full records of each experiment you perform (i.e. a short report, or a detailed LOG BOOK) so that you have the information available for the formal report. Formal reports are deliberately introduced at level 5 to give you experience of producing the type of report frequently required in industry. It is probable that the reader may not be known to you, or may not be in daily contact with you e.g. a Senior Manager or other Engineers. The faculty believes that with practice you should learn to write this type of report quickly, concisely and efficiently. This ability will stand you in good stead during your professional career. Two or three reports are required and it is anticipated that you will enter into discussions with the staff supervising the laboratories with the object of improving this skill as quickly as possible.

The reports should be written in a style which can be easily understood by the reader, arouse and hold their interest, and provide a logical and critical analysis of the work carried out.

A good guide as to the type and level of contents of the report is to imagine that you are writing it for a member of your class who has not done the experiment. You are to tell him/her, why, with what, and how you did the experiment, and what you found, followed by a critical discussion of the experiment as a whole and ending with a statement of any definite conclusions you can draw.

The faculty requires that reports should take on a particular format and whilst it is acknowledged that alternative formats are possible, it is recommended that you adhere to the one given below unless module staff advise otherwise. Each report will normally consist of the following.

(i) Title

(ii) Abstract/Summary

The Abstract is a brief summary of the whole report (not more than 10 lines) and should be sufficient to give the busy reader an impression of the area and scope of the investigation together with any significant findings. The abstract should be located on the title page but should be written after you have completed the rest of the report.

(iii) Table of Contents

All the section headings should be listed here, together with the relevant page numbers.

(iv) List of Notation

List all the symbols used in the report with their meaning and units.

(v) Introduction

This introduces the reader to the general subject area, and then to the specific area under investigation - the sort of information gleaned from the discussion with the lecturer during the laboratory period.

(vi) Objectives

This section must set out clearly what the experiment is intended to achieve.

(vii) *Theory*

Present all the necessary theoretical information and equations that are relevant to the investigation. Do not include the derivations of well-established equations but do include a reference to their source. State all assumptions and limitations of the theory. Include non-standard expressions or modifications to standard expressions, but omit obvious algebraic detail; consider putting lengthy expositions in an Appendix.

(viii) *Apparatus*

List all the apparatus used. Exact details must be given, allowing the reader the possibility of repeating the experiment using the same pieces of equipment. Any peculiar results can then be checked for their source in a particular instrument. Note down the names of manufacturers, find and quote serial numbers (some pieces of equipment have asset numbers), operating ranges and least counts (resolution) etc. Line diagrams are often useful in this section. Detailed explanation of complex pieces of equipment should be deferred to an appendix.

(ix) *Procedure*

Tell the reader exactly what you did. Use third person passive past tense (e.g. the engine was warmed through). Write in such a way that the reader would be able to perform the experiment exactly as you did. Do not refer to calculations or graphs - just the practical work.

(x) *Observations and Results*

Tabulate results wherever possible. Ensure that you clearly differentiate between as read (raw) and calculated results. Show sample calculations of the latter. Ensure that the results are presented neatly, clearly and concisely and errors are estimated.

Refer the reader to graphs at appropriate places. Graphs should be drawn neatly, using suitable scales, with all experimental points clearly shown and distinguished where necessary, with scales clearly marked and not hidden by the binding. Graphs should also be clearly titled, because readers often prefer to look at them rather than reading the tables. An examination of error sources, and hence the expected accuracy of your results is essential.

(xi) *Discussion*

This is the most important section of the report. It should contain a comprehensive critical survey of the experiment as a whole. The content may be based on the discussion with the lecturer at the end of the experiment. It is up to you to construct the argument in whatever way you wish, but you must ensure a continuous logical train of thought.

Read the objectives section before you start writing the discussion so that you are reminded of what you tried to achieve by doing the experiment. Compare the theoretical predictions with the experimental results and include analysis of the experimental errors. Discuss the data used in deriving the figures arrived at, and the theoretical relationship used.

Discriminate between assumed and actual conditions. Discuss difficulties in taking readings or carrying out the experiment.

Make sure that you convey to the reader how valuable you think your results are.

(xii) *Conclusions*

If you have written a reasonable Discussion then the Conclusions should follow easily. The measure of success in achieving the objectives should be qualified by brief statements, which summarise the relevant points made in the Discussion.

(xiii) *References*

Whenever theoretical work, experimental results, or opinions are quoted from books or journals these should be cited as follows. Put numbers in brackets at the relevant points in the report to signify that adjacent information comes from a reference. Repeat the numbers in the reference section and against each give details of the author, title of book or paper, publisher or name of journal, chapter of book or volume number of journal, page numbers and year of publication. If in doubt use "CITE THEM RIGHT" available at www.unn.ac.uk/central/isd/cite/

(xiv) *Appendices*

These should be reserved for lengthy results, theoretical treatments or descriptions of complex equipment, which would otherwise disturb the flow of the report.

Do not pad out your report. Read it through when you've finished and correct any obvious errors.

Word-processed reports are preferred but neatly written scripts will be accepted without penalty (please see the module tutor if you are unsure).

7.4.1.4 Design Reports

Design tasks are usually undertaken in small teams, and the team has the responsibility of producing a coherent report from the work of the various team members. However it is essential that each student's individual contribution is clearly identified for assessment purposes.

A common approach is to have a two or three page introduction which:

* Defines the problem
* Outlines the approach to the problem
* Explains the allocation of the tasks to the various team members

It is normal practice for each individual to write their own chapters, and the report is finished off by a summary of the conclusion reached by the team. You will need to nominate one person to take responsibility for editing your report so that it is a coherent summary of your team's work. Larger project reports should include the minutes of the meetings the team held to allocate the workload between them. A complete set of drawings and calculations should be a major part of the report.

Design is a very wide area, and the tasks you tackle will become more complex as the Programme progresses, so the size of each report cannot be defined here. Your lecturer will give you a briefing of the design problem, the format of the report, and the marking scheme. It is also normal practice to have oral presentations as part of the design exercise, and these are integral to the marking scheme.

7.5 Submission of Assessed Work

Work that is submitted for assessment is often handed in via the appropriate Faculty Office (E&E or Arts, Design & Social Sciences) unless other arrangements are made by the module staff e.g. via the eLP. The lecturer will inform the Faculty Office that work is to be handed in on a particular day and time period. The student must obtain a proforma (from the office) to attach to the front of the work and fill in the necessary details such as Module Number, Lecturer, Student Name etc. and they will get back a receipt as proof of handing in. The work can only be handed in at this time and failure to do so will result in a mark of zero. The location for submission of assessed work within the faculty of Engineering & Environment is EB B201.

Late submission of work

The rules and regulations regarding the late submission of work and personal extenuating circumstances are as defined in ARNA (Assessment Regulations for Northumbria Awards), details

of which are available from the University website. Each Faculty Office will also be able to offer guidance on this.

7.6 Academic Misconduct

Any assessed work that is submitted by a student should ensure that it is their own work and it fully acknowledges the opinions of others. **To assist in this, several modules may use "Turn it in" software to detect possible collusion and plagiarism**. This will normally include the following:-

- A full citation of all sources of material used
- Properly referenced sources using a recognised referencing system. Use "Cite them right" available at www.unn.ac.uk/central/isd/cite/.

Full details of the regulations governing academic misconduct can be found in the Assessment Regulations for Northumbria Awards.

The use of images

As discussed the definitive guide to the regulations governing academic misconduct can be found in the Assessment Regulations for Northumbria Awards. However, to aid understanding and application of the regulations regarding the use of images in particular to help you avoid possible academic misconduct when using them, we would like to draw your attention to the following example of plagiarism contained within ARNA (2011/12)[1]:

"the unacknowledged use of images (digital or otherwise) music, patents or other creative material either in the entirety or in the creation of a derivative work." and include an explanation of derivative work in a design context"

These guidelines (ARNA) apply to all University programmes, their modules and assessment, and are equally applied to all aspects of study. The Penalty for academic misconduct may vary between a mark no higher than a pass through to being required to withdraw from your programme.

You may need to pay particular attention to graphical forms of communication/assessment, such as; posters, presentations, design and other reports, mood boards, scrapbooks, records of product research and market analysis, and other use of images which are not entirely your own work.

The phrase "in the creation of a derivative work" applies to the use of images constructed from, or based upon, the work of others, for example by editing, amending or annotating an image without the full acknowledgement of the original source.

It is suggested that you always refer to the current version of ARNA prior to submission of any piece of work to avoid accidental infringement and ensuring the academic integrity of your work.

1 Assessment Regulations for Northumbria Awards, quoted from the 2011- 2012 version applied by the issue in force at the relevant time available on the University Website.

7.7 Laboratory Work

The faculty has approximately thirty laboratories with many of them containing fast moving, high voltage or dangerous machinery. It is for this reason that the faculty has a Student Code of Practice for Safe Working, and Health and safety guidelines in the faculty that can be found in the Faculty Handbook.

Introduction to Safe Use of Hand & Power Tools including Workshop Cutting Machines

The faculty Student Code of Practice for Safe Working requires students to attend a course on the safe and practical use of hand and power tools including workshop cutting machines.

This compulsory course provides instruction in safety, use of drawing and measuring equipment, hand and power tool operations, correct work holding techniques, and drilling and sawing operations.

STUDENTS WILL NOT BE ALLOWED TO ATTEND TIMETABLED LABORATORY SESSIONS OR USE WORKSHOP FACILITIES UNLESS THEY HAVE ATTENDED THIS INDUCTION COURSE.

Non-attendance will result in the loss of marks allocated to modules involving laboratory work and the use of workshop facilities.

The course takes place during the first semester and attendance dates will be allocated to students by their programme leader. Alternative dates CANNOT be provided for students who do not turn up on the date allocated.

7.8 Safety and Security

The University is committed to ensuring the safety and security of all students. To this end the University has an approved Student Safety and Security strategy and a permanent Working group which:-

- Addresses student safety and security concerns – both on and off campus.
- Fosters good relations between students and other residents in the local community.
- Ensures students are aware of safety and security issues.
- Helps students understand their potential responsibilities as residents of the local community.

It is important that all students understand issues of personal safety and community responsibility. To help you with this you are asked to visit the website indicated below and take time out to familiarise yourself with the information contained therein.

http://www.northumbria.ac.uk/sd/central/estates/healthandsafety/

Library

The libraries at City Campus and Coach Lane provide access to a wide range of print and electronic resources including over half a million print books, over 700,000 eBooks and more than 50,000 electronic journals. More details can be found on the University Library website: http://library.northumbria.ac.uk/home

City Campus Library (number 14 on City Campus map) is housed near the Student Union building (number 30 on City Campus map).
Coach Lane Library is situated on the East Side of the Campus, in F Block (number 16 on Coach Lane Campus map).

City Campus library is open 24/7 during term time and from 9am to midnight during vacation times. Coach Lane library is open 7am until midnight (Monday to Friday), 9am until midnight (Saturday and Sunday). Opening hours are prominently displayed in the foyers of the library buildings, any changes are advertised on the Library website and on social media. Opening hours vary during bank holidays and are subject to change, so please check before you travel.

You will need to keep your smartcard with you to gain access to and leave the libraries. Your Smartcard is a universal card which not only gives access to the Libraries and other University buildings, but it also allows you to print, copy, scan, borrow books and make cashless payments.

The Library Catalogue can be accessed on and off-campus through the University Library website and the dedicated catalogue computers on each floor of both Libraries. The catalogue can be used to search for books and eBooks located in the University Library. It is quick and easy to use and will give you the information you need to locate the material on the shelves or read online. eBooks can be read on and off-campus, anytime, anywhere. NORA can be used to search for, and retrieve, up-to-date scholarly materials including articles, reports and statistics that are relevant to your studies. You can browse through all the online resources relating to your subject in one place including databases, journals and websites.

Students are entitled to borrow up to 15 items at any one time. Items can be issued using the self-issue machines on the ground floor of City and Coach Lane Libraries. You can renew your library books online through the MyLibrary section of MyNorthumbria or via the Library Catalogue.

Northumbria students can use other libraries such as the Robinson Library at Newcastle University and Newcastle City Library using the SCONUL access scheme. For more information see the Library SCONUL information page: http://library.northumbria.ac.uk/sconul-holiday

The Northumbria Skills Programme is a comprehensive skills programme designed to develop the key skills you need to succeed at university and beyond provided by the Library. It runs throughout the year and provides classroom style skills sessions on many topics including academic writing skills, giving accomplished presentations, and referencing your work correctly, as well as regular drop in surgeries. Some sessions are bookable; simply consult the timetable on the Northumbria Skills Programme website: http://library.northumbria.ac.uk/skillsdev-nsp

Skills Plus is the Library's collection of online learning materials, with a focus on digital literacy and study skills that can be accessed on and off-campus. Using these resources is an excellent way to develop your skills through a range of online tutorials with quizzes, video demonstrations and printable help guides. http://nuweb2.northumbria.ac.uk/library/skillsplus/topics.html?l3-0

If you need help or advice, on or off campus, you can contact Ask4Help. The Ask4Help service provides you with help and support to access a range of University services including Library, Disability Support, Student Finance and Careers. The quickest way to find answers to some of the most popular questions asked by students is to look at Ask4help online. You can also contact us by phone and speak to a member of our dedicated enquiry team or email us your questions.

www.northumbria.ac.uk/ask4help
ask4help@northumbria.ac.uk
0191 227 4646

Northumbria Students' Union (NSU)

Northumbria Students' Union (NSU) is here to make sure you have the best experience possible. NSU is one of the largest and most exciting Unions in the country and that's all because of YOU. We represent you, the student, on all levels, on the issues students are concerned about; receiving a great academic experience, being very employable when you graduate, being safe on campus and in the city and having a fantastic time while a student.

NSU is run by students for students. You can have your say in what NSU does and how it is run, by contacting your Sabbatical Officers or by coming along to Student Council

MEMBERSHIP: As a student of Northumbria University you are automatically a member of the Students' Union. We also sell NUS Extra Card from the Students' Union at both Coach Lane and City Campus giving you discounts in shops and online, but you don't need one to use any of our services.

DIVERSE: Your Students' Union is a place which brings together students from all walks of life, all parts of the country and the world and many different cultures. NSU provides lots of opportunities for you to Get Involved, make lasting friendships, increase employability and have FUN!

INDEPENDENT: NSU is independent of the University, with its own staff, services and decision-making structure. Run by students for students, providing the best services and opportunities for students we push for change from the University to deliver for students. Find our more at our You Said, SU Did page. If you need advice about academic appeals or other issues, we can help. Check out the Advice Page.

VALUE: Your NSU offers the best value for money, and everything you spend goes straight back into the Students' Union to fund all the activities that we run for you.

If you would like more information check out the website www.mynsu.co.uk or come and see us at our offices in City, Coach Lane and London.