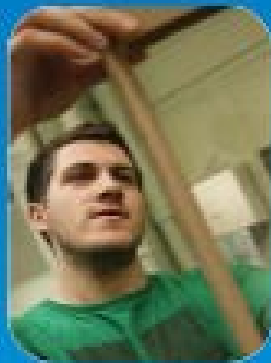# Faculty of Engineering and Environment

Foundation Year

PROGRAMME HANDBOOK

northumbria
UNIVERSITY

Contents

1   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 School Student Handbooks which contain more general information about being a student at Northumbria within the Faculty of Engineering and 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'* https://www.northumbria.ac.uk/study-at-northumbria/new-students/   (this is also available by clicking on '*New Students'* on the University home page www.northumbria.ac.uk).

Other useful webpages are:

MyNorthumbria:

https://my.northumbria.ac.uk/login.jsp

eLearning Portal:

https://elp.northumbria.ac.uk/

Teaching week and Timetabling

access through myNorthumbria or the following direct link

http://nuweb2.northumbria.ac.uk/timetabling/tt_NextYear/WeekNumbers.htm

2   Welcome from the Programme Leader

Welcome you to the foundation year of your chosen degree course at the Faculty of Engineering and Environment. I would like you all to get as much from your time here at Northumbria University, Newcastle as possible, your programme of study will be your platform to launch into the world of work, further higher study or research activities. All of the staffs in the faculty are here to actively engage in teaching you, and supporting you in your studies.

Research-engaged teaching is key for us to teach you new material at the cutting edge of the disciplines. Examples of our research include, Environment and Energy Research (Photovoltaics, Wind energy, etc), Electrical and Electrical Technologies (Power systems, Electric Vehicles, Robotics and Embedded Systems, Wireless/Visible light communications, Digital Signal processing, etc.), Construction Technologies, Product Design and Smart Materials, etc.

The faculty has a large number of facilities that are available for you to use throughout your time here, and I actively encourage you to practice your skills in the laboratories and get as much from your experience as you can. A number of student spaces are available for you to work in on your own or in groups including "Library" and "The Zone" areas.

I hope you enjoy your time with us and take every opportunity to enjoy the experience and get the very best degree you can.

Dr. Noel Perera
Programme Leader of Foundation Year

Who's Who and Communication?

2.1   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 School. However, we also draw upon subject specialism outside the faculty and external consultants, industrialists and advisors.

Staff from the faculty and from the wider university (such as the Library & Learning Services, IT Services and Student 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 School and subject area level.

Faculty Office: B201, Ellison Building

Office Location: B201 (Second floor), Ellison Building

Email: ee.studentsupport@northumbria.ac.uk

Telephone: 0191 227 4722

Office hours: Monday - Thursday 8.30 am – 5 pm

       Friday 8.30am – 4.30 pm

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

All assignments are submitted in room B201 (second floor), Ellison building.

Programme Leader: Dr. Noel Perera

Office Location: Wynne Jones Building, room 115

Email: noel.perera@northumbria.ac.uk

Telephone: 0191 243 7228

Your Programme Leader is the academic leader for your Programme and is responsible for managing the programme on a day to day basis, working with other School and University staff – academic, administrative and technical – as needed. 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 of how you are doing.

Programme Administrator

Your Programme Administrator 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 Ellison Building (B202) Faculty Office.

Module Tutor

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

3.2 Communication

Contacting Your Programme Leader

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 or you can just turn up at their office. Occasionally you may be able to have an immediate appointment, but don't 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.

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.

eLearning Portal (elp.northumbria.ac.uk)

The eLearning Portal (eLP) at https://elp.northumbria.ac.uk/ 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. You will be shown how to access the eLP in Induction week.   The eLP acts as an electronic notice board for a wide range of information that students need during the academic year. It is therefore important that you check the eLP regularly – at least daily – for new announcements and new material.

Plasma Screens

The school 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 REALLY IMPORTANT THAT IF YOU HAVE AN ISSUE YOU CONTACT US AS SOON AS POSSIBLE – WE ARE HERE TO HELP*

3 Programme Information for Foundation Year

Here you will find specific information on your programme of study. There is a national requirement that all university programmes of study have a publicly available Programme Specification and this section is based on that programme specification.

3.1 Programme Structure

This consists of the following six year-long double modules, details are shown below with relevant module tutors.

Module Code	Module Title	Module Tutor	Credits
EN0005	Introduction to Electrical Engineering	X. Dai (Daniel)	20
EN0006	Introduction to Design & Problem Solving	W. M. Cheung W. Fleming	20
EN0007	Introduction to Mechanical Engineering	N. Perera	20
EN0008	Computer Technology and Study Skills	Q. Wu	20
MS0272	Introduction to Algebra and Statistics	P. Fitzpatrick	20
MS0273	Foundation Algebra and Trigonometry	P. Fitzpatrick	20

More details about the programme structure can be found at

https://www.northumbria.ac.uk/study-at-northumbria/courses/engineering-foundation-year-uusece1/

3.2 Learning Teaching and Assessment Strategy

(1) LEARNING and TEACHING take place via lectures supported by small-group seminars (problem-solving classes) or computer laboratory sessions, in which students obtain direct help, from academic staff, with problems associated with a particular module.

Lecturers are free to adopt teaching styles to suit the material delivered, and their own personalities and abilities, and may choose to use distributed materials (including via Blackboard), specified texts, OHP slides, projected material via a PC, lab-based teaching with appropriate software, traditional 'chalk and talk', or combinations thereof.

To support lecture materials, lecturers generally supply students with problem sheets of a routine nature. Students are expected to consider these prior to seminars or laboratory sessions, referring to lecture notes and/or recommended texts. In this way the problem sheets encourage both directed and independent learning. During seminars students attempt problems and obtain help with any

difficulties encountered. Seminars also provide a point of contact where both students and staff can reflect on the learning experience.

Where appropriate, teaching takes place in a computer laboratory or engineering workshop. Many modules, at all Levels, utilise such sessions to support lectures. In this way students have laboratory time dedicated to the development of computational and numerical techniques, I.T. skills, high-level programming and advanced software.

(2) ASSESSMENT takes place via a combination of formal examinations and In-Course Assessments, such as individual or group assignments. The form of assessment, and weightings, is specified by the Module Tutor, appropriate to the particular module. Some, particularly those involving lab-based work or I.T., lend themselves to greater use of ICA's involving computational work.

Students receive feedback on their progress throughout the year in a number of ways. We aim to mark assignments within three weeks of submission. Class time is usually then set aside to return scripts to students and for lecturers to give general verbal feedback. More specific remarks are written on the front of the assignment, whilst detailed annotations are usually made on the script itself. Students retain individual assignments once marked and moderated. Formative assessment (which indicates your development as you progress through the year) can be gained from seminars, workshops and assignment feedback.

You are expected to be familiar with the University Assessment Regulations (ARNA) and related procedures. The full version of the ARNA and forms can be accessed at the web page

https://www.northumbria.ac.uk/sd/central/ar/qualitysupport/assess/assproc/assdocstud/

This can be accessed from the *Information for Students* section of your **MyNorthumbria** web page.

If you have any difficulties in understanding the contents you should consult your Programme Leader. You may also seek independent advice and support from the Students' Union Advice & Representation Service (su.advice@northumbria.ac.uk) or from a student adviser in the Student Support and Wellbeing Service.

The following information on ARNA is provided as a quick reference only. For full and latest version of the ARNA, please check the website as shown above.

(1) The pass mark for foundation year modules is 40% unless a higher mark has been specified and approved.

(2) For progression to the next level, an average of at least 30% across all qualifying modules is required at the first attempt.

(3) You can be referred in failed modules provided that an overall average of 30% across all qualifying modules has been attained at the first attempt.

(4) A student who passes a module after referral will be awarded the pass mark for the module.

(5) A student who fails the resit will normally be allowed one further attempt by re-registering for the failed modules and repeating them as if for the first time if continuing on the same programme.

(6) There is no limit to the number of modules which can be referred if the requirements for referral are met.

3.3 Student Feedback

The Faculty has an open door policy and students are encouraged to identify any problems they have at an early stage, via any mechanism, so that they can be dealt with promptly.

Feedback to the Faculty can be provided through a number of mechanisms, both formally and informally.

Student Representatives are elected in Induction Week. 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 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 School 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.

Staff/Student Liaison Committee meeting. The Programme Leader chairs the meeting which is also joined by the relevant year tutors. Students are required to elect a representative(s) from each year of the Programme, or more if required, representing their views at the meeting, which take place once per semester. This is a forum for the students' to comment on any issue relating to the running of the Programme. These meetings then feed in to the Programme Committee.

Programme Committee meeting. Three elected student representatives, from within the Staff/Student liaison committee members, are invited to attend the Programme Committee Meetings to represent the student body. These occur once per semester and it is a forum for discussing and improving the programme, via Annual Review, with input from other sources as well as students and staff, such as external examiners, professional institutions and external validating bodies.

Module Evaluation Questionnaire. The module tutor is responsible for obtaining feedback from all students via this proforma. It gives the students the opportunity to comment on the particular module, with respect to its delivery, content, suitability of assessment etc. Feeds in to the Annual

Review of the Programmes. The results of this are posted in the module box within Blackboard along with any response from the module tutor.

Programme Evaluation Questionnaire. The Programme Leader is responsible for obtaining feedback from all students on the Programme and this information feeds in to the Annual Review of the Programmes.

Faculty Student Learning Experience (SSLE). One student from within the Faculty, who should be elected by the students, is required to attend the SSLE to ensure that the student body has an input in to the Quality Assurance and Enhancement of the Programmes.

Teaching Evaluation Questionnaire.

All members of academic staff are required to obtain feedback on their teaching. This is confidential but designed to improve individual teaching practice.

Laboratory/Group sessions. Valuable feedback can also be obtained during these small group sessions, where students are encouraged to discuss any areas they may have a problem with.

3.4   Attendance Monitoring

Registers of attendance are taken in 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.

4   Programme and Assessment Schedule

2015-16 Programme Schedule

Semester One		
International student enrolment	Friday 12 & Saturday 13 September 2015	2 days
Home student enrolment	Saturday 13 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
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		
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 May 2016	3 weeks
Assessment	Monday 2 May to Friday 20 May 2016	3 weeks
Final year results published	Monday 20 June to Friday 24 June 2016	1 day

Students must note the above dates and ensure their availability to fulfil all academic requirements for their programme of study.

2015-16 Assessment Schedule

Please note this is only a guideline, the dates of some assessments may change. You will be notified by the module tutors if there are any changes.

Teaching WEEK	Time Table week	EN0005	EN0006	EN0007	EN0008	MS0272	MS0273
Induction	9						
1	10						
2	11						
3	12						
4	13						
5	14		Presentation				
6	15						
7	16						Coursework
8	17						
9	18	Lab Test & Report					
10	19						
11	20		Report	Class Test	Lab Test		
12	21						
Winter Break	22						
Winter Break	23						
Winter Break	24						
Assessment and Feedback week	25			Formative Feedback		Test	
Assessment and Feedback week	26						

Teaching WEEK	Time Table week	EN0005	EN0006	EN0007	EN0008	MS0272	MS0273
1	27						
2	28						
3	29						
4	30						
5	31						
6	32				Lab report		
7	33						
8	34						
9	35		Report				
Spring Break	36						
Spring Break	37				Lab report		
Spring Break	38						
10	39			Class Test			
11	40						
12	41			Feedback		Coursework	
Assessment	42						
Assessment	43						
Assessment	44	Schedule to be announced and confirmed on the eLP and/or myNorthumbria					

Timetabling week numbers and teaching week numbers can be found at

http://nuweb2.northumbria.ac.uk/timetabling/tt_NextYear/WeekNumbers.htm

through **MyNorhtumbria**.

Assessment in detail:

EN0005: Introduction to Electrical Engineering – Xuewu (Daniel) Dai

Lab Tests (30%)   During first semester

Formal Exam (70%)   May 2016

EN0006: Introduction to Design and Problem Solving - Wai Ming Cheung / Bill Fleming

Presentation (25%) 5th Teaching week, semester 1

Report (25%) 11th Teaching week, semester 1

Report (50%)   March 2016, semester 2

EN0007: Introduction to Mechanical Engineering - Noel Perera

Class Test (50%) 11th Teaching week (Semester 1) and 10th Teaching week (Semester 2)

Formal Exam (50%)   May 2015

EN0008: Computer Technology and Study Skills- Qiang Wu

2 Lab Tests (25% each)   During first semester

Report (50%)   May 2016

MS0272: Introduction to Algebra and Statistics – Peter Fitzpatrick

Test, (50%)   January 2016

Coursework, (50%)   May 2016

MS0273: Foundation Algebra and Trigonometry – – Peter Fitzpatrick

Coursework, (20%)   November 2015

Formal Exam, (80)   May 2016

5   Resources and Laboratories

Refer to supplementary document available on the eLearning Portal for information relating to laboratory resources.

The Faculty of Engineering and Environment 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.

6 Appendix

Special Instructions for Students on Engineering-based Courses

Laboratory Work

The Faculty has approximately forty-five laboratories, some of which contain fast moving, high voltage or inherently dangerous machinery and chemicals.

BEFORE ENTERING ANY WORKSHOP OR NON-IT LABORATORY, YOU MUST:

1. Keep your hair short or under a cap or hair-net to avoid the risk of accidental entanglement in drills or other rotating machine parts.
2. Remove any hanging items of clothing such as sleeves with loose cuffs, ties or jewelry when necessary. These can cause serious injury if accidentally caught in a machine.
3. Wear snug fitting overalls where required.
4. Wear safety goggles to avoid exposure to flying particles, or to welding flash.
5. Wear safety gloves when hands are exposed to heat, sharp objects, dangerous chemicals or other such hazards.
6. Wear appropriate clothing and safety equipment at all times.

Workshop Safety Training

The Faculty of Engineering & Environment Student Code of Practice for Safe Working requires all users of relevant workshop and/or laboratory facilities to attend a compulsory one day course provides instruction in basic safety, hand and power tool operations, correct work holding techniques and drilling, cutting and sawing equipment and operations.

STUDENTS WILL NOT BE ALLOWED TO USE WORKSHOP FACILITIES UNLESS/UNTIL THEY HAVE ATTENDED THIS SAFETY COURSE. IN ADDITION, NON-ATTENDANCE MAY RESULT IN A LOSS OF MARKS WITHIN MODULES INVOLVING LAB WORK AND THE USE OF WORKSHOP FACILITIES.

Attendance dates will be allocated to each student by the course leader for their programme. Again, students cannot commence use of lab and/or workshop facilities until the satisfactory completion of the relevant training.

Rotating Machinery and Robotics

Typical risk areas include Electrical Power and Robotics Laboratories and associated workshops.

Moving and Rotating Machinery

1. It is your responsibility to check that all guards or covers are secure and in place prior to using any tools or equipment.
2. Always remember that the stroboscopic effect of fluorescent lighting may cause shaft-ends, etc., which are rotating at high speed, to appear to be stationary or rotating at low speed.
3. Do not use any equipment until its operation has been demonstrated to you by a competent member of staff.
4. Replace all machine guards before operating the machine.
5. You must be capable of instantly locating the emergency stop button for any machine you use. This must become a reflex action.
6. Be prepared to switch off any other machine in your immediate area of work should an emergency arise.
7. Abrasive wheels may only be fitted and balanced by a certified person.
8. You must maintain your concentration at all times while a machine is in motion.
9. Never leave any machine unattended while it is in motion.
10. Contact measurement must <u>NEVER</u> be attempted on a machine which is in motion.
11. Take care not to distract or startle other machine operators.
12. Switch off the machine to prevent movement whilst changing cutting tools or work pieces.
13. Securely tighten all tool-holding and work-holding devices before machining.
14. <u>REMEMBER</u> – REMOVE THE CHUCK KEY!
15. Stand clear of all moving parts while machining.
16. Never clean away swarf with your hands. Always use the rake provided.
17. Direct and control coolant flow so that it drains into the sump tray at all times.

When Dealing with Robotics

1. Do not enter the marked exclusion zone of any robot when the robot is being operated.
2. During the operation of any robot, someone must always be within easy reach of the emergency stop switch.
3. Items may be placed on a moving conveyor but never place your hand on the moving part of the conveyor or in the space between the guard rail and the edge of the moving conveyor.

Projects Involving Practical Work

1. Check with the project supervisor to confirm a suitable location and time slot for the practical work to be carried out.
1. Unsupervised project work involving any voltages in excess of 50V r.m.s. is never permissible. Suitable arrangements for any work with exposed voltages greater than 50V r.m.s. must be agreed in advance with your supervisor and appropriate arrangements made.
2. Wherever possible, the project hardware should be designed to operate from standard laboratory DC power supplies, i.e. should not be directly mains powered.
3. However, if the project supervisor specifies that the circuit be directly mains powered, the following procedures are essential:-

4. Use only a double-wound mains transformer i.e. not an auto-transformer.
5. Use an encapsulated transformer, if available.
6. Ensure all screen/core earthing connections of the mains transformer are completed.
7. Use 2 or 3 core cable only for the mains power connection, not an edge cone.
8. Ensure ample spacing between the live, neutral and earth (if present) connecting points.
9. Use only through-hole soldering for the mains connecting leads.
10. Check that the current and voltage ratings of any leads that you propose to use are adequate.
11. Minimise the length of mains voltage tracks.
12. Give the mains-voltage tracks ample spacing from the transformer secondary tracks.
13. Liberally coat all mains-voltage tracks and live terminals of the completed PCB with a suitable insulating material such as silicone sealant.

14. Be particularly alert to the hazard of dangerous potentials present upon device heat-sinks.
15. Use only enclosures of insulating material.
16. Use a strain-relief fitting at the cable-enclosure entry point.

17. Ensure by suitable design that semiconductor devices have adequate cooling, taking into account the restrictive effect of the enclosure.
18. Any proposal to interface computer input or output ports to power or instrumentation circuits must be fully discussed with your project supervisor before proceeding. In particular, the arrangements for electrical isolation must be approved by the project supervisor.
19. Request the project supervisor to examine the completed circuit-board/cable/mains plug and, if satisfactory, to certify in the student logbook(s) that the circuit is safe for unsupervised work with the mains-power connected and the enclosure opened.
20. If you use rechargeable batteries with very low internal resistance such as lead-acid or nickel-cadmium to power your circuit, the following points must be observed:

21. You must use a suitable rated protective device (fuse or circuit-breaker) in order to limit the current flowing in the event of a circuit malfunction.
22. Ensure to all reasonable standards that a short-circuit cannot occur without passing the current through he protective device.
23. Employ non-reversible battery leads.
24. Never use high-current battery charging without a timer or other cut-off arrangement.

25. Always make sure that your rig cannot be accidentally energised by others.
26. Never interfere with or alter another student's rig.
27. Do not borrow any equipment from another student's rig without prior permission.
28. Investigate any malfunction thoroughly before proceeding.
29. Do not leave your rig unattended when energised unless you have good reason.
30. Fix a "Do not touch" notice if a rig is left running.

Electronic Design and Manufacture Laboratories

Printed Circuit Manufacturing Facility

Only technical support staff manufacture PCB's.

Surface Mount Placement Equipment

Never place your hands over the work-table.

Reflow soldering equipment

Never touch the moving conveyor or put your hands inside the oven at any time.

Electrical Power Laboratories

Safety guidelines in the section on Rotating Machinery and Robotics must be followed.

1. Observe the safety operating procedures as laid out in the relevant laboratory instruction sheets. These procedures are required when the work involves voltages exceeding 50V r.m.s. and are summarised below:

   2. Shrouded safety leads must be used.
   3. Ensure that you are familiar with the position of the supply isolating switches and emergency trip buttons where provided.
   4. Check carefully that all supply isolating switches are in the off position before starting to connect up.
   5. Check the voltage and current ratings of equipment before use and do not exceed these ratings.
   6. Ensure that the earthing leads are in place for the load banks, Variacs, synchronizing units, etc.
   7. Oscilloscopes must only be connected to power circuits via appropriate voltage and current

transposers.

8. Ask the supervisor or tutor to check your initial circuit and all circuit revisions before you switch on the power.

9. During the work, all students in each group must agree to switching on the power every time this is done.
10. Where suitable, "soft-start" the equipment using a Variac i.e. increase the supply voltage gradually from zero so that any fault produces limited effects. Return Variacs to the zero position after use.
11. Take particular care not to accidentally separate leads carrying highly inductive current (e.g., leads in the field circuit of a DC machine).
12. Do not handle high-value capacitors rated at more than 50V without first carefully discharging through a suitable resistor and checking for negligible terminal voltage.
13. If you are allowed a refreshment break during any class session, you must not re-energise the lab/workshop equipment before the supervisor or tutor returns.
14. As a general point of good working practice, develop the habit of only touching the controls with one hand, ensure that your other hand is never touching any metallic object whatsoever.
15. Ensure that all sources of electricity supply are switched OFF before you alter or dismantle the circuit.
16. Remove the leads by pulling on the plastic connectors, not the leads themselves.
17. Take care not to stand on the shrouded safety leads as the shrouds will be damaged.

Mechanics, Fluids and Thermodynamics Laboratories

1. Safety guidelines in the section on Rotating Machinery and Robotics must be followed.
2. In these laboratories, there are additional hazards associated with pressure systems, compressed gases, dust, fumes, smoke, heat, flammable liquids, chemicals and high velocity air flows. No student is allowed to work in these laboratories without supervision, with the exception of project students who have received formal training.
3. Protective gloves must always be worn when handling hazardous materials (e.g., mercury, manometer fluid, etc.).
4. Eye protection must be worn when handling compressed air equipment. Keep clear of compressor as it comes on automatically when pressure drops.
5. Compressors, and pumps can produce considerable noise. Ear protection must be used in the vicinity of such equipment.
6. Steps and ladders must be used only on level ground. Ladders must be restrained at bottom when in use.
7. When engines are running in the test cell, exhaust fans must be switched on.
8. Suitable protective gloves must be worn when touching hot objects (e.g., the thermocouple calibration furnace).

Use of Radioactive Sources

1. You may never use a radioactive source without advance permission from a qualified member of staff.
2. Radioactive sources must always be transported in their proper containers.
3. Never use more than one radioactive source at a time; return one before using another.
4. Sources must not be handled except with tongs or similar holding tools.
5. Never look directly at the open face of a radioactive source or point it at anyone.
6. Never tamper with a radioactive source. If one appears damaged, report this immediately.
7. Never use a radioactive source in an experiment within the proximity of anyone who is not involved in the experiment.
8. When a number of students are carrying out experiments, arrange as much space as possible between yourself and the other students.
9. Do not rush when using sources, but work steadily to keep the time in which a radioactive source is out of its container to a minimum.
10. Wash your hands thoroughly when you have finished using radioactive sources.

Use of Lasers

Nature of Risks
Laser light can cause serious, potentially permanent damage to the eye and/or burning of skin. Safe working

practices must be stringently adhered to when using lasers. These working practices given below are derived

from BS EN60825:1994 which is a European standard currently in force.

Designated Areas
Lasers must never be used outside of their designated areas in labs and/or workshops without the express

permission from the Laser Safety Officer. Lasers that are dedicated to specific experiments must not be removed

from the experimental set up.

Laser Classification
1. Lasers are classified according to a safety classification given in the above standard.
2. Lasers of classification Class 3A and below will not cause permanent damage to the eye but must nevertheless be used with caution.
3. Students who intend to use lasers above Class 3A are required to attend a laser safety training course and be instructed in their operation. They will then be issued with a Risk Assessment form for each laser they intend to use. Finally, they will be required to sign a form confirming that they have received formal training as per the above and understand the working procedures.

General Working Practices

Students who use lasers of classification below Class 3A must adopt the following points of working practice:

1. Under no circumstances must intra-beam viewing (staring into the beam) occur.
2. Always ensure that the beam is terminated.
3. Always make sure you know exactly where the beam is aimed before switching on the laser or opening a shutter.
4. Avoid stray reflections of the beam.
5. Always wear the goggles or glasses (spectacles) where provided.
6. If you intend to put your hand into the beam make sure you are not wearing watches or jewellery which could reflect the beam.
7. Avoid beam paths that are at eye-level.
8. Never engage in tomfoolery or otherwise misuse lasers.
9. If you notice any unsafe practice, you must follow the procedure described in the General Requirements section of this guide. In addition, this must be reported to the Laser Safety Officer immediately.

Microwave Equipment

The advice and consent of the supervisor must be sought before using any microwave equipment.

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.