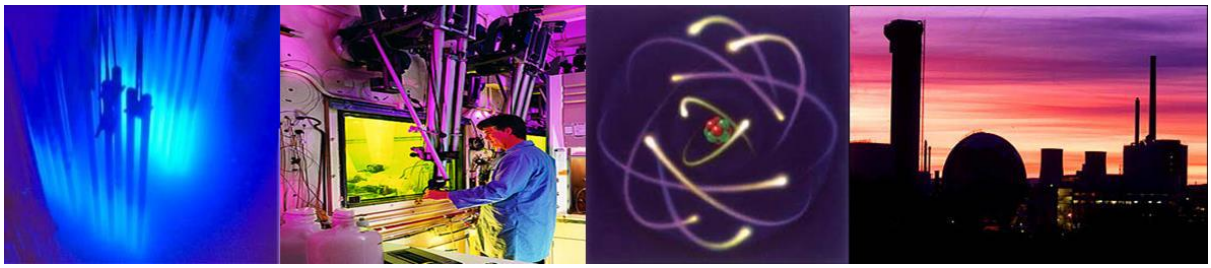
Post-Graduate Certificate in Nuclear Technology

Student Handbook



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Rev. September 2016

University of Manchester – Gen2
PG Certificate in Nuclear Technology
Student Handbook

1. INTRODUCTION

The purpose of this handbook is to provide information to students registered at the University of Manchester and undertaking the Postgraduate Certificate programme in Nuclear Technology being delivered by a partnership between the University of Manchester and Gen2. This information should be read in conjunction with the University of Manchester Ordinances and Regulations (Postgraduate Certificate) available from the University website (see below). There is related university documentation which may be useful, in particular "The Graduate Handbook – Information and Personal and Academic Development Programme for Postgraduate Students". The Programme is managed and operated in accordance with the policies, principles, regulations and procedures of the University of Manchester.

1.2 Administration and Contact Details

If you have any general queries about the course or any other administrative matters, the first person to contact is Karen Ross, the Nuclear Programmes Administrator. She will either reply directly to you or forward the question to an appropriate person.

A confidential file on each student is maintained in the course administration office and is available to the student for inspection. Each student will be asked to sign a letter at the start of the course authorising the University to send the course marks to the student's sponsor, which in this case, is taken to mean the Nucleargraduates Programme Manager.

University of Manchester (Schuster Building, Brunswick Street, Manchester, M13 9PL)

Prof Jon Billowes	Course Director j.billowes@manchester.ac.uk	0161 275 4104	Schuster 4.08
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Gen2 (ENERGUS, Blackwood Road, Lillyhall, Workington, Cumbria, CA14 4JW)

Mr John Robertson	Module Leader john.robertson@gen2.ac.uk	01900 844956

1.3 Contact by Email and Your University Email Address

When you registered you will have been given a university email account with an address of the form *firstname.lastname*@postgrad.manchester.ac.uk. **This is the only account to which the University will send information.** It is vital that you check this email account regularly (or set up forwarding to another email address) as the **University assumes that you will receive and read all email sent to this account.**

2. OVERVIEW OF PROGRAMME

2.1 Programme Aims

The aims of the Post-Graduate Certificate are to:

- Provide students with essential technical knowledge at a postgraduate level as required for a career in the nuclear industry.
- Allow students to understand the methodologies behind the design, construction, operation and decommissioning of nuclear facilities.
- Provide students with a thorough understanding of the UK nuclear industry and the roles and responsibilities of key stakeholders.
- Give students the opportunity to develop their mathematical, ITC and technical communication skills.

2.2 Intended Learning Outcomes

- Comprehend the underlying physical, chemical and engineering principles as applied in nuclear facilities.
- Describe past, present and future nuclear reactor designs and the technical challenges associated with each.
- Appreciate the legal and safety requirements of nuclear facilities and how these are implemented.
- Explain the root causes of nuclear incidents and accidents and the lessons learned from past events.

2.3 Programme Structure

There is one compulsory 15-credit module in the PG Certificate:

- NT1 - The Nuclear Industry (Partner responsible: Gen2)

Three elective modules may be selected either from the modules offered by the NTEC MSc in Nuclear Science and Technology (www.ntec.ac.uk) with the exception of N32, and from two bespoke modules for the nucleargraduates:

- NT3 - Nuclear Safety Management (Partner responsible: Gen2)
- NT4 - Nuclear Decommissioning and Waste Management Technologies (Partner responsible: Univ. of Manchester)

The programme unit aims and assessment weightings are as follows:

NT1: The Nuclear Industry
Assessment:
Assignment 50%, Exam 50%

- Describe key historical milestones in the understanding of nuclear science and the implementation of nuclear technology for military and civilian applications.
- Explain the fundamental concepts of atomic and nuclear science to the level required to provide underpinning knowledge for subsequent study of nuclear reactor and weapon technology, the nuclear fuel cycle and radiation protection.
- Explain the essential properties of ionizing radiation, describe the hazards posed by exposure to ionizing radiation, typical control measures and the regulatory basis for control.
- Describe the fission process and the neutron-induced fission chain reaction in both moderated and un-moderated systems.
- Identify the key components of a nuclear reactor core, explaining the purpose of each component and the criteria on which the selection of suitable core materials is based.
- Describe the key steps involved in the nuclear fuel cycle, with specific reference to technical processes, cost drivers, safety and environmental issues and resource sustainability.
- Describe the organisation and operation of UK civil nuclear industry with specific reference to power generating utilities, fuel cycle facilities, regulatory agencies and supply chain activities.
- Explain the drivers for nuclear new build and describe the current status of new build initiatives from a global and UK perspective.

NT3: Nuclear Safety Management
Assessment:
Pre-Course Assignment 10%, Assignment 50%, Exam 40%

- Provide a comprehensive understanding of the nuclear safety regulatory framework and how it is applied in the UK.
- Identify the relevant statutory and regulatory provisions applying to the nuclear industry.
- Critically analyse case studies involving nuclear incident and accidents, applying a structured approach to identify root causes and lessons learned.
- Describe safety management and quality assurance arrangements on a typical Nuclear Licensed Site
- Define the term 'nuclear safety culture' and establish metrics for assessing safety culture within an operating organisation.
- Establish and apply the safety principles and safety criteria used in the regulatory assessment of new nuclear plants.
- Develop a structured approach for hazard identification and analysis and fault sequence analysis for a nuclear plant.
- Develop a quantitative, mathematical model for deterministic and probabilistic risk assessment, as applied to a nuclear plant.

- Develop a model safety case for a nuclear plant to modern-day standards in accordance with regulatory expectations.

- Develop qualitative and quantitative methodologies for applying the 'As Low as Reasonably Practicable' test to nuclear risk.

NT4: Nuclear Decommissioning and Waste Management Technologies
Assessment:
Presentation 10%, Asssignment 40%, Exam 50%

- Introduce the requirements for radioactive waste to be treated in a way to ensure safe management.

- Describe methods of radiological protection and consequences of radioactive doses

- Describe the waste classifications and their implications on the waste treatment methodologies.

- Describe the various technologies used for the immobilisation of radioactive waste.

- Describe the various technologies for the long term storage or disposal of radioactive waste.

- Explain the CoRWM process to identify a viable long term strategy for the long term management of the UK's radioactive waste.

- Explain the UK decommissioning strategy as implemented by the Nuclear Decommissioning Authority.

- Describe the other options being investigated world wide

NTEC modules

N01 - Reactor Physics, Criticality & Design Syllabus
Assessment
Assignment 50%, Exam 50%

After reviewing the history of the industry, different reactor designs are considered together with an overview of their basic features. Reactor physics are examined in some depth, including nuclear physics, reactor physics, criticality and radioactive decay. Reactor control and safety, accidents and risk assessment, containment and core layout and end of life issues are reviewed, concluding with consideration of advanced reactor design.
Available as classroom based or distance learning

N03 - Radiation & Radiological Protection Syllabus
Assessment
Pre-course assignment 5%, Presentation 10%, Lab Report 15%, Assignment 25%, Exam 45%

Explains the properties of different types of radiation occurring as a result of nuclear processes and identifies means whereby levels of radiation and dosages can be detected and measured. The principles of radiation protection and shielding are outlined and demonstrated through practical experience with radioactive sources and detection equipment. The module concludes with an overview of ionizing radiation regulations and legislation governing the impact of radiation on people and the environment. The safe handling of accidents is illustrated through case studies of real incidents.
*** This module is a prerequisite for the N23 module (Radiological Environmental Impact Assessment).**

N04 - Decommissiioning, Radioactive Waste & Environmental Management Syllabus
Assessment
Assignment 50%, Exam 50%

Examines and explains the process of decommissioning and considers how the related requirements should be taken into account in plant and equipment design. It establishes the requirements of the decontamination and clean-up process. The principles of the disposal and storage of nuclear waste are identified. The module covers the environmental principles underpinning the management of nuclear waste.

N05 - Water Reactor Performance & Safety Syllabus
Assessment
Assignment 40%, Exam 60%

Water reactors are likely to be the main source of nuclear power for the foreseeable future. This module considers such reactors with particular reference to their performance and safety and commences with an understanding of water reactor hydraulics, heat transfer and fuel design. The main codes for predicting reactor safety (RELAP, TRAC, CATHARE, TRACE) will also be described as will CFD methods, the latter in the specific context of the generic commercial code, STARCD. Hands-on experience with codes is given. Finally, accidents beyond the design basis ("severe" accidents) are discussed.

*** It is strongly suggested the N12 module (Reactor Thermal Hydraulics) be taken before attempting N05.**

N06 - Reactor Materials & Lifetime Behaviour Syllabus
Assessment
Pre-Course Assignment 10%, In course test 10%, Assignment 30%, Exam 50%

This module describes the science and engineering of reactor materials, and the factors that influence the lifetime of these materials, including corrosion, environmentally-assisted fracture, and irradiation embrittlement. Other topics covered in this module include fracture mechanics and structural integrity, non-destructive evaluation techniques, as well as plant monitoring and lifetime issues. Also considered are materials specifications and fabrication processes for materials used in nuclear power systems.

N09 - Policy, Regulation & Licensing Syllabus
Assessment
Class Test 10%, Assignment 90%

The nuclear industry is one of the most heavily regulated industries in the UK. Regulatory issues necessarily impact upon the development of national policy in environmental and energy areas. This module covers the international and national legal frameworks for nuclear power and radioactive waste management including licensing issues covered by the Nuclear Installations Act, discharge authorisations under the Environmental Permitting (England and Wales) Regulations 2010, transport of radioactive material and planning for new build. The roles of the various regulatory bodies and other players are discussed. The module also addresses the role of the Nuclear Decommissioning Authority, decommissioning of nuclear facilities and UK radioactive waste management policies and national strategies. Students are introduced to basic legal principles as applied in the nuclear sector and are shown how to read case law and apply their knowledge to legal problems.

N10 - Processing, Storage & Disposal Of Nuclear Wastes Syllabus
Assessment
Pre-course Assignment 20%, Assignment 80%

Reviews the basic approaches to nuclear waste management and introduces the fundamental principles of nuclear waste processing, storage and disposal. The main types of waste and schemes for their processing and packaging are discussed highlighting cementation and vitrification immobilisation technologies

N12 - Reactor Thermal Hydraulics Syllabus
Assessment
Assignment 50%, Exam 50%

This module describes the thermal hydraulic processes involved in the transfer of power from the core to secondary systems of nuclear power plants. Fundamental calculations associated with these processes will be explained, examples set and results discussed

N21 -Geological Disposal Of Radioactive Waste Syllabus
Assessment
Assignment 1 50%, Assignment 2 50%

This module will examine historic and current UK developments in radioactive waste management and will introduce both geology and hydrogeology to the student. Shallow and deep methods of geological disposal and the multi-barrier concept will be investigated using UK and overseas case studies. Techniques of investigating the suitability of sites for geological disposal will be covered together with the correct recording methodology for soil and rock description. For both types of geological disposal the near and far-field processes will be considered; as will geohazards in relation to geological time.

This module runs every 2 years. The next year it will run is 2016/17.

N23 - Radiological Environmental Impact Assessment Syllabus
Assessment
Pre-course assignment 10%, Assignment 40%, Exam 50%

This module provides knowledge and experience in the application of methodologies used to assess the impact of routine or accidental discharges of radioactive material into the atmosphere or marine environment. The physical, chemical and radiological processes covered include atmospheric and marine dispersion, deposition, the uptake of radioactive material by humans, animals and crops and incorporation into foodstuffs. Methods are developed for assessing individual radiation dose to members of the critical group and for collective dose to the population. In order to provide further context, the module also provides a perspective on actual radioactive discharges from operating plants and discusses the regulatory framework for controlling and monitoring such discharges.

*** The N03 module (Radiation & Radiological Protection) is a prerequisite for this module.**

3. TEACHING, LEARNING AND ASSESSMENT

3.1 Requirements for the Award

For the award of the PG Certificate, a student is required to obtain an average mark of 50% or more for the taught units; and, to pass each individual taught unit after any compensation of marks, re-submissions or re-works.

The pass mark for every unit is 50%. If a mark of 40-49% is awarded for one unit (of the four units), a compensation pass may be awarded provided that the remaining three units are all passed with a mark of 50% or more and the average mark across all four units is 50% or more.

3.2 Taught units: delivery and assessment

The teaching sessions for each unit will be delivered over five consecutive week days. Teaching sessions may be in the form of lectures, workshops, laboratory practical work, site visits or computer terminal sessions. Lectures will generally be delivered by the leader of each unit, but invited specialists may give occasional 'expert' sessions. Each course unit will have a presence in Blackboard. Blackboard is a web-based system that complements and builds upon traditional learning methods used at The University of Manchester. By using Blackboard you can:

- view course materials and learning resources;
- communicate with lectures and other students;
- collaborate in groups;
- get feedback;
- submit assignments;
- monitor your own progress;

at a time and place of your own convenience. You can find up to date information about Blackboard on the University webpages at; http://www.studentnet.manchester.ac.uk/blackboard/

In addition students may be required to attend group meetings, seminars, presentations or other events.

The method of assessment varies from unit to unit and may consist of written examination, oral assessment, continuous assessment in any of a number of different forms including example sheets, the production of written reports, contribution to discussions or the presentation of seminars, or a combination of these. You can expect to work towards the assessment of the unit before, during and after the unit delivery period (usually a five-day week).

Examinations may be 'open book' or 'closed book' at the discretion of the unit leader and you will be told about these conditions in good time. Closed book exams are taken without notes of any kind. For open book exams you may take relevant notes or textbooks into the examination room. The dates of exams are published early in each semester and it is your responsibility to turn up on the date and time set out. Students must take their student card into the examination room, write their names on the examination script and fold the edge of the script over to ensure the script remains anonymous. University regulations about exams and the use of calculators are given on the university website.

Students who fail to achieve the required mark in their taught units may, at the discretion of the examination board, be allowed to undertake one additional assessment per unit (re-submission of coursework and/or resit of an examination) in units in which they achieved a mark of less than 50% to improve their mark and hence pass the unit, up to a maximum of 45 credits. However, the maximum mark to be awarded for a retaken module will be 40% on the university's transcripts and will be marked with an R for resit. These additional assessments will normally be held as soon as possible by arrangement with the programme administrator. Further details of the University website.

3.3 Penalties for late submission of assignments

You must return your assignments on time, i.e. by the deadline set by the course unit leader. ***Submissions are due by 23:59 on the submission deadline, for late submissions where prior approval has not been given, or sought, a deduction of 10% per working day, for 5 days will occur. After 5 working days, the submission will be deemed not submitted and a mark of 0 given.***

3.4 Reasons for delaying assignments or examinations

You may under certain circumstances delay submission of assignments or examinations, please contact the course administrator before the assignment submission / examination date.

Any student who feels they may need an interruption to their programme of study should contact the Nuclear Programmes Office to request the proforma for PGT Interruption (Karen.ross@manchester.ac.uk)

3.5 Coursework Advice

Presentation should be of a high standard with no spelling, typographical, grammatical or punctuation errors. Tenses should be consistent and appropriate. Notation should be consistent. There must be sensible numbering of equations, tables, figures, references and other items. Jargon must be avoided. Graphs must have sensible scales and labelled axes etcetera. The importance of clear writing in good English cannot be overstressed.

It is important that this work be described in detail so that another could repeat it, for it is unlikely to appear in such detail elsewhere. Most importantly, the reader must be able to assess the reliability of the conclusions.

Referencing Style: the module leaders prefer the numerical (Vancouver) referencing system for assignments, which is the more usual for scientific papers. The references should be numbered sequentially through the text. The numbers should be given in square brackets and one number can be used to refer to several instances of the same reference. The list of references at the end of the report should give the references in numerical order in the following formats;

- For a **book** quote: Author, Title, Publisher, (Year of Publication)
- For a **journal paper** quote: Author, Paper Title, Journal Title, Volume number, page numbers, (Year of Publication)
- For an **internet source** quote: Author, URL, (retrieval date)

3.6 Academic Malpractice

Introduction

As a student, you are expected to cooperate in the learning process throughout your programme of study by completing assignments of various kinds that are the product of your own study or research. For most students this does not present a problem, but occasionally, whether unwittingly or otherwise, a student may commit what is known as plagiarism or some other form of academic malpractice when carrying out an assignment. This may come about because students have been used to different conventions in their prior educational experience or through general ignorance of what is expected of them.

This guidance is designed to help you understand what we regard as academic malpractice and hence to help you to avoid committing it. You should read it carefully, because academic malpractice is regarded as a serious offence and students found to have committed it will be penalized. At the very

least a mark of only 30% would be awarded for the piece of work in question, but it could be worse; you could be awarded zero (with or without loss of credits), fail the whole unit, be demoted to a lower class of degree, or be excluded from the programme.

Academic malpractice includes plagiarism, collusion, fabrication or falsification of results and anything else intended by those committing it to achieve credit that they do not properly deserve. In addition to the advice that follows, your School will give you advice on how to avoid academic malpractice in the context of your discipline. It will also design assessments so as to help you avoid the temptation to commit academic malpractice. Finally, you should take note that work you submit may be screened electronically to check against other material on the web and in other submitted work.

- Students are required to take the online Academic Malpractice Course which is available on Blackboard.
- You must achieve a score of 100% to pass but you can take the quiz as many times as you need. You must also sign the self-declaration form.
- The course can be accessed here: https://online.manchester.ac.uk/webapps/blackboard/content/listContent.jsp?course_id=_42092_1&content_id=_4464811_1&mode=reset
- A help guide can be found here: https://online.manchester.ac.uk/bbcswebdav/pid-4832854-dt-content-rid-14731486_1/orgs/I3039-COMMUNITY-EPS-PHYS-NTEC-1/AM_Guide.pdf

Plagiarism

Plagiarism is presenting the ideas, work or words of other people without proper, clear and unambiguous acknowledgement. It also includes 'self-plagiarism' (which occurs where, for example, you submit work that you have presented for assessment on a previous occasion), and the submission of material from 'essay banks' (even if the authors of such material appear to be giving you permission to use it in this way). Obviously, the most blatant example of plagiarism would be to copy another student's work. Hence it is essential to make clear in your assignments the distinction between:

- the ideas and work of other people that you may have quite legitimately exploited and developed, and

- the ideas or material that you have personally contributed.

To assist you, here are a few important **do's and don'ts**:

- Do get lots of background information on subjects you are writing about to help you form your own view of the subject. The information could be from electronic journals, technical reports, unpublished dissertations, etc. Make a note of the source of every piece of information at the time you record it, even if it is just one sentence.

- Don't construct a piece of work by cutting and pasting or copying material written by other people, or by you for any other purpose, into something you are submitting as your own work. Sometimes you may need to quote someone else's exact form of words in order to analyse or criticize them, in which case the quotation must be enclosed in quotation marks to show that it is a direct quote, and it must have the source properly acknowledged at that point. Any omissions from a quotation must be indicated by an ellipsis (…) and any additions for clarity must be enclosed in square brackets, e.g. "[These] results suggest… that the hypothesis is correct." It may also be appropriate to reproduce a diagram from someone else's work, but again the source must be explicitly and fully acknowledged there. However, constructing large chunks of documents from a string of quotes, even if they are acknowledged, is another form of plagiarism.

- Do attribute all ideas to their original authors. Written 'ideas' are the product that authors produce. You would not appreciate it if other people passed off your ideas as their own, and that is what plagiarism rules are intended to prevent. A good rule of thumb is that each idea or statement that you write should be attributed to a source unless it is your personal idea or it is common knowledge. (If you are unsure if something is common knowledge, ask other students: if they don't know what you are talking about, then it is not common knowledge!)

As you can see, it is most important that you understand what is expected of you when you prepare and produce assignments and that you always observe proper academic conventions for referencing and acknowledgement, whether working by yourself or as part of a team. In practice, there are a number of acceptable styles of referencing depending, for example, on the particular discipline you are studying, so if you are not certain what is appropriate, ask your tutor or the course unit coordinator for advice! This should ensure that you do not lay yourself open to a charge of plagiarism inadvertently, or through ignorance of what is expected. It is also important to remember that you do not absolve yourself from a charge of plagiarism simply by including a reference to a source in a bibliography that you have included with your assignment; you should always be scrupulous about indicating precisely where and to what extent you have made use of such a source.

So far, plagiarism has been described as using the words or work of someone else (without proper attribution), but it could also include a close paraphrase of their words, or a minimally adapted version of a computer program, a diagram, a graph, an illustration, etc taken from a variety of sources without proper acknowledgement. These could be lectures, printed material, the Internet or other electronic/AV sources.

Remember: no matter what pressure you may be under to complete an assignment, you should never succumb to the temptation to take a 'short cut' and use someone else's material inappropriately. No amount of mitigating circumstances will get you off the hook, and if you persuade other students to let you copy their work, they risk being disciplined as well (see below). **If you reference other people's work it must be acknowledged clearly.**

Here are some simple examples for which you need a reference:

1. Direct quotation from a book or article or the web.

2. When reporting **someone else's views** but writing them in your own words.

3. When using **someone else's work** to back one or your claims.

If in doubt, it is always better to quote the reference

Collusion

Collusion is any agreement to hide someone else's individual input to collaborative work with the intention of securing a mark higher than either you or another student might deserve. Where proved, it will be subject to penalties similar to those for plagiarism. Similarly, it is also collusion to allow someone to copy your work when you know that they intend to submit it as though it were their own and that will lay both you and the other student open to a charge of academic malpractice.

On the other hand, collaboration is a perfectly legitimate academic activity in which students are required to work in groups as part of their programme of research or in the preparation of projects and similar assignments. If you are asked to carry out such group work and to collaborate in specified activities, it will always be made clear how your individual input to the joint work is to be assessed and graded. Sometimes, for example, all members of a team may receive the same mark for a joint piece of work, whereas on other occasions team members will receive individual marks that reflect their individual input. If it is not clear on what basis your work is to be assessed, to avoid any risk of unwitting collusion you should always ask for clarification before submitting any assignment.

Fabrication or falsification of results

For many students, a major part of their studies involves laboratory or other forms of practical work, and they often find themselves undertaking such activity without close academic supervision. If you are in this situation, you are expected to behave in a responsible manner, as in other aspects of your academic life, and to show proper integrity in the reporting of results or other data. Hence you should ensure that you always document clearly and fully any research programme or survey that you undertake, whether working by yourself or as part of a group. Results or data that you or your group submit must be capable of verification, so that those assessing the work can follow the processes by which you obtained them. Under no circumstances should you seek to present results or data that were not properly obtained and documented as part of your practical learning experience. Otherwise, you lay yourself open to the charge of **fabrication** or **falsification** of results.

Finally…

If you commit any form of academic malpractice, teaching staff will not be able to assess your individual abilities objectively or accurately. Any short-term gain you might have hoped to achieve will be cancelled out by the loss of proper feedback you might have received, and in the long run such behaviour is likely to damage your overall intellectual development, to say nothing of your self-esteem. You are the one who loses.

3.7 Appeals Procedure

In the event that a student wishes to appeal against a mark, grading or a decision on progression, it is important that the appeal is made to the Academic Programme Director in writing (or e-mail) as soon as possible. A copy of any supporting documentation (not the original) should be supplied. The postgraduate committee undertakes to consider and deal with appeals on the grounds of bias, prejudice or inadequate assessments as set out in the University Regulations promptly. The decision on the appeal will be notified to the student by the Academic Director. Thereafter, if the student wishes to take the matter further, the Academic Director will refer the circumstances to the Director of Postgraduate Studies and the Head of School who may deal with the matter within the School or advise the student to contact the Faculty. Guidance on appeals may be found at the website below.

3.8 Complaints

For information about the students' complaint procedure and a downloadable form, see the university website.

http://www.tlso.manchester.ac.uk/map/studentsupportdevelopment/communication/studentcomplaintsandappeals/

4. STUDENT SUPPORT AND GUIDANCE

4.1 Academic support

The unit leader on each unit will act as your tutor for that unit. In addition the Course Director will take a direct interest in the performance of all students and your welfare and progress will be continually monitored through your marks and informal meetings. We keep records of individual students so that any issues can be noted.**4.2 Maths, Physics and Nuclear Engineering Refresher Material**

Pre-course notes on mathematics, physics, nuclear physics and nuclear engineering are provided on the NTEC website at www.ntec.ac.uk . Please make use of this facility.

4.3 John Rylands University Library http://www.library.manchester.ac.uk/

Students will be issued a library card when they join. The University Membership / Library Card (swipe card) is an important document and should be kept safe. Replacement cards, for which a fee is payable, are available from the Student Record Office.

See the website for the electronic resources and e-Journals. Books from the main library can be borrowed for four weeks. There is also a Short Loan section for the most popular books which can be kept for a limited period. Overdue books incur heavy fines and students may not be admitted to a degree, diploma or certificate of the University unless all books borrowed from the University Library have been returned.

4.4 Support Services for Modules delivered by Gen2

Modules taught by Gen2may be delivered either at the University or at the Gen2 training centre located in the Energus Building, near Workington, Cumbria CA14 4JW. For modules taught in Energus, students will have 24-hour access to (i) the GEN II Learning Centre which includes a small engineering library and a fully-equipped computing suite with internet access (iii) free wifi access to the internet throughout the building (iii) the Gen2 Virtual Learning Environment (VLE) which provides access to learning resources specifically selected to support the Gen2 taught modules.

4.5 Student responsibilities

The School should be notified, via the Postgraduate Administrator, of any changes of address or personal circumstances. Both the Postgraduate Director and Postgraduate Administrator should be informed of any illnesses or other circumstances which might affect a student's attendance or work. All students have 'open door' access to the programme director and teaching fellow who are both willing to act as your personal tutor in order to help you with any difficulties you may have, for example if you fall behind with your work or are ill. We recognise that this programme is demanding on your time and is not always easy.

Each unit normally runs for five consecutive week days over the hours of 9 am to 5 pm. Attendance at all timetabled sessions of the units for which the student has registered is a requirement. It is crucial that postgraduate students attend regularly and maintain a continuous dialogue with their course tutors and supervisors.

4.6 Student Feedback and Representation

Questionnaires are circulated to all students who attend lectures providing the opportunity for the units to be rated according to a number of criteria on scale that ranges from well above average to well below average. These responses are used as part of our process of continual improvement and are very important to the future of the programme. Students are also encouraged to discuss matters of concern with their supervisors, advisors or with the School's PG Mentor.

4.7 Health and Safety http://www.manchester.ac.uk/healthandsafety

Students will be given documents describing the health and safety polices when they join. We attach great importance to safe working and to our emergency procedures in case of fire etc. Please ensure you know about the position of fire exits etc. and read the information you are given.

- Students are required to take the online Health and Safety Course which is available on Blackboard.
- All tests are compulsory and you must achieve a mark of at least 70% in each module to pass. You can view your scores in the 'My Grades' tool in the left hand menu in Blackboard.
- The course can be accessed here: https://online.manchester.ac.uk/webapps/blackboard/content/listContent.jsp?course_id=_42092_1&content_id=_4480994_1&mode=reset
- A help guide can be found here: https://online.manchester.ac.uk/bbcswebdav/pid-4832855-dt-content-rid-14731487_1/orgs/I3039-COMMUNITY-EPS-PHYS-NTEC-1/HS_Guide.pdf

4.8 No smoking policy

The University does not permit smoking in any of its buildings.