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TUOLE the leading international designer and developer of engineering and technology open learning programmes, has one of the largest portfolios of accredited open learning programmes serving the engineering and process industries worldwide. TUOLE formerly COLU has been operational for 25 years and since 2002 has been part of Teesside University School of Science and Engineering. Our HNC programmes are accredited under licence from Edexcel. Registration for HNC programmes lasts for 5 years and you are expected to complete your programmes within this time period. It is also important that you realise that open learning study requires a considerable degree of self-discipline. You must be prepared to devote both time and effort to studying notwithstanding other distractions that may be present.

“Excellent course materials. Excellent tutor support. Very prompt marking of assessments with detailed feedback”

Programme Structure

One of the benefits of distance learning is that you can start a programme at any time that suits you and progress at a pace that suits you and your personal circumstances. Your programme leader will suggest guidelines to help you manage your time effectively. This will be agreed and formalised by a programme learning agreement at the start of your study. The HNC programmes are divided into modules some of which are core (essential) and some electives (your choice). Your programme leader will help with advice and guidance in your choice of options. Students are able to commence study at any time in the year. Each module is worth a set number of credits and is specified as either level 4 or level 5. Modules are studied consecutively starting with the core modules at level four.

Elective modules can be studied in any order, as there are no prerequisites they are chosen by the student with guidance from programme leader. Students are able to focus on particular areas of interest in their choice of electives, allowing the programme to relate specifically to their own experience and industrial expertise.

For an HNC you must complete a minimum of 125 credits including the core modules with a maximum of 50 credits at level 5. In practice this means that, as there are a number of core Level 5 modules, only one additional level 5 elective can be chosen.

This may seem confusing but your programme leader will be able to help with any questions you may have.

<table>
<thead>
<tr>
<th>Core modules</th>
<th>Level</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical Methods for Engineers</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Petroleum Production Engineering</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Project</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Petroleum Processing Engineering</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elective modules</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application of Pneumatics and Hydraulics</td>
<td>4</td>
</tr>
<tr>
<td>Engineering Applications</td>
<td>4</td>
</tr>
<tr>
<td>Distributed Control Systems</td>
<td>4</td>
</tr>
<tr>
<td>Heat Transfer &amp; Combustion</td>
<td>4</td>
</tr>
<tr>
<td>Analytical Instrumentation</td>
<td>4</td>
</tr>
<tr>
<td>Measurement of Process Variables</td>
<td>4</td>
</tr>
<tr>
<td>Petroleum Facilities Emergency Shutdown Systems</td>
<td>4</td>
</tr>
<tr>
<td>Mass Transfer Operations</td>
<td>5</td>
</tr>
<tr>
<td>Business Management Techniques</td>
<td>5</td>
</tr>
<tr>
<td>Petroleum Refinery Engineering</td>
<td>5</td>
</tr>
<tr>
<td>Engineering Design</td>
<td>5</td>
</tr>
<tr>
<td>Instrumentation and Control Principles</td>
<td>5</td>
</tr>
<tr>
<td>Control Systems and Automation</td>
<td>5</td>
</tr>
<tr>
<td>Safety Engineering</td>
<td>5</td>
</tr>
</tbody>
</table>

*some modules are subject to availability

The programme learning outcomes are provided in Appendix 1.
Typical programme structure for an HNC in Petroleum Engineering

<table>
<thead>
<tr>
<th>Year</th>
<th>Module title</th>
<th>Credits</th>
<th>Module title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analytical Methods for Engineers</td>
<td>15</td>
<td>Petroleum Production Engineering</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Level 4 Core</td>
<td></td>
<td>Level 4 Core</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Heat Transfer and Combustion</td>
<td>15</td>
<td>Engineering Applications</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Level 4 Elective</td>
<td></td>
<td>Level 4 Elective</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Applications of Pneumatics and Hydraulics</td>
<td>15</td>
<td>Petroleum Facilities Emergency Shutdown</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Level 4 Elective</td>
<td></td>
<td>Level 4 Elective</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Petroleum Processing Engineering</td>
<td>15</td>
<td>Project *</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Level 5 Core</td>
<td></td>
<td>Level 5 Core</td>
<td></td>
</tr>
</tbody>
</table>

* The Project module has been designed to allow the students the opportunity to use the knowledge and skills they have acquired throughout the programme alongside their own experience.

This example structure allows for a student completing two modules per year. As a flexible open learning student you can work at your own pace and complete more or less modules, although less than two modules per year will impact on your completion of the programme within the five year registration period.
On completion of the HNC you may wish to progress on to the HND programme, a typical programme structure is given below:

### Typical programme structure for an HND in Petroleum Engineering, as a top up from HNC in Petroleum Engineering

<table>
<thead>
<tr>
<th>Year</th>
<th>Module title</th>
<th>Credit</th>
<th>Module title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Analytical Instrumentation</td>
<td>15</td>
<td>Measurement of Process Variables</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level 4 Elective</td>
<td></td>
<td>Level 4 Elective</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Mass Transfer Operations</td>
<td>15</td>
<td>Petroleum Refinery Engineering</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level 5 Elective</td>
<td></td>
<td>Level 5 Elective</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Safety Engineering</td>
<td>15</td>
<td>Control Systems and Automation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level 5 Elective</td>
<td></td>
<td>Level 5 Elective</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Business Management Techniques</td>
<td>15</td>
<td>Engineering Design</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level 5 Elective</td>
<td></td>
<td>Level 5 Elective</td>
<td>15</td>
</tr>
</tbody>
</table>

An HND programme consists of 16 modules of which a minimum of 8 modules must be at level 5, these may include level 5 modules completed within the HNC programme.
Programme leader contacts student to discuss any questions with regards to:

- module choices
- school regulations (academic misconduct)
- assessment schedules, resubmission and grading
- learning agreements

Student purchases module.
Admin staff will inform appropriate module tutor

Module tutor will contact students and negotiate learning agreement for module including timescales for assessment submission and completion. Module tutor will guide student through blackboard site

Module tutor and student to have regular contact monitored via the blackboard site. The Learning agreement can be re-negotiated if and when necessary
An exit interview with the student and module tutor will be conducted on completion of the module

This process will continue until student has completed all modules necessary for completion of the award.

On completion of module student will be contacted by programme leader. The programme leader will monitor students progress through modules.

On completion of the award programme leader will contact student to discuss progression routes available.
Study packs

You are provided with a self-contained comprehensive study pack for each of the specifically designed modules from the School of Science and Engineering open learning unit. Each module consists of a folder or folders containing a series of lessons grouped into topics. Each lesson has an introduction, your aims, study advice, self-assessment questions and a summary.

While open learning means you study at your own pace, many people find it difficult to develop a ‘habit of study’ because of the self-discipline needed. To help you overcome this and achieve your long term aim of completing the programme within a realistic timescale, we will suggest a study schedule. This will be agreed and formalised by a programme learning agreement at the start of your study.

In addition to this your programme and module leader will keep in regular contact with you. You are encouraged to remember your programme and module leaders are there for guidance and support. Don’t hesitate to ask for help. Your programme and module tutors can be contacted by a variety of means: the e-learning site, email, telephone, fax or (by prior arrangement) a face to face visit.

As you work through each lesson there will be self-assessment questions and answers to help check your learning. At set points in the study pack you will be advised that you are ready to complete an assessment.

It is your responsibility to request assessments when you think you are ready to attempt them. When you have completed your assessment you can submit it electronically via the e-learning site.

A short description of the content of each module is given in the following pages, please contact the module tutor for a more in depth discussion. The full list of module leaders is provided in Appendix 3

Learning agreement

For each module your module tutor will contact you to negotiate a learning agreement. A learning agreement is a short statement in writing which specifies the “contract” between a learner and their tutor. It should outline what is to be learned, specify the intended period over which that learning will take place and the time and the method of assessment. The use of a learning agreement encourages you to take responsibility for your own learning and in particular you will be asked to set deadlines for the completion of assessments so that we can more easily monitor your progress through the module and offer assistance in a more timely fashion.

The learning agreement will be regularly monitored by the module tutor this will ensure that the module leader and programme leader are able to monitor your progress and allow for early intervention if you are having difficulties.

E-learning@tees

All modules are supported by the e-learning@tees.ac.uk site. The site will include a range of material relevant to the module, such as the module handbook, electronic versions of study packs and a discussion forum. e-learning@tees.ac.uk will also host links to useful websites and on-line documents, information on emerging engineering issues in the press and engineering journals. The VLE (Blackboard) offers many opportunities for student-to-student and student-to-staff interaction (such as discussion boards, wikis, blogs, a virtual whiteboard and a live chat facility).

How to succeed in your Studies

Develop the Habit of Learning

The open learning programmes we offer have been developed over many years to enable you to continue your training without the constraints of fixed times and places. You are in control of your learning but to be effective you need to:

- Develop a ‘habit of study’
- Have a place to work
- Set aside times when you will not be interrupted
- Produce a regular output of written work
- Organise your books and notes
- Regularly check your targets against your learning agreement
- Maintain regular contact your module tutor and programme leader

Getting organised for study

While open learning means you study at your own pace, many people find it difficult to develop a ‘habit of study’ because of the self-discipline needed. To overcome this and achieve your long term aim of completing a module within a
realistic timescale, we will help you to decide on a study schedule.

Your main work involves completing lessons including the self-assessment questions at the end of each lesson. The module is made up of a series of topics composed of a number of lessons.

All lessons have common features:
The introduction or overview of the lesson
Your aims tell you what you should have achieved when you have completed the lesson. They provide learning objectives that are worthwhile referring to while you are working through the lesson.
Study advice helps you plan your work strategy by pointing out any special resources needed or unusual time requirements.
Self-assessment questions enable you to check your progress and find out if you have achieved your objectives. Solutions or answers are provided but you will not help your learning if you look at the answers before you attempt the questions.
The summary reinforces what you have completed and generally provides a quick reference to the contents of the lesson

Remember if at any point in your study you feel that you need help you can contact the academic tutors who are not only subject specialists, but who also have experience and expertise in flexible open learning study.
Students are able to access tutor support on-line, via email, telephone or fax. Students who are in the locality can with prior arrangement meet the tutors face to face.

You will be expected to maintain regular contact with your module tutor and your programme leader.

Note: Students who appear to have dropped out of the course for an extended period of time may be withdrawn from the course.

Brief descriptions of the core and elective modules are provided below
Level 4 Modules

This level of study provides the foundation for the development of knowledge, skills and confidence for the successful progression through the programme.

Core modules

Analytical Methods for Engineers (15 credits): The aim of this module is to provide the fundamental analytical knowledge and techniques needed to successfully complete the core modules of Higher National Engineering programmes. It is also intended as a base for the further study of analytical methods and mathematics, needed for the more advanced option modules. This module has been designed to enable students to use fundamental algebra, trigonometry, calculus, statistics and probability, for the analysis, modelling and solution of realistic engineering problems at Higher National level.

Petroleum Production Engineering (15 credits): This module applies physical principles and engineering techniques to evaluate the properties of the underground formation which will help to establish the existence of oil and gas beneath the earth’s surface. The module looks at how different properties affect production in oil and gas wells, and explains the technologies used for drilling, well completion and testing, and operation and control for the extraction of the reservoir fluids.

Elective modules

These modules allow you to tailor your HNC programme to focus on particular areas of interest or area relating to your current or future employment.

Engineering Applications (15 credits): In this module students identify individual tasks, activities, or programmes of work, whether administrative, theoretical, practical or supervisory, that they have undertaken as part of their daily working lives and show how those activities have contributed to their professional engineering development. In so doing the module requires that the student document key aspect of the development to date and to critically appraise their career journey, identifying areas of their experience that may be under-developed and producing an action plan for their ongoing professional development.

Applications of Pneumatics and Hydraulics (15 credits): This module will provide students with a knowledge and understanding of fluid power systems in modern industry by investigating pneumatic and hydraulic diagrams, examining the characteristics of components and equipment, and evaluating the applications of pneumatics and hydraulics.

Distributed Control Systems (15 credits): The aim of this module is to investigate Distributed Control System concepts and their applications in engineering. It focuses on the design characteristics and internal architecture of Distributed Control Systems and how they interact.

Petroleum Facilities Emergency Shutdown (15 credits): This module covers in detail petroleum production installations and refinery units’ emergency shutdowns (ESD), focussing on their causes and levels, isolation and reinstatement of plant and the associated effects of utilities failure.
Heat Transfer and Combustion (15 credits): This module is intended to develop students’ knowledge of principles and empirical relationships to enable them to solve practical problems involving heat transfer, combustion and the specification of practical engineering equipment.

Measurement of Process Variables (15 credits): Level, pressure, flow and temperature are the most common industrial process variables and the aim of this module is to provide an understanding of the principles of measurement of these variables and describe the associated measuring systems and instruments.

Level 5 Modules

This level of study consolidates learning and enables students to start increasing the breadth and depth of their knowledge. These modules include the skills and knowledge required to deal with advanced design processes, as well as developing the students’ analytical and investigative skills.

Core modules

Petroleum Processing Engineering (15 credits): This module covers the engineering principles and techniques applied in the separation of petroleum wellhead fluids. This will include the application and operation of equipment used for crude oil treatment, natural gas treatment, transportation of gases and liquids and their storage. Detailed studies of processes and systems used for the processing of oil and gas for commercial markets.

Project (20 credits): This module presents the opportunity for students to use the knowledge and skills they have developed at work and in their programme of studies, in the definition, management and completion of a work-related project, including the presentation of their findings to an appropriate audience. The module thereby aims to integrate the skills and knowledge developed in other modules of the course within a major piece of work that reflects the type of performance expected of a higher technician at work. The student is advised to study this module until last and is advised to use a ‘real’ project based on their own workplace where this is possible.

Elective modules

Mass Transfer Operations (15 credits): This module enables the student to develop an understanding of basic theories of mass transfer and phase equilibria and to be able to specify and design equipment for mass transfer operations such as distillation, gas absorption, liquid extraction and leaching processes.

Petroleum Refinery Engineering (15 credits): This module covers in detail the refinery processes, systems and equipment pertinent to turn crude oil into fuels and other products by separation, conversion and treatment. The application and operating principles for distillation, cracking, treating and blending are covered in detail.

Instrumentation and Control Principles (15 credits): This module establishes the principles of instrumentation and control. It follows in detail the generation of a signal from the process variable via a range of possible transducers, its subsequent conditioning and transmission and final presentation to an output actuator or valve. The module also
analyses control systems and the techniques used in process
loop tuning.

**Safety Engineering (15 Credits):** This module covers the
fundamentals of contemporary Safety Engineering as applied
to industrial processes. It consists of an introduction to the
terminology, the nature and treatment of hazards, hazard
analysis, risk assessment, emergency procedures and the
application of protective measures associated with various
hazards. The main aims of the module are to provide a firm
foundation for work in Safety Engineering and to act a basis
for more advanced studies of safety practices.

**Control Systems and Automation (15 credits):** This
module develops an understanding of basic mechanisms and
performance measures used for the implementation and
analysis of process control systems that apply across the
engineering disciplines.

**Business Management Techniques (15 credits):** The
aims of the module are to provide an introduction to the role,
principles and application of management accounting in the
planning, decision making and control of engineering
projects, and to develop an awareness of the needs of
project planning and scheduling; to develop numerical skills
in the context of management accounting and to be able to
communicate quantitative and qualitative information in a
variety of contexts.

**Engineering Design (15 credits):** This module gives
students an opportunity to experience the process of carrying
out a design project and the production of a design report
containing specifications in accordance with given customer
requirements. A key aim of the module will be to enable
students to appreciate that design involves synthesising
parameters which affect the eventual design solution.

**Useful Websites**

Mathematics resources
www.mathcentre.ac.uk

British Standards education
www.bsieducation.org

Institute of Engineering and technology
www.theiet.org

HSE: Information about health and safety at work
www.hse.gov.uk

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**Academic Staff & Profiles**

**Programme Leader:**
**Dr. Maqsood Ahmed:** Maqsood is the Programme
Leader for HNC/HND Petroleum/Chemical Engineering.
After gaining his PhD in 1983 from Swansea University, Maqsood taught at
the Bright Star University in Libya and later at Leeds University in the UK. After
this period in academia, Maqsood moved into the Oil and Gas Industry
where he worked extensively from 1991 to 2000 with Sirte Oil
Company, Libya, followed by 7 years with C-Mist, Edinburgh,
UK based Oil and Gas Consultancy Company and Petrofac,
Aberdeen. During this time Maqsood was responsible for
preparing Training and Operational manuals pertinent to Oil
and Gas Production, Processing, Refining and on the job
training, worked on Training and Development projects for
BP and developed a range of Technical and Operational
Training materials to meet the requirements of professionals
working in an offshore Oil Industry as well as providing
Training and Competence assessment services to numerous
Offshore Oil Companies, Maqsood joined Teesside
University in 2009, having worked over 19 years in the oilfield
industry.

Rm: IC2.01  |  01642 384444
e: M.Ahmed@tees.ac.uk

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**Module Leaders**

**David Peel:** David Peel is the Program
leader for HNC/D Chemical Engineering. He completed his
degree and doctorate in Chemical Engineering at Newcastle
University before working in post doctoral research positions
in advanced process control at both Newcastle and Oxford
University. David joined Teesside University as senior
lecturer in Chemical Engineering where he initially stayed for
7 years. Since then he has worked for over a decade in
automation R&D and as a consultant to the power industry in
the UK and US. David recently returned to teaching and
spends part of his time teaching within the mainstream
University and part of his time supporting the chemical
engineering and process engineering courses in the
University’s distance learning unit.

Rm: IC2.01  |  01642 342731

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**Derek Casson:** Derek Casson is the Programme Leader for HNC/D Instrumentation and Control Engineering and Instrumentation and Control. Derek worked in the telecommunication industry prior to becoming a lecturer in engineering. He gained a HND in Electrical & Electronic Engineering from Leicester Polytechnic and a Certificate of Education from Huddersfield Polytechnic. He also gained a BA (Hons) from the Open University.

**Rm:** IC2.01  ☎ 01642 342526  
**e:** D.Casson@tees.ac.uk

**Julie Winter:** Julie joined the University from Darlington College, having worked within the telecommunications industry for 10 years prior to entering the education sector. Julie graduated from Salford University with a degree in Electroacoustics prior to completing an MPhil at Cambridge University in Computer Speech & Language Processing.

**Rm:** IC2.01  ☎ 01642 342700  
**e:** J.Winter@tees.ac.uk

**David Craddock:** David Craddock is the Programme Leader for HNC/D Mechanical Engineering. He gained a BSc (Hons) in Mechanical Engineering from Newcastle Polytechnic and has worked as both production and design engineer. David has a Post Graduate Certificate and an MA in Education. Between periods teaching engineering in the UK he has worked on technical education projects in Bangladesh, Cambodia and Kiribati. David developed an interest in distance education before joining the university as an open learning author and tutor.

**Rm:** IC2.01  ☎ 01642 342559  
**e:** D.Craddock@tees.ac.uk

**Chris Hoggarth:** Chris is the director of TUOLE, he is also the module leader for Engineering Applications, appointed Director in 2008. Chris’s working background has been in military aircraft engineering, engineering materials research, recruitment, IT test systems development, project and consultancy management. A graduate of Sheffield University in Metallurgy

**Rm:** IC2.01  ☎ 01642 342450  
**e:** C.Hoggarth@tees.ac.uk

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**Student Destinations & Profiles**

**Rajendra Khadilkar** “I’m very pleased by the academic level of studying. I feel that I have acquired useful technical knowledge and skills during my study.” Raj did his further study in BEng (Hons) at Sunderland and works as offshore maintenance planner in the Oil and Gas industry.

**Paul Falconer** “The training that I received from Teesside university (COLU) has given me the experience and knowledge needed to progress in my career as an instrumentation and control systems design engineer. The qualifications gained at the university can provide good employment opportunities and the possibility of further education.” Paul is a control systems design engineer working within the petrochemical industry for an Engineering, Procurement and Construction (EPC) contractor, MWKL.

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**Assessments**

Assessment is key to learning. There is much more to assessment than just giving you a mark for a piece of work. Well-designed assessment helps both you and your tutors understand how well you are progressing, and in what areas you may need additional support.

There are two main classes of assessment, formative and summative.

**Formative assessment** takes the form of the self-assessment questions within the study packs, these are intended to provide feedback for students. If you are unsure of these questions you can contact your tutor for feedback and guidance. The self-assessment questions are designed to help the learner understand his or her strengths and weaknesses. These formative assessment questions are very important. Understanding where you are in the context of understanding the subject is vital to success.

**Summative assessment** is graded, and contributes to the overall module grade. This includes traditional forms of assessment such as short answer problem solving questions, essays, practical exercises and reports.
Each module handbook will include a detailed description of the assessments associated with that module. This will include information about the form and length of the assessment for example a 1000 word essay.

Assessment Submission
Most assessments are submitted electronically, via the e-learning site, assessments are logged in and out of the system. If your work environment precludes this then separate arrangements will be made as part of your learning agreement. You are advised to keep a copy of your assessment prior to submission so you have a copy for your own review at a later date.

Guidelines for Assessment Format
Guidance on the production of standard assessment types are given below.

Essay/literature review-based reports
The essay must be written in clear and concise English, normally in the past tense, and should comprise: (a) Title; (b) Summary; (c) Introduction; (d) Main Body of Text; (e) Discussion with Conclusions if appropriate; (f) References.

Practical-based reports
The report must be written in clear and concise English, normally in the past tense, and should comprise: (a) Title; (b) Summary; (c) Introduction; (d) Methods; (e) Results; (f) Discussion with Conclusions if appropriate; (g) References.

Guidelines on Referencing & Citation
References are those books and journal articles which you have consulted and made direct use of the material contained in them to generate your submission. When you write an academic piece of work (essay, practical report etc), you must acknowledge all your sources. This is done by citing of them in the main body of your text and listing the full details at the end of the report under the heading References.

Correct referencing and citation ensures you acknowledge the work done by others. Referencing and citation is vital in all your written work because of the University’s strict rules on plagiarism. References should provide sufficient information so that the reader can find your source material with ease. Scientific books and journals are the preferred sources of information, since they are edited and reviewed prior to publication. Web sites, although useful, should be treated with caution, since they do not necessarily go through the same review and editorial processes as journals and books.

For modules delivered by the School of Science & Engineering you are required to use the Harvard System unless the module specification states otherwise. You will be given clear guidance if you are expected to use alternative referencing systems.

Format of Reference Section
References should appear in a single list, irrespective of their source, at the end of the report or essay. This section should be titled References. References in the list must be given in alphabetical order, except for papers with three or more authors, which should be listed in chronological order after any other papers by the first author. References must include the title of the paper as well as both initial and final page numbers. Titles of journals should be provided in full No stops should be used after abbreviated words.

References to books should include year of publication, title (in full), edition, editor(s) (if any), town of publication and publisher, in that order. When the reference is to a particular part of a book, the inclusive page numbers and, if appropriate, chapter title must be given.

Sample reference to a whole book:

Sample reference to a book chapter or section:

Abbreviations, Units & other details:
Abbreviations should be defined at first mention in both Summary and main text.

Feedback and Marks
As part of the marking process, your assessment will be initially graded by one member of the module team, and then second marked by a second team member. At this point a provisional grade and feedback will be agreed. Please note the following:

“This feedback is being given for purposes of advice and guidance and to assist your learning and development in this module. References to standards or grades are entirely provisional and subject to confirmation following University procedures. Only University Assessment Boards are able to issue confirmed, definite grades.”

Feedback is usually in the form of individual feedback sheets. These will be completed by staff during their assessment of your work.
Feedback and grade will normally be provided within four working weeks of submission.

The marking criteria are provided in the appendix 4.

Mitigating Circumstances
It is the student's responsibility to complete the appropriate proforma (and to notify the programme leader where appropriate) if he/she considers that there are any mitigating circumstances affecting their performance in assessments.

The University Procedure for Mitigating Circumstances can be found at [http://www.tees.ac.uk/docs/DocRepo/Student%20Regulations/Academic%20Regulations/Mitigating%20Circumstances%20Regulations.doc](http://www.tees.ac.uk/docs/DocRepo/Student%20Regulations/Academic%20Regulations/Mitigating%20Circumstances%20Regulations.doc)

Mitigating Circumstances pro formas can be obtained from your programme tutor and the completed forms, plus any supporting evidence, should be returned to the Senior School Administrator (or her nominee) who will issue a receipt to the student.

Illness – Any form of illness or injury which coincides with, or predates, the submission date of an assignment must be supported by written medical evidence. This could constitute either a medical certificate or written communication from a GP. **Illness or injury as an excuse will not be considered without such evidence.**

Personal Circumstances – In this case ongoing personal or family circumstances which are likely to affect assignment submission, programme leaders should be informed well in advance of any deadlines. The University has a number of Student Counsellors whom students may see by appointment. The Students, Union also provides Counselling Service for students who wish to contact them and may provide confidential letters of support that would be considered by the Mitigating Circumstances Board. **The onus is on the student to make contact with someone appropriate.** Documentary evidence will be required to support the claim.

Assessment Review (appeal)
If you feel that you have been disadvantaged in some way through the assessment process which adversely affects your award / grade, then an opportunity is available for you to make an application for assessment review. Copies of the procedure and the necessary documentation can be obtained from the School of Science & Engineering Administration Office or via the Student Ombudsman Office.

**Academic Misconduct**
What follows is only a brief summary of the University’s Academic Misconduct procedure and should be read in conjunction with the Regulations relating to Academic Misconduct (Taught Components and Programmes) available at: [www.tees.ac.uk/docs/index.cfm?folder=student%20regulations&name=Academic%20Regulations](http://www.tees.ac.uk/docs/index.cfm?folder=student%20regulations&name=Academic%20Regulations)

You are strongly recommended to read those Regulations. They provide a detailed explanation of academic misconduct, the procedures which must be followed when an academic misconduct offence is suspected and the possible penalties.

In order to avoid academic misconduct, the University is committed to continually educating its students on how to develop good academic practice and writing skills. The following support is available and it is recommended that you take advantage of this:

- Advice and guidance from The Link based in the Students’ Union and/or Student Services - [http://www.utsu.org.uk/thelink/content/117945/advice/](http://www.utsu.org.uk/thelink/content/117945/advice/)
- Drop in Student Skills Centre (DISSC), where academic tutors provide writing and study skills support - [http://dissc.tees.ac.uk/](http://dissc.tees.ac.uk/)
- Facility for students and staff to use plagiarism detection software
- Briefings on academic misconduct provided at student induction events and during relevant modules

Academic misconduct is defined by the University as any activity or attempted activity which gives an unfair advantage to one or more students over their peers and is treated very seriously.

To ensure that students are treated fairly and equitably, academic misconduct is divided into the following three types:

1. **Academic Negligence:** This is regarded as the least serious offence and covers first time minor offences. It includes plagiarism that is small in scale, not related to the work of other students, and which is considered to have resulted from ignorance or carelessness.

2. **Academic Malpractice:** This covers extensive paraphrasing of material with no acknowledgement of the source, systematic failure to reference, submitting work which has already been submitted.
for another assignment, and subsequent cases of Academic Negligence.

3. Academic Cheating: This is regarded as the most serious offence and covers Plagiarism in dissertations/final year projects/taught doctorate modules, collusion with other students, theft, commissioning/purchasing work, falsification of results/data, and all examination irregularities.

If suspected of academic misconduct, you will be required to attend either an informal or formal meeting and if subsequently found guilty, you will receive a penalty, the most serious of which can be exclusion from the University. The processes and penalties are described in Appendix 2 of the Regulations. If you are found guilty of academic misconduct after the end of your course, any award that you have received may be withdrawn. This can be done after you have graduated.

The University has an Exceptional Cases Procedure, which can be used when it is suspected that a piece of work submitted by a student is not their own work. You could be interviewed to determine the authorship of work. You are therefore strongly advised to retain materials used in developing work.

The following tips may help you to avoid academic misconduct:

**Do:**
- Familiarise yourself with the regulations and penalties that can be incurred. For professional programmes, a single case of academic misconduct may result in you being discontinued from your course.
- Make sure that you know how to correctly acknowledge other people’s work or opinions, and get feedback from your Tutor on whether or not you are doing this correctly.
- Take care when making notes from books or articles. Always keep a record of whether your notes are a paraphrase of the source or a direct quotation, so that you don’t inadvertently include quotes without proper acknowledgement. [This is a frequently cited reason students give when accused of academic misconduct.]
- Seek support from your module or programme Leader if you are experiencing difficulties in completing your work on time.

**Don’t:**
- Cut and paste (or reproduce) chunks of material from electronic sources or books/articles. *Even if you acknowledge the source, material not stated as a direct quotation will make you vulnerable to an accusation of academic misconduct.*
- Loan your work to other students. *If it is then copied, you may be accused of academic misconduct.*
- Borrow work from current or previous students.
- Submit the same work for different assessments.
- Get someone else to do your work. Essay-writing web sites don’t always keep their promises and have been known to inform universities of students who have purchased work.

**Support for Your Learning**

**Academic Support**

If you are experiencing difficulty coping with the material in any module, you should initially approach the module leader, and explain the problem. It is primarily the module leaders responsibility to deal with these difficulties.

**Sub Degree Programme Co-ordinator:** Alternatively, you can consult the Sub degree Programme Co-ordinator, Mrs Julie Winter. An issue of general concern can be raised if appropriate at the Programme Board.

**Off-Campus Support**

The library & Information services website (L&IS) provides a range of services which can be accessed by off-campus users. Support is available from our Off-campus Assistant who will help you with any queries about access to L&IS resources. Call 01642 342922 during office hours or 01642 342780 at any time, or email off-campus@tees.ac.uk.

Books and photocopied journal articles can be posted out to you (UK addresses only) for a charge of £3.00 per book and £1.50 per photocopied journal article. To register go to http://lis.tees.ac.uk/postal/register.cfm. More details about this service, and the request forms are available from the L&IS website http://lis.tees.ac.uk/offcampus/

**Electronic Resources**

The L&IS website (http://lis.tees.ac.uk) provides details of services available and acts as a gateway to a wide range of electronic learning resources such as the Catalogue, subject guides, searchable databases, electronic books and electronic journals. A wide range of guides, factsheets and online tutorials are available to help you access and use the resources and facilities. L&IS maintains an online set of sources for your subject area at: http://lis.tees.ac.uk/subject

Databases for your subject area include:
Scopus – the world’s largest abstract and citation database covering 15,000 scientific, technical, medical, social science, psychology and economic peer reviewed journals. Scopus also performs an integrated search of the scientific Web via the search engine Scirus. The Scopus factsheet gives details on how to access and search this database http://lis.tees.ac.uk/factsheets/fs43.pdf

ScienceDirect - one of the most comprehensive databases of primary literature available in the sciences. It contains the full text of more than 2,000 peer reviewed journals in the life, physical, medical, technical, and social sciences. It also contains abstracts from the core journals in the major scientific disciplines. The ScienceDirect factsheet gives details on how to access and search this database http://lis.tees.ac.uk/factsheets/fs44.pdf

Web of Knowledge - provides access to current and retrospective multidisciplinary information from approximately 8,700 of the most prestigious, high impact research journals in the world. It includes the Science Citation Expanded and Social Sciences Citation Index http://lis.tees.ac.uk/factsheets/fs132.pdf

Ebrary - Ebrary is a growing collection of over 44,000 electronic books. It covers multiple subject areas. See the Ebrary factsheet for instructions http://lis.tees.ac.uk/factsheets/fs131.pdf

Library

Library & Information Services (L&IS) support distance learners by providing electronic information resources such as e-books, e-journals, and online databases. On the L&IS website the section entitled ‘Subject Guides’ lists the relevant resources that are available http://lis.tees.ac.uk/subject and students can access them with their University username and password. Teaching staff can also make use of the L&IS digitisation service to make book chapters and journal articles that cannot be purchased electronically available on e-learning @Tees. Students based in the UK can have books and journal articles posted out to them. Dedicated off-campus support staff are available to assist distance learners with their queries http://lis.tees.ac.uk/offcampus

Online factsheets provide guidance on electronic resources. An information skills online tutorial teaches students how to find electronic journals and how to evaluate information on the Internet. Students can also seek support through the instant messaging ‘Chat Reference’ service, the AskLisar email service or by telephoning the Subject Librarian for science & engineering. The Drop In Student Skills Centre (DISSC) website http://dissc.tees.ac.uk provides advice on referencing and avoiding plagiarism.

For locally based student, or if you are visiting, the University’s Library provides access to books including e-books, DVDs, journals, computers and other learning resources. It is designed to provide a user-friendly learning environment, with open access to shelves, ICT equipment and other information services. Visit their website at http://lis.tees.ac.uk/ for more information.

Opening Hours
Term Time
Monday - Thursday 8am – midnight*
Friday 8am - 8pm*
Saturday 11am - 8pm
Sunday 11am - 10pm

*Please note that from 8 am - 8.30 am and 10 pm - midnight the Library is open on a 'Self-service' basis. During 'Self-service' hours the Library is only open to Teesside University students and staff. You will need your TUSC (Teesside University SMART Card) to enter the building. The Service Counter, Enquiry Desk and Information Desks will not be staffed, therefore there will be no assistance during these hours. For your safety there will be staff in the building, but their role is to patrol only.

Vacation Opening Hours
Monday - Thursday 9.00am - 7.00pm
Friday 9.00am - 5.00pm
Saturday 11.00am - 5.00pm
Sunday Closed

Library opening times may occasionally vary and are posted on the Library & Information Services (L&IS) web site - http://lis.tees.ac.uk/

Borrower Number and Personal Identification Number
Your TUSC is your Library card and your borrower number is the number above the upper barcode. Your PIN is a 4-digit number unique to you and is required to renew your loans either over the telephone or via the web. You will also require your PIN to access other University systems e.g. Unity, the University portal.

Staff and students can set up their own PINs via - https://myaccess.tees.ac.uk/pcs/ by selecting the option to "Manage your security details". Alternatively you can telephone the Library on 01642 342992 and request your PIN
to be posted out to you or ask at the Enquiry Desk in the Library.

**ICT Account**
Your ICT account is your username and password which you need to log on to the networked computers in the Library. The networked computers give access to the Internet, Microsoft Office, the Catalogue and specialist databases and software. A wide range of electronic resources can also be accessed off campus from any computer, which has an Internet connection. To do this you will normally need to use your ICT account details.

It is recommended that you set up an automatic redirect to the email address that you access regularly.

**Journals**
Research and review articles from scientific journals are an important source of information. You will be directed to relevant journals titles by your tutors.

**Access to other Libraries**
As a part-time student you may be entitled to use the services of other university libraries using the SCONUL Access scheme. Generally you can borrow books and use libraries for reference purposes. Access to PCs and electronic material is not included. Details of the scheme are listed on the SCONUL Access website http://www.access.sconul.ac.uk/

**Improving Your Study and Information Skills**
DISSC LIVE! is a Study Skills website http://dissc.tees.ac.uk. It is an on-line version of DISSC, the Drop-In Student Skills Centre at the Teesside University. This area has been specifically designed to help you improve your study skills, and details how to avoid some common mistakes when completing written assessments.

**Further Help**
L&IS provides a range of factsheets, quick guides and a useful induction guide.

For further help with finding resources relating to your course please contact the Science & Technology team in the Library or email Clare Barber (Subject Librarian – Science & Engineering): c.barber@tees.ac.uk

For general L&IS and ICT enquiries contact: lisenquiries@tees.ac.uk

For enquiries about loans, reservations, fines etc. contact: usersupport@tees.ac.uk

For off campus support when using online databases and other library resources contact: off-campus@tees.ac.uk

**Student Support Officer**
The School also has a Student Support Officer, Lynn Wildmore (L.Wildmore@tees.ac.uk) who can help students to access advice and support, and can often provide guidance directly on many issues. You are welcome to contact Lynn on any matter, large or small. She can be contacted at the Student Advice Desk in the Stephenson Building.

**Disabilities Support**
The University provides confidential help and support for students who have disabilities or special problems which may affect their study or assessment periods. Specialist staff in University Student Services assess the disability or learning difficulties to ensure that appropriate support or allowances are provided.

Students with disabilities and specific learning difficulties are encouraged to discuss with the advisors how the University might meet their requirements. The aim is to enable students to participate fully in their programme through additional support that may be in the form of finance / equipment / amanuensis.

More details are available at http://www.tees.ac.uk/sections/studentsupport/

In the first instance, students who require special needs provision should contact the School Special Needs Coordinator, Garry Bishop (g.bishop@tees.ac.uk), who will make arrangements for expert assessment of needs, and be able to communicate agreed arrangements to relevant teaching staff. Students requiring special needs provision are advised to discuss their situation with their Programme Leader. Confidentiality is always respected.

**Student Health Service**
The Student Health Service has a registered nurse that can provide confidential advice about any health-related problems that you may have. Where appropriate, treatment is available and drop-in clinics are held daily. Advice on health matters
can be sought from the University Student Health Advisor on 01642 343202.

A student counselling service is available. More details of these and similar services are available at http://www.tees.ac.uk/sections/studentsupport/

**Change of Personal Details**

It is important that we are kept informed of any changes in your personal details, such as your name, telephone number or address. Such information is essential so that Assessment/Award results are accurately recorded and posted.

Please send an email to the programme leader as soon as possible, so that we know your email address!
## Appendix 1

### Learning Outcomes

The programme will enable students to develop the knowledge and skills listed below. On successful completion of the programme, the student will be able to:

**Knowledge and Understanding** *(insert additional rows as necessary)*

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>Demonstrate knowledge and understanding of the mathematical methods necessary to support the application of petroleum engineering principles.</td>
</tr>
<tr>
<td>K2</td>
<td>Demonstrate knowledge and understanding of scientific principles underpinning petroleum engineering systems.</td>
</tr>
<tr>
<td>K3</td>
<td>Describe, explain and use petroleum engineering principles to produce solutions to defined petroleum engineering applications.</td>
</tr>
<tr>
<td>K4</td>
<td>Demonstrate knowledge and understanding of the management techniques involved in process design.</td>
</tr>
<tr>
<td>K5</td>
<td>Demonstrate an awareness of how simple petroleum engineering elements combine as a system.</td>
</tr>
<tr>
<td>K6</td>
<td>Identify relevant engineering analysis techniques and use them in well defined petroleum engineering applications.</td>
</tr>
<tr>
<td>K7</td>
<td>Describe and explain workshop/laboratory practice.</td>
</tr>
</tbody>
</table>

**Cognitive/Intellectual Skills** *(insert additional rows as necessary)*

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Select and apply computer based methods for simulating petroleum engineering systems and design solutions within defined context.</td>
</tr>
<tr>
<td>C2</td>
<td>Apply suitable tools to enable measurement and testing of well defined petroleum engineering systems and design solutions.</td>
</tr>
<tr>
<td>C3</td>
<td>Use manufacturers data sheets and justify the use of particular equipment for well defined problems involving petroleum engineering systems.</td>
</tr>
<tr>
<td>C4</td>
<td>Gather, record and describe, with guidance, measurement and test data from practical tests or the simulation of design solutions to petroleum engineering applications.</td>
</tr>
<tr>
<td>C5</td>
<td>Demonstrate an awareness of a variety of possible design solutions appropriate to practical applications.</td>
</tr>
</tbody>
</table>

**Practical/Professional Skills** *(insert additional rows as necessary)*
| P1 | Able to act with limited autonomy under supervision to produce solutions that integrate knowledge of mathematics, science, information technology, design, business context and petroleum engineering practice to solve routine problems. |
| P2 | Ability to use appropriate codes of practice and industry standards within defined guidelines. |

**Key Transferable Skills (insert additional rows as necessary)**

| T1 | Communicate appropriately and identify and use writing skills appropriate to the petroleum engineering industry. |
| T2 | use a defined set of technological equipment and systems appropriate to the discipline. |
| T3 | Demonstrate numerical and statistical skills in simple contexts appropriate to the discipline. |
## Appendix 2

### Assessment Schedule – Typical HNC in Petroleum Engineering

<table>
<thead>
<tr>
<th>Year</th>
<th>Course</th>
<th>Assessment Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Analytical Methods for Engineers</td>
<td>One single component of assessment, comprising <strong>four</strong> elements, in the form of an in-course assessment. Each element is equally weighted and comprises a set of, on average 5-10 short answer questions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 1 Week 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 2 Week 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 3 Week 18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 4 Week 24</td>
</tr>
<tr>
<td></td>
<td>Petroleum Production Engineering</td>
<td>Evidence will be provided from a single component of assessment, comprising three elements, equally weighted, in the form of an in-course assessment. Elements 1 and 2 will comprises a series of typically 5 to 10 short answer questions which are related to the sequence and content of the lessons provided within the learning materials.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 1 week 20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 2 week 24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 3 will take the form of an industry based case study students will produce a 1000 word report.</td>
</tr>
<tr>
<td>Year 2</td>
<td>Heat Transfer and Combustion</td>
<td>Element 1, 2, 3 and 4 consists of a small number of questions which require a blend of short descriptive answers including the reproduction of diagrams; numerical calculations requiring the interpretation of technical descriptions and the identification and use of relevant formulae, tables and charts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 1 will focus upon heat transfer by conduction and modes of heat transfer week 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 2 will focus upon overall heat</td>
</tr>
<tr>
<td></td>
<td>Engineering Applications</td>
<td>One single component of assessment, comprising <strong>four</strong> equally weighted elements, in the form of an in-course assessment comprising short project style reports of approximately 500 words each that detail the professional development activities that the student has undertaken in the workplace and show how each activity has contributed to the student's progress and the advancement of their abilities in engineering; technically, managerially, and personally.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 1 week 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 2 week 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Element 3 week 18</td>
</tr>
</tbody>
</table>
| Year 3 | **Applications of Pneumatics and Hydraulics** | **Evidence will be provided from a single component of assessment, comprising three elements, in the form of an in-course assessment. Each assessment comprises a set of, on average 5-10 short answer questions which are related to the sequence and content of the lessons provided within the learning materials.**  
Element 1 week 20  
Element 2 week 24  
Element 3 week 28 | **Petroleum Facilities Emergency Shutdown** | Evidence will be provided from a single component of assessment, comprising two elements, equally weighted, in the form of an in-course assignment. Elements 1 and 2 comprise a set of, on average 5 to 10 short answer questions which are related to the sequence and content of the lessons provided within the learning materials.  
Element 1 week 32  
Element 2 week 36 |
| Year 4 | **Petroleum Processing Engineering** | **Evidence will be provided from a single component of assessment, comprising three elements, equally weighted, in the form of an in-course assessment. Elements 1 and 2 will comprises a series of typically 5 to 10 short answer questions which are related to the sequence and content of the lessons provided within the learning materials.**  
Element 1 week 36  
Element 2 week 40 | **Project** | One single component of assessment comprising three equally weighted elements:  
Element 1 comprises a logbook or project diary documenting the progress of the project on a periodic basis  
Week 30  
Element 2 comprises a project report of approximately 3000 words  
Week 36  
Element 3 oral presentation of the project 5-10 mins |
| Element 3 will take the form of an industry-based case study students will produce a 1000 word report. | Week 44 | Week 40 |
## Appendix 3

### Module Leaders contact details

<table>
<thead>
<tr>
<th>Module</th>
<th>Module Tutor</th>
<th>Contact Tel.</th>
<th>Contact email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical Instrumentation (FOL)</td>
<td>Maqsood Ahmed</td>
<td>+44 (0) 1642 384444</td>
<td><a href="mailto:m.ahmed@tees.ac.uk">m.ahmed@tees.ac.uk</a></td>
</tr>
<tr>
<td>Analytical Methods for Engineers (FOL)</td>
<td>Julie Winter</td>
<td>+44 (0) 1642 342700</td>
<td><a href="mailto:j.winter@tees.ac.uk">j.winter@tees.ac.uk</a></td>
</tr>
<tr>
<td>Applications of Pneumatics and Hydraulics (FOL)</td>
<td>David Craddock</td>
<td>+44 (0) 1642 342559</td>
<td>d.c <a href="mailto:Craddock@tees.ac.uk">Craddock@tees.ac.uk</a></td>
</tr>
<tr>
<td>Business Management Techniques (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Chemical Engineering Unit Operations I (FOL)</td>
<td>David Peel</td>
<td>+44 (0) 1642 342731</td>
<td><a href="mailto:D.Peel@tees.ac.uk">D.Peel@tees.ac.uk</a></td>
</tr>
<tr>
<td>Chemical Engineering Unit Operations II (FOL)</td>
<td>David Peel</td>
<td>+44 (0) 1642 342731</td>
<td><a href="mailto:D.Peel@tees.ac.uk">D.Peel@tees.ac.uk</a></td>
</tr>
<tr>
<td>Combinational and Sequential Logic (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Control Systems and Automation (FOL)</td>
<td>David Craddock</td>
<td>+44 (0) 1642 342559</td>
<td>d.c <a href="mailto:Craddock@tees.ac.uk">Craddock@tees.ac.uk</a></td>
</tr>
<tr>
<td>Digital and Analogue Devices and Circuits (FOL)</td>
<td>Julie Winter</td>
<td>+44 (0) 1642 342700</td>
<td><a href="mailto:j.winter@tees.ac.uk">j.winter@tees.ac.uk</a></td>
</tr>
<tr>
<td>Distributed Control Systems (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Electrical and Electronic Principles (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Electrical Machines (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Electrical Services (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Electrical Supply and Distribution (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Course</td>
<td>Instructor</td>
<td>Phone</td>
<td>Email</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Electrical Systems Protection (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Electromagnetic Compatibility (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Electronics (FOL)</td>
<td>Derek Casson</td>
<td>+44 (0) 1642 342526</td>
<td><a href="mailto:d.casson@tees.ac.uk">d.casson@tees.ac.uk</a></td>
</tr>
<tr>
<td>Engineering Applications (FOL)</td>
<td>Chris Hoggarth</td>
<td>+44 (0) 1642 342450</td>
<td><a href="mailto:c.hoggarth@tees.ac.uk">c.hoggarth@tees.ac.uk</a></td>
</tr>
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<td>Phone</td>
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</tr>
</tbody>
</table>
Appendix 4

Excel – Grading Higher National Units

Each module will be graded as a pass, merit or distinction.

A pass is awarded for the achievement of all outcomes against the assessment criteria specified in the module.

Merit and distinction grades are awarded for higher-level achievement. Edexcel (the awarding body) give generic merit and distinction grade descriptors used by tutors for grading the total evidence produced for each module and describe the student’s performance over and above that for a pass grade.

Grade descriptors

Pass grade

A pass grade is achieved by meeting all the requirements defined in the assessment criteria for pass for each unit.

Merit grade

<table>
<thead>
<tr>
<th>MERIT DESCRIPTORS</th>
<th>INDICATIVE CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>In order to achieve a merit the learner must:</td>
<td>The student’s evidence shows:</td>
</tr>
<tr>
<td>1. identify and apply strategies to find appropriate solutions</td>
<td>• effective judgements have been made</td>
</tr>
<tr>
<td></td>
<td>• complex problems with more than one variable have been explored</td>
</tr>
<tr>
<td></td>
<td>• an effective approach to study and research has been applied</td>
</tr>
<tr>
<td>2. select/design and apply appropriate methods/ techniques</td>
<td>• relevant theories and techniques have been applied</td>
</tr>
<tr>
<td></td>
<td>• a range of methods and techniques have been applied</td>
</tr>
<tr>
<td></td>
<td>• a range of sources of information has been</td>
</tr>
</tbody>
</table>
used
- the selection of methods and techniques/sources has been justified
- the design of methods/techniques has been justified
- complex information/data has been synthesised and processed
- appropriate learning methods/techniques have been applied

3. present and communicate appropriate findings
- the appropriate structure and approach has been used
- coherent, logical development of principles/concepts for the intended audience
- a range of methods of presentation have been used and technical language has been accurately used
- communication has taken place in familiar and unfamiliar contexts
- the communication is appropriate for familiar and unfamiliar audiences and appropriate media have been used

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**Distinction grade**

<table>
<thead>
<tr>
<th>DISTINCTION DESCRIPTORS</th>
<th>INDICATIVE CHARACTERISTICS</th>
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</thead>
<tbody>
<tr>
<td>In order to achieve a <strong>distinction</strong> the learner must:</td>
<td>The learner’s evidence shows:</td>
</tr>
</tbody>
</table>
| 1. use critical reflection to evaluate own work and justify valid conclusions | • conclusions have been arrived at through synthesis of ideas and have been justified  
• the validity of results has been evaluated using defined criteria  
• self-criticism of approach has taken place  
• realistic improvements have been proposed against defined |
2. Take responsibility for managing and organising activities

- Autonomy/independence has been demonstrated
- Substantial activities, projects or investigations have been planned, managed and organised
- Activities have been managed
- The unforeseen has been accommodated
- The importance of interdependence has been recognised and achieved

3. Demonstrate convergent/lateral/creative thinking

- Ideas have been generated and decisions taken
- Self-evaluation has taken place
- Convergent and lateral thinking have been applied
- Problems have been solved
- Innovation and creative thought have been applied
- Receptiveness to new ideas is evident
- Effective thinking has taken place in unfamiliar context