



*Exeter College*

# Teaching, Learning and Assessment Handbook for:

*New RQF BTEC HNC/D programmes in:  
Mechanical  
Manufacturing and  
Electrical/Electronic Engineering*

**2019 – 20**

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# WELCOME AND INTRODUCTION

## 1. Welcome and Introduction to the HNC and HND in Engineering.

Welcome to the course for the award of an 'HNC in Engineering' in which you can choose to specialise in either the Mechanical, Electrical/Electronic or the Manufacturing pathways. Based in the new state-of-the-art Technology Centre, this part-time programme will achieve a HNC qualification in two years with an opportunity to progress to a part-time HND with a third year of study. You should either be employed by or intend to pursue a career in a relevant industry.

You will study a number of core units alongside your specialist modules. Units will develop your understanding of a wide range of engineering techniques and provide you with the analytical tools and concepts necessary to understand the technical and managerial issues you may face in an engineering career. You will apply theories and techniques to real world examples. This programme has been designed to equip you with the skills and knowledge base required to work in your chosen specialism or other graduate opportunities. It is also a platform from which you can undertake additional vocational and academic qualifications.

This Teaching, Learning and Assessment Handbook contains important information including:

- Who will be teaching and providing support to you
- Details of your programme of study and assessment
- College Policies and support information

**Note:** the information in this handbook should be read in conjunction with the current edition of the College Student Handbook available at: [University Level Hub](#) which contains student support based information on issues such as finance and studying at University level and your Programme Quality Handbook available on your programme virtual learning environment.

### 1.1. Appeals and Complaints

These handbooks also contain links to the Complaints and Appeals procedures related to your programme of study. Further information about these processes can also be found on the HE student information Moodle site under [Complaints and Appeals](#).

### 1.2. Additional Information about your programme and the college

#### Student Charter

The Exeter College University Level Student Charter 2018-19 outlines what you can expect from your studies at the college and can be found [here](#).

#### Moodle site

As well as your programme Moodle site, where you will subject specific information and guidance, there is a [University Level Student Moodle site](#) which provides generic information about your studies as well as links to the University regulations and procedures.

## **Disclosure and Barring Checks**

Your programme may require you to complete an enhanced DBS check prior to commencing your studies. Your programme manager and tutor will provide details about this as part of your enrolment and induction process.

## **Qualification codes:**

Regulated Qualifications Framework (RQF) Qualification number:

**Pearson BTEC Level 4 Higher National Certificate in Engineering: 603/0450/9**

**Pearson BTEC Level 5 Higher National Diploma in Engineering: 603/0451/0**

## **Course make-up:**

### **Pearson BTEC Level 4 HNC in Engineering (all pathways) (RQF)**

Qualification credit value: a minimum of 120 credits. This is made up of eight units, each with a value of 15 credits.

- Total Qualification Time (TQT) Higher National Certificate (HNC) = 1,200 hours
- Total Guided Learning Hours (GLH) Higher National Certificate (HNC) = 480 hours
- There is a required mix of core, specialist and optional units totalling 120 credits. All units are at Level 4
- In some cases, a maximum of 30 credits from a Higher National qualification may be from units designed by the centre and approved by Pearson. Core Units may not be substituted and are mandatory. For more information please refer to Higher National Commissioned Qualifications
- Please note that some specialist units are available as optional units and some optional units are available as specialist units.

### **Pearson BTEC Level 5 HND in Engineering (all pathways) (RQF)**

The Pearson BTEC Level 5 Higher National Diploma consists of the Level 4 Higher National Certificate (above) plus an additional 120 credits at Level 5.

- Qualification credit value: a minimum of 240 credits of which 120 credits are at Level 5, and 120 credits are at Level 4 and usually attained via the HNC
- Total Qualification Time (TQT) Higher National Diploma (HND) = 2,400 hours
- Total Guided Learning Hours (GLH) Higher National Diploma (HND) = 960 hours
- There is a required mix of core, specialist and optional units for each pathway. The core units required for each Level 5 pathway (in addition to the specialist units) are 34 Research Project,

which is weighted at 30 credits, and 35 Professional Engineering Management, weighted at 15 credits

- The requirements of the Higher National Certificate (or equivalent) have to be met. In some cases, a maximum of 60 credits can be imported from another RQF Pearson BTEC Higher National qualification and/or from units designed by the centre and approved by Pearson. Core units and specialist units may not be substituted.
- Please note that some specialist units are available as optional units and some optional units are available as specialist units.

## DISTINCTIVE FEATURES OF THE PROGRAMME

### 1.3. Distinctive Features of the Programme

Whichever pathway you choose, each is taught in a similar manner and is assessed primarily by assignment work – there are no formal examinations. You will generally work in small classes, partake in formal lectures and undertake laboratory/practical work which is designed to develop a practical investigating approach to learning.

## 2. Course Contact List

Your course is designed as a broad programme of study which develops a wide range of skills, knowledge and understanding, the majority of our staff members will teach exclusively to your programme. Indeed, depending on the make-up of your course, you will be taught by staff with different areas of specialism but related specific subject areas within your College such as:

- *Maths*
- *Computer Aided Design*
- *Electrical Science*
- *Analogue Electronics*
- *Digital Electronics*
- *Materials*
- *Engineering Projects*
- *Health & Safety*
- *Engineering Management*
- *Production Control*

Key staff helping you through the challenges of study at this level include: the **Programme Managers** for your HNC. As part of the Programme Management Group, they are responsible for the effective delivery and promotion of the programme and providing, as required, specialist advice to students.

Name	Role	Tel	Email
David Symes	HNC Programme Manager	01392 400387	<a href="mailto:davidsymes@exe-coll.ac.uk">davidsymes@exe-coll.ac.uk</a>
Gary Herrington	HND Programme Manager	01392 400387	<a href="mailto:garyherrington@exe-coll.ac.uk">garyherrington@exe-coll.ac.uk</a>

**Other contacts are the Unit Leaders** who you can contact with any queries relating directly to their Unit(s) and the administrator.

Name	Role	Tel	Email
David Symes	HNC Lead	01392 400387	<a href="mailto:davidsymes@exe-coll.ac.uk">davidsymes@exe-coll.ac.uk</a>
Gary Herrington	HND Lead	01392 400382	<a href="mailto:garyherrington@exe-coll.ac.uk">garyherrington@exe-coll.ac.uk</a>
George Granton	Subject Lecturer	01392 400975	<a href="mailto:georgegranton@exe-coll.ac.uk">georgegranton@exe-coll.ac.uk</a>
Susan Senior	Administrator	01392 400380	<a href="mailto:susansenior@exe-coll.ac.uk">susansenior@exe-coll.ac.uk</a>
Gareth Lambert	Subject Lecturer	01392 400380	<a href="mailto:garethlambert@exe-coll.ac.uk">garethlambert@exe-coll.ac.uk</a>
John Dudley	Subject Lecturer	01392 400395	<a href="mailto:johndudley@exe-coll.cac.uk">johndudley@exe-coll.cac.uk</a>
Richard Masters	Subject Lecturer	01392 400395	<a href="mailto:richardmasters@exe-coll.ac.uk">richardmasters@exe-coll.ac.uk</a>
Kevin Pavey	Subject Lecturer	01392 400395	<a href="mailto:kevinpavey@exe-coll.cac.uk">kevinpavey@exe-coll.cac.uk</a>
Phil Tucker	Subject Lecturer	01392 400382	<a href="mailto:philtucker@exe-coll.ac.uk">philtucker@exe-coll.ac.uk</a>
Nathan Fiddes	Subject Lecturer	01392 400395	<a href="mailto:Nathanfiddes@exe-coll.ac.uk">Nathanfiddes@exe-coll.ac.uk</a>
Peter Clayton-White	Subject Lecturer		<a href="mailto:peterclaytonwhite@exe-coll.ac.uk">peterclaytonwhite@exe-coll.ac.uk</a>
Suchita Verma	Subject Lecturer		<a href="mailto:suchitaverma@exe-coll.ac.uk">suchitaverma@exe-coll.ac.uk</a>

## 2.1. Personal Tutor

Part-time students will not have a **Personal Tutor**, but you are entitled to tutor support and pastoral care from the college's tutor organisation. If you are a full-time student, however, you will gain a personal tutor (the programme manager – David Symes for HNC and Gary Herrington for HND) who will be available for pastoral advice and study skills development and will conduct weekly tutorial sessions.

College and programme staff will communicate with students in the following ways:

- Email
- College intranet / Sharepoint site:  
<http://portal.exe-coll.ac.uk/courses/eng/engh/Pages/Default.aspx>
- University Level Student Moodle site (see section below)
- HE Programme Notice-Board (*in the corridor outside classroom E0.08*)
- HE Newsletter
- Link to college campus map or details (see: <http://www.exe-coll.ac.uk/1618/Life/Facilities>)
- Links to disability support teams (see: <http://www.exe-coll.ac.uk/1618/Support/Support>)

It is in your interest to check all of these on a regular basis to ensure you have not missed important messages.

Occasionally, you may need to see a member of academic staff. You can do this after your lessons or for more formal needs, by contacting the Department Administrator. The contact number is 01392 400380. Alternatively, you can contact staff by emailing them directly to the email addresses given in this handbook.

There is an Engineering site on the College PORTAL, which is accessible as soon as you have your Exeter Login code and password. From within College on <http://intranet> and from home you can access your College email address on <https://email.exe-coll.ac.uk>

**Logging onto the College Portal.** Perform an internet search for Exeter College, on the Home page go to the login tab and enter your user name and password. This will be given to you on induction to the Learning Resource Centre induction when you receive your student ID card.

## 3. PROGRAMME STRUCTURE

### 3. Programme Structure

The Academic Year is divided into two semesters of 34 teaching weeks in total. The completion of all assessments, marking is continuous throughout the year and all the Unit grades will be presented to a formal Award Board for the finalisation of your award. Any Units which have not been passed will be referred for resubmission by the first day back after the summer holidays and will be assessed by a Referral Board to consider whether the student has Passed any referred units. If a student fails to achieve a pass on the second attempt then the Referral Board will normally require the whole unit to be retaken with attendance.

#### Units in HNC and HND Programmes (all pathways)

Your programme is made up of units of study. Units are normally worth 15 credits though some programmes may include 20 credit units. Your Higher National Certificate (HNC) consists of 120 Level 4 credits ( the HND 'top-up' will be worth 120 Level 5 credits). Some units are common to all three streams (Mechanical, Electrical/Electronic and Manufacturing) while some may be specialist units to the particular stream. You will hear reference being made to your **programme of study** and your **programme**. These terms are interchangeable.

#### Units for new RQF HNC:

#### HNC Mechanical, Electrical/Electronic and Manufacturing in Engineering

Unit No	Level	Unit Name	Core/Optional
1	4	Design Engineering	Core
2	4	Engineering Mathematics	Core
3	4	Engineering Science	Core
4	4	Managing a Professional engineering Project	Core
8	4	Mechanical Principles	Optional (Pathway)
9	4	Materials, Properties and Testing	Optional (Pathway)
11	4	Fluid Mechanics	Optional (Pathway)
13	4	Fundamentals of Thermodynamics and Heat Engines	Optional (Pathway)
14	4	Production Engineering for Manufacture	Optional (Pathway)
15	4	Automation, Robotics and PLC	Optional (Pathway)

Unit No	Level	Unit Name	Core/Optional
17	4	Quality Process improvement	Optional (Pathway)
19	4	Electrical and Electronic Principles	Optional (Pathway)
20	4	Digital Principles	Optional (Pathway)
22	4	Electronic Circuits and Devices	Optional (Pathway)
23	4	Computer-aided Design and Manufacture	Optional (Pathway)
34	5	Research Project	Core
39	5	Further Mathematics	Core
48	5	Manufacturing Systems Engineering	Core

#### Course Codes (same for Full or Part Time):

- **HNC in Engineering (Mechanical) Course Code: UCAS 8BHG**
- **HNC in Engineering (Electrical/Electronic) Course Code: UCAS 7HU2**
- **HNC in Engineering (Manufacturing) Course Code: UCAS 3D7C**

For your information the codes for the HND will be :

- **HND in Engineering (Mechanical) Course Code: UCAS H3R5**
- **HND in Engineering (Electrical/Electronic) Course Code: UCAS H6K8**
- **HND in Engineering (Manufacturing) Course Code: UCAS H7U9**

#### Learning Delivery

Each pathway can be studied either one year full-time (2 days a week) or two years part-time (1 day a week) and the learning delivery is 'semesterised' into 2 16 week terms as follows:

#### **BTEC HNC – Year 1 Part-timers' units:**

For 2019/20 all PT learning delivery will be split into two semesters as:

<b><u>Mechanical:</u></b>	<b><u>Electrical/Electronic:</u></b>	<b><u>Manufacturing:</u></b>



1st Semester: Tuesdays <ul style="list-style-type: none"> <li>Unit 02 – Maths,</li> <li>Unit 03 – Engineering Science.</li> </ul>	1st Semester Tuesdays: <ul style="list-style-type: none"> <li>Unit 02 – Maths,</li> <li>Unit 03 – Engineering Science.</li> </ul>	1st Semester: Tuesdays <ul style="list-style-type: none"> <li>Unit 02 – Maths,</li> <li>Unit 03 – Engineering Science.</li> </ul>
2 <sup>nd</sup> Semester: Tuesdays <ul style="list-style-type: none"> <li>Unit 01 – Engineering Design,</li> <li>Unit 04 – Managing a Professional Engineering Project,</li> </ul>	2 <sup>nd</sup> Semester : Tuesdays <ul style="list-style-type: none"> <li>Unit 01 – Engineering Design,</li> <li>Unit 04 – Managing a Professional Engineering Project,</li> </ul>	2 <sup>nd</sup> Semester: Tuesdays <ul style="list-style-type: none"> <li>Unit 01 – Engineering Design,</li> <li>Unit 04 – Managing a Professional Engineering Project,</li> </ul>

## **BTEC HNC – Year 2 Part-timers’ units:**

For 2019/20 all PT learning delivery will be split into two semesters as:

<b><u>Mechanical:</u></b>	<b><u>Electrical/Electronic:</u></b>	<b><u>Manufacturing:</u></b>
1st Semester: Fridays <ul style="list-style-type: none"> <li>Unit 08 – Mechanical Principles,</li> <li>Unit 11 – Fluid Mechanics.</li> </ul>	1st Semester Fridays <ul style="list-style-type: none"> <li>Unit 19 – EEP,</li> <li>Unit 21 – Electrical Machines.</li> </ul>	1st Semester: Fridays <ul style="list-style-type: none"> <li>Unit 23 – CAD and Manufacture,</li> <li>Unit 14 – Production Engineering for Manufacture.</li> </ul>
2 <sup>nd</sup> Semester: Fridays <ul style="list-style-type: none"> <li>Unit 09 – Materials, Properties and Testing</li> <li>Unit 13 – Fundamentals of Thermodynamics and Heat Engines,</li> </ul>	2 <sup>nd</sup> Semester: Fridays <ul style="list-style-type: none"> <li>Unit 20 – Digital Principles,</li> <li>Unit 15 – Automation, Robotics and PLCs,</li> </ul>	2 <sup>nd</sup> Semester: Fridays <ul style="list-style-type: none"> <li>Unit 17 – Quality and Process Improvement,</li> <li>Unit 15 – Automation, Robotics and PLCs,</li> </ul>

## **BTEC HND – Year 1 Part-timers’ units:**

For 2019/20 all PT learning delivery will be split into two semesters as:

<b><u>Mechanical:</u></b>	<b><u>Electrical/Electronic:</u></b>	<b><u>Manufacturing:</u></b>
1 <sup>st</sup> Semester: Monday <ul style="list-style-type: none"> <li>Unit 39 – Further Mathematics,</li> <li>Unit 34 – Research Project.</li> </ul>	1 <sup>st</sup> Semester: Monday <ul style="list-style-type: none"> <li>Unit 39 – Further Mathematics,</li> <li>Unit 34 – Research Project.</li> </ul>	1 <sup>st</sup> Semester: Monday <ul style="list-style-type: none"> <li>Unit 39 – Further Mathematics,</li> <li>Unit 34 – Research Project.</li> </ul>

<p>2<sup>nd</sup> Semester: Monday</p> <ul style="list-style-type: none"> <li>Unit 48 – Manufacturing Systems Engineering</li> <li>Unit 34 – Research Project.</li> </ul>	<p>2<sup>nd</sup> Semester: Monday</p> <ul style="list-style-type: none"> <li>Unit 48 – Manufacturing Systems Engineering</li> <li>Unit 34 – Research Project.</li> </ul>	<p>2<sup>nd</sup> Semester: Monday</p> <ul style="list-style-type: none"> <li>Unit 48 – Manufacturing Systems Engineering</li> <li>Unit 34 – Research Project.</li> </ul>
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## Assignment schedule HE (also on HE Noticeboard):

CURRENT COLLEGE PATTERN		HNC ASSIGNMENT SCHEDULE 2018 -19										NOTES						
Week Commencing	Taught/Week	ROP Y1E1 - Unit 1 - Engineering Design JONIP	ROP Y1E1 - Unit 2 - Engineering Maths OI - EY/IRM	ROP Y1E1 - Unit 3 - Engineering Science	ROP Y1E1 - Unit 4 - Managing a Professional Engineering Project	ROP Y1E2 - Unit 8 - Mechanical Properties OI/IRM	ROP Y1E2 - Unit 11 - Fluid Mechanics OI/IRM	ROP Y1E2 - Unit 10 - Principles of Power/Electrical and Electronic Principles OI/IRM	ROP Y1E2 - Unit 11 - Principles of Power/Electrical and Electronic Principles OI/IRM	ROP Y1E2 - Unit 14 - Production Engineering for Manufacture	ROP Y1E2 - Unit 13 - Computer Aided Design and Manufacture AY/D	ROP Y1E2 - Unit 9 - Materials and the 00000	ROP Y1E2 - Unit 20 - Digital Principles	ROP Y1E2 - Unit 16 - Automation, Robotics and PLCs	ROP Y1E2 - Unit 17 - Quality Process Improvement	ROP Y1E2 - Unit 19 - Thermodynamics and Heat Engines OI/IRM	Taught/Week	Events and Holidays
2	18.09.18																	Exams 5 Sep
3	25.09.18																	
4	02.10.18																	
5	09.10.18																	
6	16.10.18		out A1	out A1		Issue A1	Issue A1	Issue A1	Issue A1	Issue A1	Issue A1							
7	23.10.18					Issue A2	Issue A2	Issue A2	Issue A2	Issue A2	Issue A2							
8	30.10.18					Hand-in A1	Hand-in A1	Hand-in A1	Hand-in A1	Hand-in A1	Hand-in A1							
9	06.11.18		in A1	in A1		Issue A2	Issue A2	Issue A2	Issue A2	Issue A2	Issue A2							
10	13.11.18					Hand-in A2	Hand-in A2	Hand-in A2	Hand-in A2	Hand-in A2	Hand-in A2							Half Term
11	20.11.18		Out A2	Out A2		Issue A3	Issue A3	Issue A3	Issue A3	Issue A3	Issue A3							
12	27.11.18					Issue A3	Issue A3	Issue A3	Issue A3	Issue A3	Issue A3							
13	04.12.18		in A2 out A2	in A2 out A3		Issue A4	Issue A4	Issue A4	Issue A4	Issue A4	Issue A4							
14	11.12.18					Hand-in A2	Hand-in A2	Hand-in A2	Hand-in A2	Hand-in A2	Hand-in A2							
15	18.12.18					Issue A4	Issue A4	Issue A4	Issue A4	Issue A4	Issue A4							
16	25.12.18		in A2 out A4	in A2 out A4		Hand-in A4	Hand-in A4	Hand-in A4	Hand-in A4	Hand-in A4	Hand-in A4							
17	01.01.19					Issue A4	Issue A4	Issue A4	Issue A4	Issue A4	Issue A4							
18	08.01.19		in A4	in A4		Hand-in A4	Hand-in A4	Hand-in A4	Hand-in A4	Hand-in A4	Hand-in A4							
19	15.01.19					Final mark	Final mark	Final mark	Final mark	Final mark	Final mark							Christmas
20	22.01.19					Final mark	Final mark	Final mark	Final mark	Final mark	Final mark							Christmas
21	29.01.19					Final mark	Final mark	Final mark	Final mark	Final mark	Final mark							Christmas
22	05.02.19		Final mark	Final mark		Final mark	Final mark	Final mark	Final mark	Final mark	Final mark							Constitution Week
23	12.02.19					Final mark	Final mark	Final mark	Final mark	Final mark	Final mark							Constitution Week
24	19.02.19					Final mark	Final mark	Final mark	Final mark	Final mark	Final mark							Constitution Week
25	26.02.19					Final mark	Final mark	Final mark	Final mark	Final mark	Final mark							Constitution Week
26	05.03.19		Issue A1		Issue A1						Issue A1	Issue A1	Issue A1	Issue A1	Issue A1	Issue A1		
27	12.03.19																	
28	19.03.19																	
29	26.03.19		Issue A2															
30	02.04.19																	
31	09.04.19		Hand-in A2		Hand-in A2						Hand-in A1	Hand-in A1	Hand-in A1	Hand-in A1	Hand-in A1	Hand-in A1		
32	16.04.19		Issue A2								Issue A2	Issue A2	Issue A2	Issue A2	Issue A2	Issue A2		
33	23.04.19																	
34	30.04.19																	
35	07.05.19																	
36	14.05.19		Issue A3								Issue A3	Issue A3	Issue A3	Issue A3	Issue A3	Issue A3		
37	21.05.19																	
38	28.05.19																	
39	04.06.19																	
40	11.06.19		Hand-in A4		Hand-in A4						Hand-in A3	Hand-in A3	Hand-in A3	Hand-in A3	Hand-in A3	Hand-in A3		
41	18.06.19																	
42	25.06.19		Final Mark		Final Mark						Final Mark	Final Mark	Final Mark	Final Mark	Final Mark	Final Mark		
43	02.07.19																	
44	09.07.19																	

**Key:**

- Core Unit
- Manuf only
- Elect/Elect only
- Mech only
- Elect + Manuf.
- Mech + Manuf

For more information on the Level descriptors see Moodle.

## 4. COURSE RESOURCES

### 4. Course Resources

Media equipment is available for loan from each Learning Centre with the widest range being held at the Creative Industry Learning Centre at Queen Street.

Each Learning Resources Centre has:

- Networked PCs for student use. A Mac suite and TV studio is also available at the Creative Industry Learning Resources Centre
- Wi-Fi facilities allowing students full network access on their own IT equipment.
- Self-service photocopying and binding services

The online library catalogue is available both on and off campus. Students can use the catalogue to renew and reserve items, and media equipment and PCs can be booked via the online booking systems.

Full information on the range of services and resources and how to contact the Learning Resources Centres can be found on the Learning Centre portal pages:

<https://portal.exe-coll.ac.uk/departments/ils/lc/Pages/index.aspx>

## **5. Enrichment Activities**

The college's enrichment opportunities are more than just a group of societies and clubs. They're an organised set of exciting activities that give all students at Exeter College the opportunity to test out new hobbies, get a skill or qualification you hadn't thought of and make new friends!

The enrichment programme enhances your core programme of learning at the college and helps you enjoy and achieve and make a positive contribution. And we're expanding all the time. For more information see:

<http://portal.exe-coll.ac.uk/departments/stew/enrichment/Pages/Default.aspx>

## **6. Employment and Progression Opportunities**

Taught by industry experts, you will apply theory to practical working situations. All previous students have either achieved a promotion or progressed their career in a position with increased responsibility, following this programme. You may also wish to continue your studies. You can progress on to an HND programme with Exeter College and some universities may accept this as equivalent to the first two years of degree level study. It is therefore possible to gain a BSc with an additional year at such a university or a BEng in two years after completion of the HND.

### **CPD and Professional body recognition**

The next table summarises the pathways to Incorporated and Chartered Engineer status:

Registration	Formation	Professional review
CEng	Education <ul style="list-style-type: none"> <li>• MEng</li> <li>• B(Hons) Degree plus Masters</li> <li>• B(Hons) Degree plus further learning</li> </ul>	Demonstration of competence, knowledge and understanding.  For those without exemplifying qualifications, may require submission of technical report
IEng	Education <ul style="list-style-type: none"> <li>• HNC/HND/FD plus further learning</li> <li>• Bachelors Degree</li> </ul>	

Your Programme Manager will be able to advise you on alternative progression routes as required.

## 7. TEACHING, LEARNING AND ASSESSMENT

### 7. Teaching, Learning and Assessment

#### 7.1. Formative and Summative Assessment

Your performance in a module will be assessed during the academic year, normally through a combination of coursework and practical tests. You must pass the assessments in order to be credited with that Unit for your award. In addition, some Units may have to be passed as pre-requisites for others taken later in your programme.

The method of assessment and their number varies between units and your lecturers will advise you of the method(s) to be used. This reflects the need to develop a range of different knowledge, understanding and skills. During your programme you may experience some, or all, of the following types of assessment:

- Coursework essay questions
- Coursework group reports
- Coursework case study problems
- Group presentations
- Small group assessed discussions

- Practicals
- In-class tests
- Online assessments
- Portfolios
- Research project

In all cases these are chosen and designed to assess your achievement of the particular learning outcomes for the Unit. You will be given Assessment Criteria which are used to judge the extent of your achievement. For the BTEC HNC (and HND Programmes), the assessments will be at the Pass, Merit or Distinction level. All assignment work will clearly state the criteria to gain a 'Pass' but each unit will also give opportunities to achieve the all the Merit and Distinction criteria which are the same for all units.

### **Achieving Merit or Distinction**

For the assessment of RQF Merit and Distinction work, Pearson have set specific tasks to achieve each level. In many cases the tasks do not imply or contextualise the level of work required to achieve the levels.

As a 'rule of thumb' – imagine your line manager has set you the task at work and you present your answer back to him. If he might say: 'that's very good, it gives me the answers I need and if I amend this and add that I'll present it to the Board' - that's Merit level.

If he might say: 'that's very good, it gives me the answers I need and I'll present it to the Board un-amended' - that's Distinction level.

Please note that **ALL** assessment marks and results are provisional until confirmed by the internal moderator, External Examiner and then finalised by the Award Board in June.

## **7.2 Your Approach to Studying**

Below there are some **key messages to you as a new student**. The rest of this section gives a detailed explanation of what to expect and where you can find help as you begin your studies.

Probably the most significant difference between university level study and secondary education is the amount of personal responsibility you have. This has implications for how you approach your studies:

**You will receive some 'traditional teaching'** – when lecturers tell you what you 'need to know' – **but you will have to take responsibility for acquiring** all the required knowledge for the level 4/5 and requirements, especially for higher grades, where development as an independent learner is required.

**If you read nothing else in this section, please read this:**

### **Key Messages to become a Successful Student:**

**You must take responsibility for your own studies.** We will give you as much help and support as we can but ultimately your success (or failure) is down to you.

**Plan your time carefully.** Write a personal timetable as soon as you can.

**Attend all lectures and take notes.**

**Do not miss deadlines.**

**Read extensively around your subject.** Just being familiar with the set text books is unlikely to be enough to pass.

**Seek help, if you need it, as soon as possible.** If you need specific help with your studies, speak to your lecturer or tutor or make a personal appointment to see them. Even if your problem has nothing to do with your programme, it may have an effect on your ability to study. Let someone at the College know – ignoring problems will only make things worse later on.

At this level of study, **you will be treated as a responsible adult**, capable of acting on your own initiative. This new freedom can be exciting and stimulating but it can also be worrying or even frightening at times. You may be used to a learning or workplace environment with more fixed hours and routine activities, so your weekly timetable may not appear to be particularly full. For example, the contact time that you have with lecturers will be a fraction of the hours that you should expect to spend on the module as a whole. As an indication, the average amount of 'total student effort' expected for a 15 credit module will be around 150 hours, but you may only be timetabled for 50 hours. **You must, therefore, learn to use your time constructively.**

**Your most valuable learning will be done in your own time and in your own way.**

#### **Student-centred Learning:**

- **Reading**

**You will not complete your programme successfully if you do not read regularly and in-depth.** You will be given reading lists for each module. You should purchase at least one recommended text for each module. Since books are expensive, however, it may be a good idea to pool resources by sharing with friends in a study group.

Please note that you may only be able to borrow basic texts from the library on a short-term basis. Demand for such texts may be very high at certain times in the year so do not rely on them being available.

You are strongly recommended to follow current issues relevant to your programme in the quality press, for example, The Times, Independent, Guardian and Telegraph. You should also make use of subject-related journals held in the library. Reading texts for higher education demands note-taking as well as reading skills, as with lectures (see section 3.4.1), keep careful notes from your reading.

- **Private Study**

Your private study time is likely to be taken up by different tasks for each Unit, by preparing for tutorials or undertaking some reading of a programme text or library research. In addition,

private study time provides students with the opportunity to ensure they have understood the subject, reflecting on any feedback on assessed work and building up a good set of notes for revision.

- **Study Groups**

In all our programmes, the College encourages students to learn skills to enable them to work as groups and teams. These are not merely useful during your programme. In any employment context you will find such skills and experiences invaluable. Sometimes you will find you are assessed on a piece of written work or presentation completed as a group. Many students benefit significantly from working collaboratively in study groups, to check their understanding of difficult issues or concepts and to revise.

- **Work-Based Learning**

Work-based learning in all its aspects is fundamental to all foundation degrees. College based learning will inform work-based activity and work-based learning will be vital in contributing to your understandings of theory and your success in assessment tasks. You should be sure to keep careful records of significant experiences in your work-placements so that you can refer to them with confidence in discussions and assignments.

- **Academic Teaching and Lectures**

Most modules have timetabled lectures. While lecturing styles may vary, you will need to develop note-taking skills and other techniques to help you get the most out of a lecture.

You should develop a style of note-taking that suits you. There is no 'right method' but certain general principles are useful:

- Your notes need to be an accurate record of the key points
- Notes should be neat and tidy and in such a form that they can be easily supplemented
- Notes should be presented in a logical fashion and deal with the essentials
- Make a note of questions or doubts and leave space to insert solutions later
- Keep a clear record of references – these will need following up

In some lectures, you will be given handouts of diagrams, key concepts or the material used to deliver the lecture in the form of presentation slides. These are often available for reference electronically. **Reading handouts or getting copies of slides is not a substitute for attending the lecture.** You will miss vital verbal information and guidance on your assessments.

Lecturers will not give you all the information on a topic but provide a structure from which you can work to develop your knowledge and ideas. While a lecture introduces important concepts, you will need to develop your understanding of these concepts by further reading, research, discussion and working through problems in tutorials.

- **Seminars/Tutorials/Workshops**

These sessions are meetings of small groups of students. Here you will have a chance to demonstrate what you have learnt and understood and to clarify areas you are not so sure about. Normally you will be assigned to a group and you will have to attend a specific timetabled slot, which will normally be weekly.

A lecturer will manage the session, although the focus is on students' contributions. Sometimes you will be given assignments beforehand, so you can prepare materials or you might be asked to lead the tutorial in an informal way, or give a formal presentation.

Seminars, tutorials and workshops are a crucial part of the learning process, as you have the opportunity to analyse problems and discuss issues in depth. You should come to these sessions prepared to participate fully. Although you may be shy at first, you will find that as the group gets to know each other and develop more confidence, these discussions become one of the most valuable parts of your learning.

- **Practicals**

Some units have timetabled practical or laboratory sessions these are for electrical and electronic circuit testing and field trips or site visits. The HE visit for 2018/19 will be Tuesday 11 Dec 17 - TBC

- **Other Academic Support**

Some modules may have relatively little formally timetabled teaching. This is part of a deliberate strategy to help you develop and manage your own learning. Where this is the case, there will be other academic support such as:

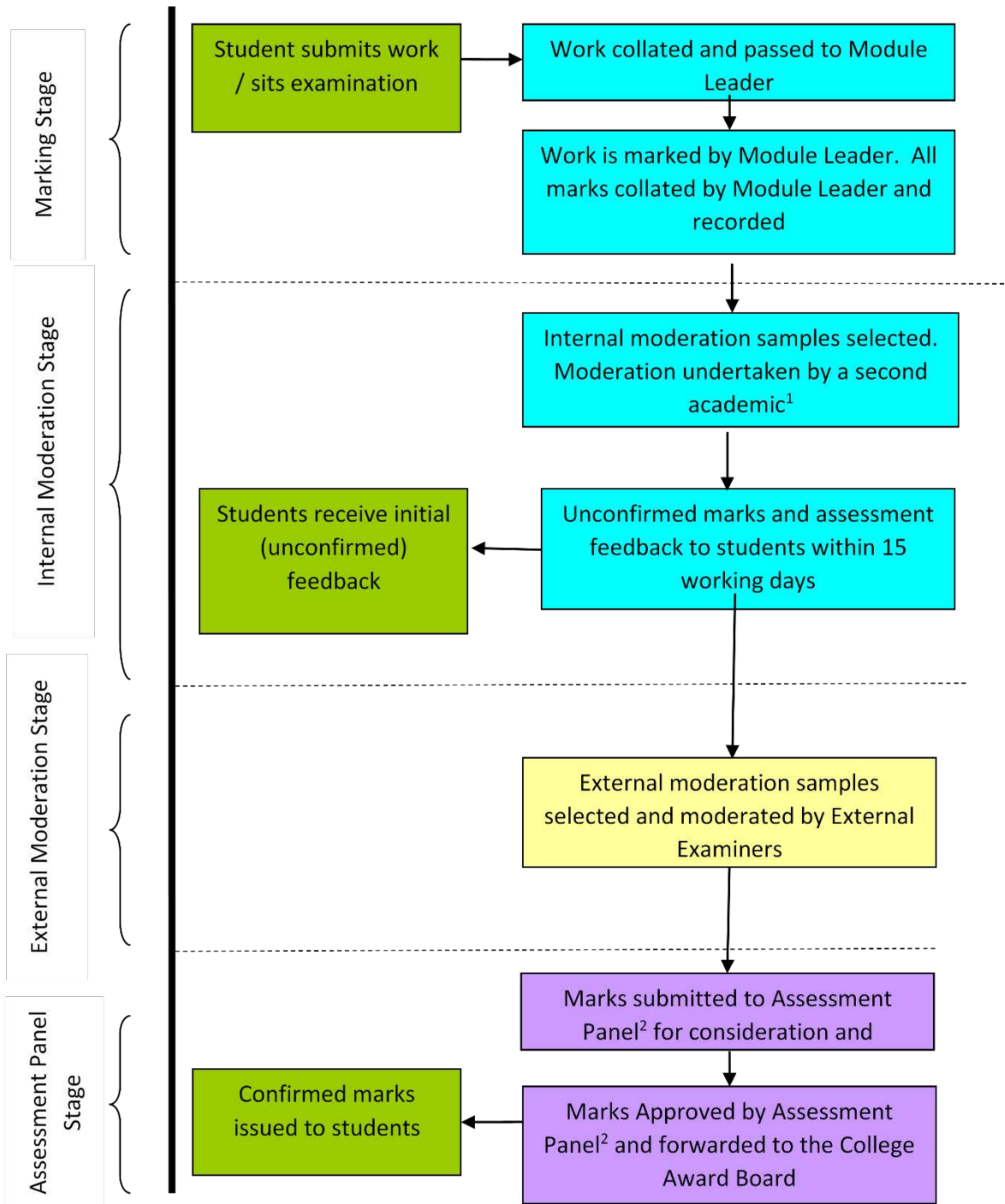
- Feedback on assessed work – to help you develop your knowledge, understanding and skills through undertaking assessments.
- Tutorials by appointment. Teaching staff normally have 'office hours' when you can book an appointment to see them.
- Student Portal and email. Some staff use these to initiate discussions and set up learning support groups for their units.
- Learning packs. Some units use learning packs for students to work through in their own time. These may involve exercises to help you develop your understanding of the materials.

## **7.2. Indicative Programme Assessment Schedule, Assessment Flowchart and Hand in Process**

The following diagram shows the general assessment mode through the programme. Note that all assessment will be promulgated on Moodle and in general, all assessed work will be imported and assessed with feedback via this medium.



## Assessment Flowchart

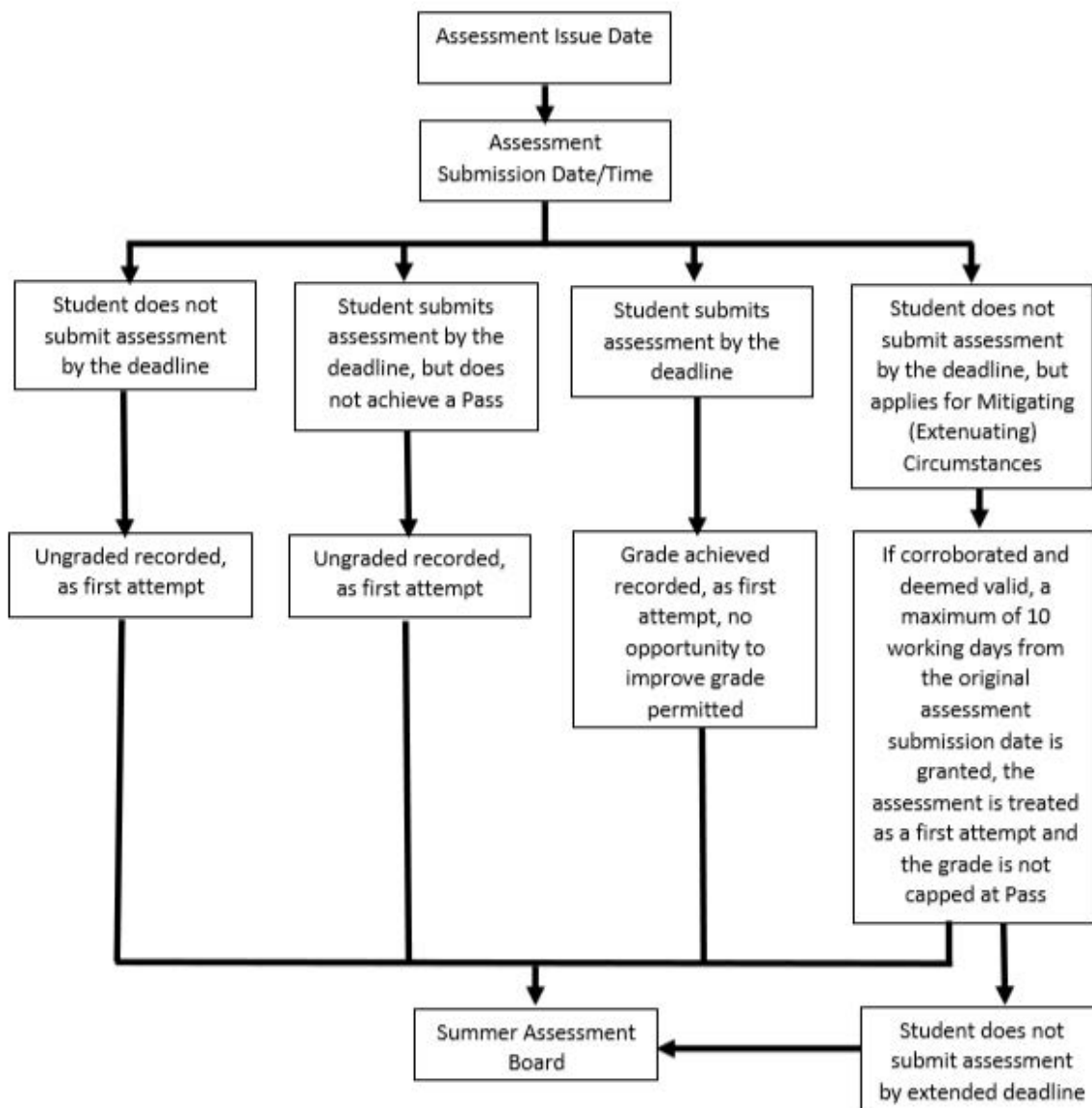


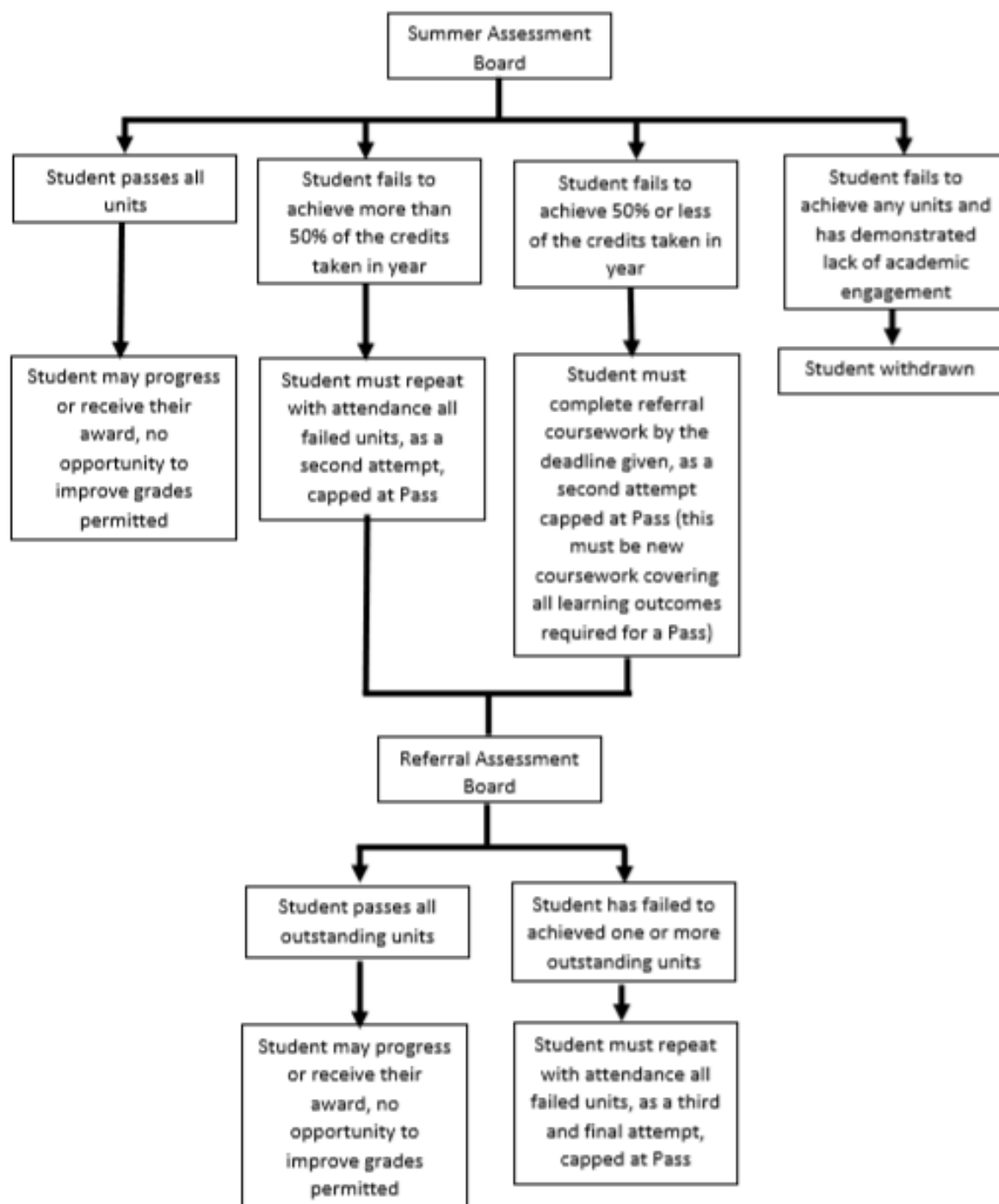
1. The sample for the internal moderation comprises of 20%, or 10 assessment pieces minimum (depending on the group size). The sample should include a range of assignments from the module including borderlines and fails.

2. Assessment Panels are the forum for formally agreeing the modules marks with the awarding institution / body

### ASSESSMENT SUBMISSION AND NON-SUBMISSION PROCEDURE FOR PEARSON RQF HIGHER NATIONALS

*In accordance with Pearson requirements and guidance, this procedure must be applied to assessment submissions by all students on RQF programmes, regardless of their start year. Students on QCF specifications will continue to follow the former procedure, which permits in-year resubmissions, as a second attempt, however, it should be noted that all students have a maximum of three attempts at achieving a unit.*





**Assignment Feedback Form** - An example of a Unit assignment is shown below:



**PROGRAMME:** *BTEC Level 4 Higher National in Engineering*

Module Number: **Unit 8**

Module Title: **Mechanical Principles**

Assignment: **Assignment 2 - Loaded Beams and Cylinders**

This assignment will enable a Pass for: P3, P4, M2 and D2

Submission Date: 20<sup>th</sup> November 2018

Feedback Date: 4<sup>th</sup> December 2018

Module Lecturer: Richard Masters

Moderator: Gary Herrington

Learning Outcomes:

LO2 - Be able to determine the behavioural characteristics of loaded beams and cylinders.

## SCENARIO

You are a young stress analyst working for a company who produced several components for the wave powered generator shown in the picture above. You can work across the full range of stress determination, but you tend to get problems relating to loaded beams and pressure vessels. You therefore require a thorough understanding of the function of a range of stressed components under various types of applied load and the factors which affect their performance.

### TASK 1

A beam is simply supported at both ends, is 5m long and has a flexural rigidity ( $EI$ ) of  $4 \text{ MNm}^2$ . It carries a point load of 1100 N at its centre and a UDL of 500 N/m along its entire length. Calculate the slope at the ends and the deflection at the middle.

Design an Excel spreadsheet which will calculate the slope and deflection at the middle of the beam with: a range of different beam lengths (2-8m), flexural stiffness ( $3-8 \text{ MNm}^2$ ), UDL (300 – 1000 500 N/m) and point load (600-1200N). Give screen shots to show your spreadsheet works for a range of input data.

#### Assessment Criteria

**P2.1** - Apply the relationship between bending moment, slope and deflection to determine the variation of slope and deflection along a simply supported beam.

**M2** - A range of methods and techniques have been applied.

### TASK 2

The firm you work for has a visit from a team of very keen engineering students and when they arrive at your desk they ask you to:

Discuss and state the assumptions which allow cylinders to be considered as ‘thin-walled’ and give the benefits of these assumptions.

Explain why spherical pressure vessels are the lightest for a given differential pressure. The design office then sends an e-mail with the following question:

Find for a compressed air cylinder 1.3 m long, of 0.08 m internal diameter, wall thickness 4mm,  $E = 205 \text{ GPa}$ , Poisson’s ratio  $= 0.031$  and charged to an internal pressure of 5Bar:

- a. The volumetric strain in the cylinder.
- b. The final internal volume.

#### Assessment Criteria

**P2.2** - Determine the principal stresses that occur in a thin walled pressure vessel.

### TASK 3

Sketch a diagram of the distributions of stresses in the wall of a thick-walled cylinder subject to internal pressure.

Calculate the following for a thick-walled cylinder which has an internal diameter 220 mm and an external diameter of 300mm. If the cylinder is subject to an internal pressure of 80 MPa and an external pressure of 30MPa, what is:

- the hoop and radial stress at the inner and outer surfaces of the cylinder;
- the longitudinal stress in the cylinder wall.
- the maximum shear stress in the wall.

For the thick cylinder in Task 3 above you have been asked to investigate the different types of closure the cylinder may have. From this investigation you should give a suitable report to the design office which would enable them to determine the required minimum thicknesses of each type of closure for a range of differential pressures from 40 MPa up to the ultimate strength of the cylinder. The wall material has a Yield strength of 800 MPa.

### Assessment Guidelines

You are required to attempt all aspects of the assignment. The grading criteria associated with assessment are outlined below. You must produce a fully annotated list of the printed material consulted, together with any electronic databases you have used.

Remember to include a reference list / bibliography and to apply the correct use of the IEEE (2006) referencing system.

To avoid penalties associated with Academic Misconduct and Plagiarism you should refer to the Exeter College Regulations, as detailed in your course handbook, or contact your course tutor for guidance.

### Support Texts

There are no essential resources for this unit – the unit links with the other core units and other principles and applications within the programme

- **Tooley & Dingle, (2004)** Higher National Engineering, Newnes.
- It is recommended that you read the Study Skills Guide which can be accessed via the link [STUDY SKILLS](#)
- **Remember:** [additional learning and support materials can be found for this unit at: http://www.freestudy.co.uk/](http://www.freestudy.co.uk/)

### Assessment Criteria

<b>P3</b>	Determine the principal stresses that occur in a thin walled pressure vessel.
<b>P4</b>	Determine the distribution of stresses that occur in a pressurised thick-walled cylinder.

<b>M2</b>	Apply the relationship between bending moment, slope and deflection to determine the variation of slope and deflection along a simply supported beam
<b>D2</b>	Justify the material choice for a given beam

This form will normally be filled out by the assessor and imported into the learner's Moodle folder. The marks will also be entered on the BTEC Tracking System which learners can also access to track their assessments on every unit they are studying.

### 7.3

#### Conditions for the award of the HNC

To achieve a Pearson BTEC Level 4 Higher National Certificate qualification a student must have:

- completed units equivalent to 120 credits at level 4
- achieved at least a pass in 105 credits at level 4.

#### Compensation provisions for the HNC

Students can still be awarded an HNC if they have not achieved a Pass in one of the 15-credit units completed, but have completed and passed the remaining units.

#### Conditions for the award of the HND

To achieve a Pearson BTEC Level 5 Higher National Diploma qualification a student must have:

- completed units equivalent to 120 credits at level 5
- achieved at least a pass in 105 credits at level 5
- completed units equivalent to 120 credits at level 4
- achieved at least a pass in 105 credits at level 4.

#### Compensation provisions for the HND

Students can still be awarded an HND if they have attempted but not achieved a Pass in one of the 15-credit units completed at level 4, and similarly if they have attempted but not achieved a Pass in one of the 15-credit units at level 5. However, they must complete and pass the remaining units for an HNC or HND as per the unit rules of combination of the required qualification.

## 8. Referencing Guide

ALL referencing MUST be completed using IEEE guidelines [LINK to video.](#)

General guidance on study skills and referencing is available through the Exeter College [Research Skills](#) area of the Learning Centre Portal. You may also like to purchase a copy of the referencing guide '*Cite them rite*' or access one of the library copies of this.

It is also important that you take note of the Exeter College Plagiarism and Academic Misconduct Policy to avoid the associated penalties resulting from such offences. These can be found at: [Exeter College Plagiarism and Learner Malpractice Policy](#)

Further advice on referencing can be obtained in the Technical centre's Learning Resource Centre (LRC) from the HE Subject Librarian, Julien Charrat.

## 9. External Examiners

You can find your External Examiner report for your programme on the [University Level Student Moodle pages](#)

# 10. COURSE RESOURCES

## 10. Unit Descriptor / content and Year of Study (YoS) for each pathway

The unit make up and year of study for each pathway follow the following plans. For more information on the individual unit aims, assessed Learning Outcomes, assessment criteria and the descriptors of Higher Education Qualification at Level 4/5, learners should visit the Moodle at <https://vle.exe-coll.ac.uk/vle/mod/resource/view.php?id=183162> for all unit content

All HNC Streams Sessions to be reversed for large groups	1		Unit 2 Engineering Maths	Unit 3 Engineering Science
	2		Unit 1 Engineering Design	Unit 4 Managing a Professional Engineering Project
Level 4 Certificate in Electrical and Electronic Unit Engineering	3		Unit 19 Electrical & Electronic Principles	Unit 21 Electrical Machines
	4		Unit 20 Digital Principles	Unit 15 Automation, Robotics and PLC
Level 4 Certificate in Manufacturing Engineering	3		Unit 23 Computer Aided Design and Manufacture (CAD/CAM)	Unit 14 Production Engineering for Manufacture
	4		Unit 17 Quality and Process Improvement	Unit 15 Automation, Robotics and PLC
Level 4 Certificate in Mechanical Engineering	3		Unit 8 Mechanical Principles	Unit 11 Fluid Mechanics
	4		Unit 9 Materials, Properties and Testing	Unit 13 Fundamentals of Thermodynamics and Heat Enginseg
All HND Streams Sessions to be reversed for large groups	5		Unit 39 Further Mathematics* [SMech] [SElec]	Unit 34 Research Project [C]
	6		Unit 48 Manufacturing Systems Engineering* [SManu]	Unit 34 Research Project [C]



## 10.1.2. Module Reading List and recommended calculator:

### Recommended calculator for the HNC/D courses is:

Casio EX-991EX or the EX-991SPXii (Note: the earlier ES version has poorer display)

### Recommended Texts for Engineering HNC/D:

[+ e-book available]

#### HNC Electrical and Electronic Engineering

Hughes, E. (2008) *Hughes Electrical Technology*. 10th edn. Longman +

Van Dam, B. (2008) *Microcontroller Systems Engineering*. Susteren

Bird, J.O. (2014) *Electrical Circuit Theory and Technology*. 5<sup>th</sup> edn. Routledge

Harlow, J. H. (2012) *Electric Power Transformer Engineering*. 3rd edn. CRC Press

Bolton, W. (2015) *Mechatronics*. 6<sup>th</sup> edn. Pearson

Bird, J.O. (2014) *Electrical and Electronic Principles and Technology*. 5<sup>th</sup> edn. Routledge +

#### HNC Mechanical Engineering

Ashby, M. (2012) *Engineering Materials 1*. 4<sup>th</sup> edn. Butterworth Heinemann

Kalpakjian & Schmid. (2014) *Manufacturing Engineering and Technology*. 7<sup>th</sup> edn. Prentice Hall

Chelsom, Payne & Reavill. (2005) *Management for Engineers*. 2<sup>nd</sup> edn. Wiley

#### HNC Manufacturing Engineering

Ashby, M. (2012) *Engineering Materials 1*. 4<sup>th</sup> edn. Butterworth Heinemann

Kalpakjian & Schmid (2014) *Manufacturing Engineering and Technology*. 7<sup>th</sup> edn. Prentice Hall

Chelsom, Payne & Reavill. (2005) *Management for Engineers*. 2<sup>nd</sup> edn. Wiley

### Also recommended books for all 3 streams:

Tooley & Dingle, (2004) *Higher National Engineering*. Newnes.

Tooley & Dingle (2012) *Engineering Science*. Routledge

Bird, J.O. (2014) *Higher Engineering Mathematics*. 6<sup>th</sup> edn. +

Nicholas and Steyn (2012) *Project Management for Engineering Business and Technology*. 4<sup>th</sup> edn. Routledge

## Recommended Texts for Engineering HND:

LEONG, E.C., LEE- HSIA, C.H. and WEE ONG, K.K. (2015) Guide to Research Projects for Engineering Students: Planning, Writing and Presenting. Apple Academic Press Inc.

OBERLENDER, G.D. (2014) Project Management for Engineering and Construction . 3rd Ed. McGraw- Hill Education.

BICHENO, J. and HOLWEG, M. (2009) The Lean Toolbox . 4th Ed. PICSIE Books. CHOPRA, S. and MEINDL, P. (2015)

Supply Chain Management: Strategy, Planning, and Operation (Global Edition). 6th Ed. Pearson. SLACK, N. (2013)

Operations Management. 7th Ed. Pearson. WOMACK, J., JONES, D. and ROOS, D. (1990) The Machine That Changed the World . Free Press

## SUBMISSION OF ASSESSED WORK

### 10.2. Submission of Assessed Work

In general, all work should be submitted on Moodle by the given deadline – please refer to college assessment policy and procedures

#### 10.2.1. Example of the application of the policy on plagiarism:

If in a case the assessor's view on first submission was that the work was copied with no attempt at citation/referencing it should not be marked, in effect giving it a zero grade.

A second attempt via an in-year referral/ resubmission should be allowed (not permitted in University programmes)

If the same situation arose after a second attempt then two failed attempts will have been made and, if following University guidelines again, a **third and final attempt** should now be **offered at the end of the course by the Referral Board**. This would be capped at pass.

If the same situation arises again after the referral submission then the Unit will have to be deemed as failed.

The issue of plagiarism and this policy will be stressed by lecturers, appear on Moodle and appear on the assignments so any student claiming that they do not know what plagiarism is, or the consequences of it, will not be valid.

## RETURN OF ASSESSMENT AND FEEDBACK

### 10.3. Return of Assessment and Feedback

The majority of assessed work will be returned electronically in the relevant activity box in Moodle. The College policy is to return marked work within 15 working days.

The preferred feedback method is to give all assignment feedback in the Moodle feedback box against which the assignment was submitted. The intention is to submit all work to be assessed through Turnitin.

An example of the format and structure of the sort of formative feedback given for university level study is below:

<b>Assignment 2 Marking Assessment overall:</b>
Marion – this is another excellent submission which ticks all the boxes for Merits and Distinctions. Marking for Pass and Merits was easy so I had to concentrate on whether you achieved the Distinction criteria with your answers – you’ve certainly ‘used critical reflection to evaluate own work and justify valid conclusions’ and ‘...demonstrated autonomy and independence’, so ‘Yes’ – very well done again.
<ul style="list-style-type: none"> <li>Task 1.1-1.3 – All Correct, P2.1 – PASS, M3 - Present and communicate appropriate findings - all correct and complete - M3 (Part) ACHIEVED D1 - Use critical reflection to evaluate own work and justify valid conclusions – all correct and complete - D1 ACHIEVED</li> </ul>
<ul style="list-style-type: none"> <li>Task 2.1-2.3 – correct theories and calculations: P2.2 - PASS M3 - Present and communicate appropriate findings - all correct and complete - M3 (Part) ACHIEVED</li> </ul>
<ul style="list-style-type: none"> <li>Task 3.1-3.4 – correct theories and calculations: P2.3 – PASS M2 - Select/design and apply appropriate methods/techniques – M2 ACHIEVED M3 - Present and communicate appropriate findings - all correct and complete - M3 (Part) ACHIEVED</li> </ul>
<ul style="list-style-type: none"> <li>Task 4.1-4.3 – correct theories and calculations: P2.4 – PASS M3 - Present and communicate appropriate findings - all correct and complete - M3 (Part) ACHIEVED D2 - Autonomy/independence has been demonstrated – all correct and complete - D2 ACHIEVED.</li> </ul>
RHM

## QUICK GUIDE – Policy and Information

### 11.1. Policy and Information

Please see the Exeter College University Level Study Student Handbook [University Level Student Moodle site](#)