International Business College Manchester

PEARSON BTEC HIGHER NATIONAL CERTIFICATE AND DIPLOMA in Electrical Engineering

The Pearson BTEC higher nationals are designed to provide specialist vocational programmes, linked to professional body requirements, which offer a strong-sector related emphasis on practical skills development along with the development of requisite knowledge and understanding. The qualifications provide a thorough grounding in the key concepts and practical skills required in the sector and national recognition by employers allows direct progression to employment.

A key progression path for the BTEC HNC and HND learners is to the second or third year of a degree or honours degree programme.

The Pearson BTEC Higher Nationals in Electrical Engineering have been designed to focus on:

- The education and training of electrical engineers/technicians who are employed at a professional level in a variety of types of technical work, such as design, manufacture, maintenance and technical services areas of the engineering industry; Providing opportunities for mechanical engineers/technicians to achieve a nationally recognised level 4 or 5 vocationally specific qualification
- Providing opportunities for full-time learners to gain a nationally recognised vocationally specific qualification, to enter employment as an engineer/technician or progress to higher education qualifications such as a full or part-time degree in a related area
- Providing opportunities for learners to focus on the development of higher level skills in a technological and management context.
- Providing opportunities for learners to develop a range of skills, techniques and attributes essential for successful performance in working life.

The **Level 4 HNC in Electrical Engineering** is a QCF programme with a minimum of 120 credits. It offers career progression and professional development for those already in employment and opportunities to progress into higher education. The qualifications can be undertaken by part-time learners studying over two years or by full time learners over one year.

The **Level 5 HND in Electrical Engineering** is a QCF programme with a minimum of 240 credits**.** It provides greater breath and specialisation than the BTEC Level 4 HNC. HND's are normally undertaken by full-time learners over two years. The qualification prepares learners for employment in the electrical engineering sector and it is suitable for learners who have already decided that they want to enter this area of work. Other learners may want to extend the specialism followed on the BTEC level 4 programme or progress into higher education. Progression from this qualification may be

into employment in the mechanical engineering sector where learners may work towards Incorporated Engineer status. Alternatively learners may progress onto degree courses in related engineering areas such as mechanical engineering or automotive engineering.

1. **Awarding Institution: Pearson**

2. **Teaching Institution: International Business College Manchester**

3. **Final Award: BTEC Level 4 HNC or BTEC Level 5 HND**

4. **Programme Title: BTEC HNC/HND in Electrical Engineering**

5. **Date of Revision: February 2018**

6. **Aims of the Programme**

- To develop a range of skills, techniques, personal qualities and attributes essential for successful performance in working life and thereby enabling learners to make an immediate contribution to employment and the appropriate professional level.

- To prepare learners for a range of technical and management careers in Electrical Engineering

- To equip individuals with knowledge, understanding and skills for success in employment in electrical engineering related industries

- To enable progression to or counting towards an undergraduate degree or further professional qualification in electrical engineering or related area

- To provide a significant education base for progression to Incorporated Engineer level

7. Programme Outcomes:

i)   Knowledge and understanding

Knowledge and understanding of:

- Effective methods for enquiry, research, analysis and evaluation
- Relationships between theory and practice and the effectiveness and limitations of concepts, models and theories
- Contemporary issues affecting the engineering industry and the business world
- The value of drawing together knowledge and ideas from a range of perspectives
- Environments in which engineering organisations operate
- Methods to enable effective communication

- **Teaching, learning and assessment methods used:**

Each individual module has its own specification, with aims, learning outcomes and assessment methods. These are issued to students at the start of each semester.

Teaching learning method.

The course aims to provide an integrated framework of methods and approaches to enable the development of student knowledge and understanding in key areas of business theory and practice. Learning will be developed through individual and group work, tutor led inputs, role plays, presentations, discussions and workshops. (Distance Learning Options are also available). Students are encouraged and supported to use their independent study (including directed reading and research) to consolidate, supplement and broaden their knowledge and understanding of subject areas.

Formative/Summative Assessment Methods include;

Examination of written reports/assignments
Direct observation of oral presentations and/or
group activities
One to one guided discussions
Oral and written questions; examination of
completed workbooks and templates

Students have opportunities for discussing the progress of their course by regular reviews with their tutors/programme leader and through peer assessment. They are also encouraged and supported to develop skills in the self-evaluation of their own work

ii) Intellectual / Cognitive skills:	**Teaching, learning and assessment methods used:**
• Enquiry and research skills • Identifying and solving problems • Relating theory to practice and vice versa through the application of concepts, models and theories • Taking responsibility for personal learning and development, and self awareness • Analysis and evaluation to develop reasoned arguments • Synthesis and integration of information from a number of sources and perspectives • Giving and receiving feedback	Skills development in students will occur through a variety of different activities including preparation of written work, oral presentation and participation in group activities. Activities undertaken outside of formal class time such as research, meeting in groups, working on presentations and other independent work that students might undertake will also contribute to skills development and an increase in confidence and personal awareness. In addition to the immediate Course Team students have opportunities to access LIBRARY, IT LAB facilities from College and e-learning resources A range of assessment methods allow students to demonstrate their use of skills, to reflect on their application and to plan and experiment in ongoing activities/projects. **Formative/Summative Assessment Methods**. Examination of written assignments and reports Observation of oral presentations (both individual and group) Individual research project when applicable One to one guided discussions Student feedback and ILPs Questioning - both written and oral In relation to skills development students have opportunities for discussing drafts for coursework, with both lecturers and their student colleagues, and are also encouraged and supported to develop skills in the self-evaluation of their draft assignments.

iii)   Practical, research and independent learning skills

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• Locating, retrieving and evaluating information from a variety of sources to enable the investigation and exploration of issues/situations in engineering related areas • Time management in group and individual work • Effectively presenting research from theory-to-practice tasks, • Developing interdependent relationships with lecturers, peers and colleagues • Applying IT skills to support research and communication • Accurate and consistent use of the Harvard referencing system	As indicated in the previous sections, skills are developed through tutor led inputs/workshops and work on individual and group projects. Guidance and support to identify, locate and use material from the library and other sources (including when working off campus), is provided. Support is given to encourage self- directed learning and students are encouraged to plan, review and monitor their own work schedules in order to meet deadlines. Personal development planning is a key feature of the work that students undertake throughout the programme. There is individual tutor support for the development of individual project work and students also have opportunities for discussing the drafts for assignments with their tutors. Students are encouraged and supported to develop skills in self-evaluation through ongoing critical reflections of their completed work. Assessment criteria are discussed with students and they are encouraged and supported to develop skills in the use of self-evaluation techniques on drafts of their work. The Harvard referencing format is explained, discussed and required in all written assessments. **Formative/Summative Assessment Methods**. Completed assignments, reports, presentations and student feedback report & ILPs enable assessment of the student's ability to apply their skills. Regular progress reviews enable the assessment of students ability to complete work to deadline and to effectively manage time Assessment of draft assignments allows identification of appropriate use of independent research and application of theory

iv) Transferable/key skills

• Effective management of learning, development and career planning • Effective communication skills – both face to face and in writing • Time Management skills – the ability to plan and monitor the use of time and implement appropriate time management strategies • The ability to work independently and interdependently • Effective problem solving and decision making skills • Effective use of IT resources • Flexibility and adaptability	Skills development is encouraged through the different aspects of the programme. Through the group work, discussions, presentations and activities, students have a wide range of opportunities to learn and practice a range of transferable skills. Personal development lessons and activities take place throughout the programme and students on both HNC and HND programmes will also undertake the "Personal and Professional Development" unit as part of the programme. Feedback from tutors and peers, plus ongoing self assessment encourage the student to identify his/her strengths and development needs. The use of a personal development plan enables each student to set their own individual learning objectives, devise action plans and review their progress in relation to key/transferable skills development. Students are supported to identify, explore and develop the link between their development of skills and opportunities for careers and/or further study, and have access to College resources for information and guidance. **Formative/summative assessment methods:** Examination of written assignments Observations of presentations (individual and group) Discussions/reviews with students

10. Programme Structure

Sample Programme Structure*:

Semester 1

Unit	Unit Title	Level	Unit credit
2	Engineering Science	4	15
3	Project design, implementation and evaluation	5	20
27	Personal & Professional Development (commencement)	5	15

Semester 2

Unit	Unit Title	Level	Unit credit
1	Analytical Methods for Engineers	4	15
6	Health, Safety and risk assessment in engineering	4	15
5	Electrical and Electronic Principles	5	15

Semester 3

Unit	Unit Title	Level	Unit credit
63	Electrical Power	4	15
65	Utilisation of Electrical Energy	5	15
27	Personal and Professional Development/Project Design: (progress and Year 1 analysis for HND students or completion and assessments for HND students)		
3	Project design, implementation and evaluation (completion and assessment)		

Students should complete all Year One/ HNC units before progressing onto the HND in year 2.

Semester 1 (4) September to December

Unit	Unit Title	Level	Unit credit
28	Research Project	5	20
59	Advanced Mathematics for Engineering	5	15
38	Managing People in Engineering	4	15

Semester 2 (5) January to April

Unit	Unit Title	Level	Unit credit
35	Further Analytical methods for engineering	5	15
62	Mechatronic Systems	4	15
30	Quality Assurance and management	5	15

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Semester 3 (6) April/May to July

Unit	Unit Title	Level	Unit credit
52	Energy Management	5	15
61	Electrical, electronic and digital principles	5	15
28	Research Project: completion of unit and assessment	5	As above
27	Completion of Personal and Professional Development for HND students	5	As above

Optional units may change from those listed above, following discussion with learners. The precise structure of each semester could alter depending upon the number and make up of students, their individual learning requirements and the relevant expertise within the tutor team.

The Next intake for this programme will be in September 2018

8. **Entry Criteria:** To gain acceptance on this programme candidates **MUST** be a minimum of 18 years old and have academic qualifications equivalent to 2 x 'A' level passes (E grade) or vocational equivalent at Level 3 (for example a BTEC Level 3 qualification in Business)

   Initial Interview with potential candidates will include examination of programmes of study and prior qualifications obtained and clarification that the student has the required level of English (**minimum** IELTS 5.5 with at least 5.5 in both reading and writing) to enable completion of the appropriate course of study. Potential students will also be required to produce a written statement outlining their reasons for choosing both the college itself and their particular course of study. Information gained from the initial interview will enable the interviewer to establish suitability for the programme and advise the student accordingly. All results will be used to inform the production of the student's Individual Learning Plan.

9. **Assessment:** The purpose of assessment at HNC and HND level is to ensure that effective learning of the content of each unit has taken place. Evidence of this learning and of the application of the learning is required for each unit. The combination of assessment methods detailed above will be used in order to enable students with differing learning styles to have the opportunity to demonstrate their learning and to provide adequate opportunity to establish authenticity of evidence.

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The assessment of the evidence relates directly to the assessment criteria for each unit, as set out in the national standards for the qualification. Grade descriptors are also provided to assist assessors in determining the most appropriate grade to award.

Students must reach the required standard to pass each unit. There will be one referral opportunity for each unit only. If a student has not successfully passed following their second submission they will be required to re-take the unit and pay the required fees.

Grading classifications:

Learners will be awarded a pass, merit or distinction qualification grade, using the points gained through the best 75 credits based on unit achievement.

Unit credit points available for specified unit grades for (either level 4 or Level 5 units

Pass: 0 points

Merit: 1 point

Distinction: 2 points

Calculation of the grade is based on the learner's best performance in units at or above the level of the qualification to the value of 75 credits i.e. for the HNC only units at level 4 or above can be included and for an HND only those at Level 5 or above can contribute towards the overall grading.

The points relate to the credits for each unit i.e. a "merit" grade awarded for a unit of 20 credits would equate to 20 points. A "distinction" grade awarded for a unit of 15 credits would equate to 30 points.

OVERALL QUALIFICATION GRADE

0-74 Points   PASS
75-149   MERIT

150+   DISTINCTION

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10. **Programme Roles and responsibilities**

The **Programme Leader** will take responsibility for the day to day operation of all aspects of the programme, including student liaison, timetable planning, assignment organisation and tracking of progress.

Tutors/Assessors will undertake the day to day teaching on the programme and will deliver the lessons according to the standards for each individual module/unit and the requirements of the assignment brief. Tutors will also assess all completed work against the relevant unit standards. Assessment plans will be produced for each term and will be issued to students during week one.

An **Internal Verifier (IQA)** is appointed within IBCM who will be responsible for approving coursework assignments and monitoring standards through moderation of completed assessments. (The IQA may or may not also be the Programme Lead). The IQA will produce a termly sampling plan to confirm their verification activity.

11. **The role of the awarding body**

IBCM will ensure that the programme is managed in line with all Pearson requirements and will provide relevant information in a timely and accurate manner as requested. Pearson will undertake Standards Verification visits and annual Academic Management Reviews. Pearson will issue certificates to all learners who successfully complete the programme following assessment and verification of all units undertaken.

12. **Support for Learners**

Students are encouraged and supported to manage their own learning needs. The following is provided for them:

- An induction programme including one to one discussion with the Programme Leader
- A Student Handbook with detailed unit specifications
- A unit dedicated to personal development, allowing class time to engage in self assessment and management of a Personal Development Plan
- Verbal and written feedback on all work produced and opportunity to discuss progress with tutor/programme leader during tutorials and one to one progress reviews
- Peer assessment opportunities
- Library and PC Lab resources

- A series of specific study skills support sessions, including assignment writing, critical thinking and Harvard referencing will be timetabled for students.

In addition, students identified with specific support needs will be offered tailored help, guidance and support as appropriate to their needs, including adaptation of resources and assessment methods/approaches.

13. Enrichment:

IBCM has a full programme of social and enrichment opportunities for students to embrace the thriving culture and benefits of a modern cosmopolitan city in Manchester.

14. Policies and Procedures

Students will be issued with a copy of the updated Student Handbook and all relevant policies and procedures including: Health and Safety, Equality and Diversity, Plagiarism and Malpractice, Assignment submission, Appeals and all college rules and requirements in terms of attendance and behaviour.   Students will also be required to sign a Student contract.

15. Arrangements for Review

The programme is reviewed annually to ensure currency and relevance. Any Pearson changes to unit specifications will ensure amendment as and when appropriate. Unit tasks/activities will be reviewed to ensure they are current. The programme of internal quality assurance (including standardisation) ensures quality and consistency across the assessment team.

The programme is subject to a number of mechanisms to ensure academic standards. It conforms to the QAA subject benchmarking statement for degrees in Business and Management and the College's defined level descriptors for undergraduate awards. All aspects of the programme are examined by the Pearson Standards Verifier and are subject to an annual Academic Management Review.

Review date: 20 February 2018