



University of the  
West of England



**Gloscol**

**FdSc Electronic Engineering**

**By part time study**

**Programme Specification**

**2008**



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## Programme Specification

### Section 1: Basic Data

<b>Awarding institution/body</b>	University of the West of England
<b>Teaching institution</b>	Gloucestershire College Gloscol
<b>Faculty responsible for programme</b>	Environment and Technology
<b>Programme accredited by</b>	
<b>Target award title</b>	Foundation Degree Electronic Engineering
<b>Default award title</b>	
<b>Interim award title</b>	Certificate of Higher Education Electronic Engineering
<b>Modular Scheme title (if different)</b>	
<b>UCAS code (or other coding system if relevant)</b>	
<b>Relevant QAA subject benchmarking group(s)</b>	Subject benchmark statements: Engineering, QAA (2006)  Foundation Degree Qualification Benchmark, QAA (2004)
<b>On-going/valid until</b>	<b>Date...</b>
<b>Valid from</b>	<b>September 2008</b>
<b>Authorised by...</b>	<b>Date...</b>

**Version Code:**

## **Section 2: Educational Aims of the Programme**

The generic aims of any Foundation Degree programme is that it should " *enable learners to benefit from the interpretation of ideas and the experience of practice, within the wider context of employment and one in which knowledge, understanding and skills are clearly integrated by focusing on learning within a work context, that is underpinned by both vocational and academic understanding. Foundation Degrees should demonstrate learning outcomes that are explicitly relevant to both employers' and perhaps also professional, needs. Furthermore... the application of the knowledge, understanding and skills achieved should enable successful progression both within employment and to honours level or to other qualifications*" (QAA Foundation Degree Benchmark)

The educational aims of the programme outlined within this document are therefore to

1. provide education and training within the discipline of electronic engineering to prepare graduates for a range of technical and managerial careers within the engineering field;
2. provide opportunities for students from a wide range of backgrounds and academic attainments to achieve their full academic potential;
3. provide successful graduates with a sound foundation for progression to higher degree level study thus ensuring subsequent enhanced career development;
4. facilitate the academic and personal development of individual students and to foster a culture of independent and life-long learning;
5. enable students to benefit from learning opportunities, and to apply the knowledge gained from the course to solving problems, participating usefully in commercial decision making, operating effectively as a member of a multidisciplinary team, having an understanding of the principles of marketing and financial control in the workplace;
6. serve the local and regional needs of industry by providing opportunities to enhance the skills and educational base of the workforce:
7. provide up-to-date curricula to meet the specific aims of named awards
8. enable students to communicate clearly, concisely and persuasively with individuals and groups, within and outside the profession, both orally and in writing.

### Section 3. Learning Outcomes of the Programme

The award route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas:

#### A. Knowledge and understanding

Knowledge and Understanding	Teaching/Learning Methods and Strategies	Assessment
<ol style="list-style-type: none"> <li>1. The mathematical and scientific principles that underpin the solution of engineering problems.</li> <li>2. The scientific principles that underpin the design and operation of engineering systems.</li> <li>3. Core engineering science and technologies with greater depth in areas pertinent to electronic circuit design, including analogue, digital and embedded processor based systems.</li> <li>4. The regulatory framework governing safe practice within the workplace.</li> <li>5. The principles of electrical and electronic components and circuits.</li> <li>6. Management techniques including cost control, project planning and quality control, assurance and management systems.</li> </ol>	<p>Teaching and Learning will take place through a rich mix of lectures, tutorials' and practical work taking a variety of forms.</p> <p>Practical work, as appropriate to this type of course, will include individual and group assignments, laboratory and design office work and IT based activity.</p> <p>There will be a strong focus on learning through the work environment through work-based projects and learning in the workplace. Students will be expected to draw on their professional and work experience to conceptualise their learning.</p> <p>Throughout, the student is encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.</p> <p>Additional support is provided through the contribution of external lecturers, visits to sites and exhibitions and tutorial support.</p>	<p>Students' knowledge and understanding will be assessed through a combination of examinations, individual and group projects, written assignments, laboratory-based work <i>and industrially-based work</i>.</p> <p>Each module is assessed separately in away that is appropriate to the nature of the module and its intended learning outcomes.</p>

## B. Intellectual Skills

Intellectual Skills	Teaching/Learning Methods and Strategies	Assessment
<p><i>Students should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Apply engineering principles, numerical methods and analytical skills to evaluate, analyse and solve problems of an engineering nature.</li> <li>2. Apply managerial principles and practices to evaluate and propose solutions to industry-based problems.</li> <li>3. Demonstrate the ability to operate as an independent learner by undertaking a significant individual project requiring the synthesis and application of knowledge gained throughout the course.</li> <li>4. Demonstrate critical thinking, reasoned conclusions and sustainable judgments.</li> </ol>	<p>Basic concepts and principles are generally, but not always, presented in level 1 modules and then developed at a greater intellectual depth at level 2.</p> <p>Students' analytical skill is developed through problem solving and through a wide range of assessed tasks.</p> <p>The relevance of the taught part of the course to industrial practice is reinforced through project, group and work-based activities</p> <p>An individual project, conducted in the work-environment will ensure that both B3 and B4 can be adequately addressed.</p>	<p>Students will be assessed through a combination of examinations, individual and group projects, written assignments and laboratory-based work</p> <p>Assessment tasks are designed to be formative as well as summative thus ensuring a structured development of intellectual (and other) skills throughout the course.</p>



### C. Subject, Professional and Practical Skills

Subject/Professional/Practical Skills	Teaching/learning methods and strategies	Assessment
<p><i>Students should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Demonstrate the ability to operate independently, and as part of a team, in order to analyse problems of a technical and managerial nature and to provide appropriate solutions.</li> <li>2. Use and apply appropriate aspects of information technology.</li> <li>3. Use laboratory and workshop equipment to generate and thence interpret data.</li> <li>4. Operate safely within their professional fields and be aware of commercial, legal and social considerations.</li> </ol>	<p>The professional and skills-focused nature of this course ensures that professional and practical skills are developed as an inherent part of course delivery.</p> <p>Lectures, laboratory classes, tutorials and workshops together with self directed learning will ensure the inculcation of these skills</p> <p>The level 1 and level 2 work-based learning modules will facilitate the development of professional and practical skills in a real-life professional environment</p> <p>Work-based learning and college based activities will support one another to reinforce learning</p>	<p>Students will be assessed through a combination of examinations, individual and group projects, written assignments and laboratory based work</p> <p>The wide range of assessment techniques will ensure that students are given every opportunity to demonstrate their abilities in these areas.</p> <p>Assessment of work-based learning will play an important role, particularly in assessing C1 and C4.</p>

#### D. Transferable skills and other attributes

Transferable skills and other attributes	Teaching/learning methods and strategies	Assessment
<p><i>Students should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Act as independent learners and carry this ability into their future career and/or further studies.</li> <li>2. Demonstrate a range of skills that are transferable within an engineering context including communication (both oral and written), problem solving, information technology, application of numbers, working with others and improving their own learning and performance.</li> </ol>	<p>Most modules will be aimed at developing personal, transferable skills inherently within the module delivery.</p> <p>Self-directed learning forms a major element of all modules and the necessity to work within tight deadlines is an essential requirement across the curriculum.</p> <p>The ability to communicate orally and in writing will be developed across the range of modules. Independent study will encourage, facilitate and stimulate independence in learning.</p>	<p>Transferable/key skills are generally incorporated within modules and are related to relevant assessments as appropriate.</p> <p>Students will be assessed through examinations, individual and group projects, written assignments and laboratory-based work.</p> <p>The wide range of assessment techniques will ensure that students are given every opportunity to demonstrate their skills in these areas.</p>

See Table 3 for the mapping of the above Learning Outcomes across the modules that make up this programme.

## **Section 4: Programme Structure**

### **4.1 Modules within the Programme**

Modules within the programme, the levels at which they are studied; their credit value and pre/co requisites are given in Table 1 below. All modules are mandatory, i.e. must be studied and passed for the award, unless exemption is given for accredited prior learning. The modules are designed to provide coverage of all the key knowledge and skills areas and to assess them in order to meet the programme aims and learning outcomes.

Work-based learning modules are designed give students the opportunity to integrate academic learning and learning that can take place in the work-base. In this way students can benefit from work-based learning opportunities in order to develop relevant intermediate higher level skills and knowledge. As the course is designed for part-time students who are industry based, many other modules will draw on learning opportunities within the individual student's working environment in order to integrate theory and practice.

Table 1. Modules within the programme

Module Code	Module Title	Weighting (Credits)	Level
UFEETT-20-1	Digital Design & Instrumentation	20	1
UFEEV5-20-1	Health & Safety in an Industrial Context (WBL)	20	1
UFEE79-20-1	Analogue Circuit Principles	20	1
UFEETU-20-1	Digital Systems Development	20	1
UFEETS-20-1	Programming in C	20	1
UFQESD-15-1	Analytical Methods	15	1
UFEEUK-20-1	Practical Electronics	20	1
UFQESJ-15-1	Further Analytical Methods	15	1
UFEE69-20-2	Embedded Microprocessor Systems	20	2
UFEEV4-20-2	Work-based Project (WBL)	20	2
UFEEU3-20-2	VHDL for Synthesis	20	2
UFMESR-15-2	Project Management	15	2
UFMEST-15-2	Quality Assurance and Management (WBL)	15	2

### **4.2 Pattern and Mode of Attendance**

- Table 2 is indicative of the pattern of course delivery although some modules may be delivered in a semester mode and others in a year-long mode.
- Students will attend the college for theory modules typically for one-day per week attendance each academic year.
- Modules are weighted at 10 to 30 credits. The hours allocated to teaching and learning activities will be proportionate to the weighting value; however, work based modules will involve an added number of hours in recognition of the nature of the type of learning and the time required in practical situations.
- Attendance at college is one day per week for 7.5 hours, normally for 30 weeks but this can be extended to counter the shortfall due to public holidays etc.

Table 2: Programme pattern

**Year 1**

Digital Design and Instrumentation UFEETT-20-1	Analytical Methods UFQESD-15-1	Programming in C UFEETS-20-1	Digital Systems Development UFEETU-20-1
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**Year 2**

Further Analytical Methods UFQESJ-15-1	Health & Safety in an Industrial Context (WBL) UFEEV5-20-1	Embedded Microprocessor Systems UFEE69-20-2	Project Management UFMESR-15-2	Practical Electronics UFEEUK-20-1
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**Year 3**

Analogue Circuit Principles UFEE79-20-1	Quality Assurance & Management (WBL) UFMEST-15-2	VHDL for Synthesis UFEEU3-20-2 NEW	Work Based Project UFEEV4-20-2 (WBL) NEW
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**PLEASE NOTE: REFER TO THE FACULTY ON-LINE INFORMATION SYSTEM FOR UP-TO DATE STRUCTURE INFORMATION**

<http://www.cems.uwe.ac.uk/exist/index.xql>

**4.3 Work Based Learning**

Students will explore issues within their organisation, using the knowledge gained on the course to address a problem(s) related to engineering and/or management processes and practice within their own working environment.

The aim is to foster independent learning that enhances lifelong learning and their own professional development. Tutor support in the form of tutorials will be provided and college staff will visit the student in the workplace particularly while s/he is undertaking the project module. Students will be further supported in the workplace by a work-based supervisor/mentor from within their own organisation. This supervisor will be approved by the College and will engage with the College visiting tutor to ensure that the student gains maximum benefit from the work-based learning opportunities.

The work based modules; (Work Based Project, Health & Safety in an Industrial Context, Quality Assurance and Management) will use a problem-based learning approach. The modules will revolve around the development of knowledge and skills through a series of engineering/business problems/scenarios. These will be used to develop student skills, to allow the student to synthesise, further develop and apply knowledge acquired throughout the course and allow them to demonstrate higher level skills and attributes.

**4.4 Award and Interim Awards**

**4.4.1 Award of the Foundation Degree**

To be awarded the Foundation degree students must study and pass all modules as indicated in Table 2 and achieve a total of 240 CATS credits. Where certified APL/APEL has been granted on entry to the course then this requirement will be reduced according to the amount of APL/APEL awarded.

#### **4.4.2 Alternative awards**

A student who fails to meet the requirements for the Foundation Degree or wishes to withdraw from the course will be offered the following award if they meet university requirements;

Certificate of Higher Education in Electronic Engineering: 120 credits at level 1 or above with at least 100 credits from the following selection of modules:

UFEETT-20-1 Digital Design & Instrumentation  
UFEE79-20-1 Analogue Circuit Principles  
UFEETU-20-1 Digital Systems Development  
UFEETS-20-1 Programming in C  
UFQESD-15-1 Analytical Methods  
UFEEUK-20-1 Practical Electronics  
UFEE69-20-2 Embedded Microprocessor Systems  
UFEEV4-20-2 VHDL for Synthesis

Certificate of Higher Education: 120 credits at level 1 or above

#### **4.5 Progression**

To progress automatically to the BEng (Hons) Electronic Engineering course at the equivalent of Stage 2 entry on the full-time degree course at UWE students must successfully complete and be awarded the Foundation Degree. This course is offered in both full-time and part-time mode.

### **Section 5: Entry requirements**

#### **5.1 Minimum entry requirements**

Relevant entry criteria for admissions to this programme are shown below. These constitute a normal minimum requirement for entry onto this programme.

- Passes in five subjects, which must include GCSE's (at grade C or above) in English Language and Mathematics (or equivalent) and at least 120 points on the national tariff in relevant subjects at GCE or VCE A-Level (or a VCE double award) or a Merit-Merit grade in National Certificate or Diploma Electronic Engineering or equivalent.
- Appropriate Employment

Consideration will also be given to applicants who possess any of the alternative qualifications listed below:

- Scottish Vocational Education Council (SCOTVEC) awards in engineering or technology;
- Appropriate science/engineering-based Access and Foundation courses; International and overseas qualifications (including the International and European

- Baccalaureates);
- Other learning experience (both certificated and uncertificated), including GNVQ.

Notwithstanding the above, the College at its absolute discretion may admit students who do not clearly fall within the aforementioned categories. Students who do not achieve these qualifications may be asked to attend an assessment session and interview to establish their ability to successfully attempt the course. In some cases the lack of formal academic qualifications will require an assessment at entry level based upon professional and practical experience. If students do not satisfy assessors regarding their ability to succeed on the course, advice will be offered regarding possible routes for preparation for gaining entry to the foundation degree.

## **5.2 Mature Student Entry**

It is envisaged that many students on the programme will be mature returnees to education. Mature students over the age of 21 will be favourably considered for entry to the programme irrespective of the above requirements. Such a candidate will be assessed by interview. Other appropriate means may be used to determine his/her suitability and ability to cope with the demands of the programme. The acceptance of such a candidate will be at the discretion of the Programme Manager.

## **5.3 Credit for Prior Learning**

Accreditation for prior learning (APL) or experiential prior learning (APEL) may be granted for modules in accordance with UWE regulations.

## **Section 6: Assessment Regulations**

The University Modular Assessment Regulations apply to this programme.

## **Section 7: Student learning: distinctive features and support**

### **1. Staff**

Academic staff who teach on this programme are academically well qualified up to MSc level, have relevant extensive industrial experience and have extensive teaching experience. They hold PGCE qualifications and are experienced in dealing with the needs of mature and part-time students

### **2. Teaching Facilities**

Students on this programme will benefit from excellent teaching facilities including well-equipped workshops and laboratories in the new Docklands campus, well equipped Electronics and Material Testing Labs and state-of-the-art classrooms with Interactive Whiteboards and Internet connections

### **3. Equipment**

The educational experience of students on this programme will be enhanced by the use of equipment such as computer based test instrumentation, microprocessor and microcontroller

development systems and miniturised PLC electro mechanical rig and specialist software, including electronic and mechanical Computer Aided Design

#### **4. Student Support**

The College is committed to widening participation in learning, including enhancing progression into HE provision. It has high quality learning support services which are used to address the barriers to learning faced by many learners in the area, including ESOL needs, child care barriers, physical disability barriers, financial and personal problems and cultural barriers. There are specific learner support arrangements for flexible learners in the workplace and extensive support mechanisms for managing mentoring programmes. 'Well organised additional learning support for students' was identified as a key strength in our last inspection report. All students receive tutorials for academic and pastoral support Additional support will be provided through:

- The Learning Gateway (i.e. a library)
- IT suites used for tutorial sessions
- an HE Student Support Pack
- a Work-Based Learning department to support work placements

#### **5. Industrial Support**

The College has strong employer links which are used to inform the curriculum by identifying changing skill needs and gaps in provision. Employers also actively participate in aspects of course delivery. A large international electronic manufacturer of airborne systems is currently working with the College to establish a level 4 higher level apprenticeship. The technical certificate for this qualification is the foundation degree in electronic engineering. The object is to allow the successful students to progress onto the BEng (Hons) programme to reinforce the skills base of the business.

#### **6. Support by UWE**

The course will be fully supported by UWE in accordance with its Academic Agreement framework. Students will be enrolled as UWE students and have access to all facilities on the University campus including physical and on-line access to the library, IT facilities and all professional services provided by the University.

### **Section 8 Reference points/benchmarks**

The following external reference points have been used to design this programme:

1. The QAA Foundation Degree qualifications benchmarks (2004).
2. The QAA Guidelines for preparing programme specifications.
3. The QAA Framework for Higher Education Qualifications in England, Wales and Northern Ireland
4. The QAA Benchmark Statement for Engineering (2006)
5. UWE's Learning & Teaching Strategy
6. UWE's Regulations on assessment (section 2.3 of the general regulations)
7. Feedback and advice from employers including representatives from members of Gloscol Employers Forum

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and

demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules can be found in module specifications. These are available on the University Intranet.

Programme monitoring and review may lead to changes to approved programmes. There may be a time lag between approval of such changes/modifications and their incorporation into an authorised programme specification. Enquiries about any recent changes to the programme made since this specification was authorised should be made to the relevant Faculty Administrator.

Table 3: Mapping of Outcomes

Code	Module	Knowledge & Understanding						Intellectual Skills				Professional & Practical Skills				Transferable Skills	
		A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2
UFETT-20-1	Digital Design & Instrumentation	✓	✓			✓		✓				✓	✓	✓	✓	✓	✓
UFEEV5-20-1	Health & Safety in an Industrial Context (WBL)				✓			✓	✓	✓	✓				✓	✓	✓
UFEE79-20-1	Analogue Circuit Principles	✓	✓			✓		✓				✓	✓	✓	✓	✓	✓
UFEETU-20-1	Digital Systems Development	✓	✓	✓		✓	✓	✓		✓	✓		✓	✓		✓	✓
UFEETS-20-1	Programming in C	✓	✓							✓	✓	✓	✓	✓		✓	✓
UFQESD-15-1	Analytical Methods	✓						✓				✓				✓	✓
UFEEUK-20-1	Practical Electronics		✓	✓	✓	✓	✓						✓	✓	✓	✓	
UFQESJ-15-1	Further Analytical Methods	✓						✓				✓				✓	✓
UFEE69-20-2	Embedded Microprocessor Systems		✓	✓		✓	✓	✓					✓	✓		✓	✓
UFEEV4-20-2	Work Based Project (WBL)							✓	✓	✓	✓	✓			✓	✓	✓
UFEEU3-20-2	VHDL for Synthesis		✓	✓		✓		✓		✓				✓		✓	✓
UFMESR-15-2	Project Management	✓		✓	✓		✓		✓		✓	✓			✓	✓	✓
UFMEST-15-2	Quality Assurance and Management (WBL)				✓	✓	✓		✓	✓			✓		✓	✓	✓



## **Part 3: Contextual Documentation for Validation**

### **1. INTRODUCTION**

Gloucestershire College is the leading provider of Engineering training in the county, training apprentices from 35 different companies and providing learning opportunities for many more employment-based students. We have a wealth of experience and expertise in the delivery of academic and vocational learning in engineering, including HE level courses. Our courses have attracted buoyant recruitment and underpinned growth in student numbers, demonstrating high levels of retention and achievement, improving year on year and above national benchmarks.

For the academic year 2007-08, we have 68 students following HNC and HND engineering courses. The engineering department has professional expertise and strengths, providing a sound base from which to meet the needs of employers within the electronic and mechanical manufacturing engineering sector in the South West.

The programme outlined in this document is a natural extension of the college's provision based on its past achievements and its future aspirations to be a leading provider of engineering education in the region.

### **2. STAFFING**

#### **2.1 Profile of Teaching Staff**

The college has a strong team of experienced staff within the specialist area. The department and its staff have a successful history of delivering HE programmes, including those at the same level as Foundation Degrees. The Head of the Engineering School plays a leading role in developing the college's strong employer links with the sector. Lecturers in the department have had much industrial experience, and use this experience to add value to the courses they teach.

All teaching staff have obtained, or are currently obtaining a PGCE teaching qualification.

#### **2.2 Responsibility for Award leadership**

An award director will be appointed from the staff team at GLOSCOL. The director will be responsible for all aspects of delivery of the programme outlined in this programme specification and will be responsible for liaising on a regular basis with key staff at UWE.

#### **2.3 Staff CVs**

These CVs identify those staff responsible as module leaders for all of the modules within the programme.

#### **2.4 Programme Coordination - UWE**

The programme will be supported through the administrative and academic mechanisms identified within the Institutional Agreement (see agreement document).

### **3. DEMAND FOR THE PROGRAMME**

#### **3.1 Rational for Development**

This Foundation degree will be offered at GLOSCOL and will fill a gap in provision in the area. Currently, in order for local students to undertake a foundation degree in Electronic Engineering or an Engineering related field, they have to travel to Bristol, Bath, Birmingham or further afield.

The Foundation Degree in Electronic Engineering will address the needs of sector employers in relation to skills needs and workforce development and assist in creating the conditions that will enable employers to be more successful by increasing the calibre and qualification levels of students completing Engineering programmes.

Its development is supported by local and regional employers, including: Gloucestershire Strategic Engineering Group (GSEG), GE Aviation, SKF Aero-engine Bearings, Spirax Sarco, Delphi Diesel, FSB (Federation of Small Businesses) and GTG (Gloucester Training Group).

#### **3.2 Engineering Skills Needs in Gloucestershire**

The programme will address the needs of sector employers in relation to recruitment, retention, skills needs and workforce development and assist in creating the conditions that will enable businesses to be more successful by increasing their productivity and competitiveness. It will respond to the Regional Economic Strategy and Delivery Plan for the SW which identifies advanced engineering as a priority sector as a focus for specific activities, the SW Enterprise and Skills Alliance whose goal is to match individual skills to employer needs, the Gloucestershire LSC Strategic and Operational Plans and local economic data, including the Gloucestershire First report on the Advanced Engineering sector in Gloucestershire.

Gloucestershire has a higher proportion of people employed in manufacturing engineering, compared with regional and national averages. The Investor Support Programme report on the Advanced Engineering Sector in Gloucestershire (March 2004) identifies that, "The largest percentage of the workforce is in lower skilled roles and that there is continuing pressure to reduce the numbers of these jobs, whilst at the same time retraining and broadening the roles and involvement of the remainder in the businesses". The Regional Economic Strategy identifies that, "the need for HNC, HND and graduate engineers and process technology specialists continues to increase in line with the move to systems engineering, which is causing the shortages to worsen". In order to meet this need, it is vital that the sector is able to secure new recruits and young people in particular, to the sector and support their development, through training, to enable them to attain higher level skills and to develop seamless progression routes to level 4 and above.

There is also a need to attract new recruits to the sector due to the impact of demographics and the ageing workforce. Companies report the average age of their workforces at around 43-47 and currently no candidates to replace them. (Investor Support Programme, Report on the Advanced Engineering Sector in Gloucestershire March 2004). The County's population is forecast to continue to grow through the next decade by 2.9% between 2002 and 2012. This is amongst the lowest rate of growth in the SW (The Economy of Gloucestershire 2005, GLMIU). The need for higher level skills, including graduates, makes it imperative for the sector to invest

in the future labour force from now. A major issue is how to attract young people into a sector that is perceived as being in rapid decline with little opportunity for young people and to be a less than desirable working environment. Training to professional graduate level in engineering will be a key factor here.

In the advanced engineering sector, the main cause of hard to fill vacancies is a low number of applicants with the required skills but, with a fall in requirements for unskilled and semi-skilled labour, one solution to the problem of skills shortages should be to up-skill the current workforce. However, many electronic engineering businesses in Gloucestershire report that they have no formal engineering staff training processes, even though the industry is amongst the most affected by skills shortages. The single biggest barrier to training is cost (cited by 52% of businesses) and loss of staff time (37% of businesses). Other barriers are related to lack of relevance of courses available (36%) timing of the courses (35%), and the distance from the place of training (26%). An expansion in Higher Education available locally will overcome some of these barriers, especially if a Foundation Degree is demonstrated to have tangible impact on profitability and business needs.

In summary, the needs of the local engineering industry justify the following features of a Foundation Degree:

- attractive to young people in Gloucestershire. Delivered nearby and easily accessible.
- minimal loss of staff time through a compact one-day-per-week part-time model;
- a seamless progression from level 3 engineering training. Different pathways to reflect the diversity of industry;
- academic rigour with up to date vocational relevance.

### **3.3 Engaging with Industry**

Employers are already actively involved in shaping the future of advanced engineering and this work will be strengthened through the Engineering Employer Forum. Strong employer links will also be used to identify changing skill needs and gaps in provision and to increase the participation by employers in delivery of courses.

Gloucestershire College's Training Partnership has a remit to increase and improve employer engagement and to bridge the gap between the college curriculum and the needs of Gloucestershire's business community. The unit works closely with the Gloucestershire Skills Brokerage Service to 'raise demand for higher level skills in the workforce and to increase penetration for employer engagement and employers participating in training and learning'. These partnerships will increasingly be the access route for vocational HE courses.

Business Link Gloucestershire promotes opportunities to the manufacturing/engineering sector, offering a 'basket' of funded initiatives to encourage take up of skills development. BLG discuss on a one-to-one basis a company's needs, agreeing an outline Training Needs Analysis, sourcing and, where appropriate, funding training for their staff. Training Partnership staff assigned to a sector work closely with BLG, to specifically target supply chain SMEs. The extensive skills, resources and experience of employer engagement work with the college will be utilised within this programme team to further develop employers' contribution to curriculum development.

## **4. STANDARDS AND QUALITY**

### **4.1 Quality Processes and Management**

The programme will fully conform with the rules of the UWE regulations, policies and procedures such as they relate to the assurance of the programme in this document.

### **4.2 External Quality Reference Points**

In designing the programme the course team have been particularly cognisant of the QAA Foundation Degree qualifications benchmarks (2004) in particular the requirements that "the distinctiveness of Foundation Degrees depends upon the, integration of the following characteristics: employer involvement; accessibility; articulation and progression; flexibility; and partnership underpinned by work-based learning".

By entering into partnership with UWE, the college has ensured that students on this programme have the opportunity to progress to a full degree award on completion of the foundation degree. The targeted student body will be exclusively drawn from part-time students working in industry as technicians and this programme will facilitate their ability to maximise their potential both academically and within the workplace.

In designing the course particular account has also been taken of the QAA Benchmark Statement for Engineering (2006) and in ensuring that the students from the Foundation programme can progress seamlessly to degree study at level H. Appendix B gives the College policy on Quality.

## **5. STAFF DEVELOPMENT**

### **5.1 College Policy**

The College has an effective and well-funded staff development programme to ensure that both the specialist and pedagogic skills of staff are regularly updated and staff have regular opportunities to participate in industry placement activity and specialist external training events.

Appendix C gives the college policy on staff development and indicates the college's commitment to providing appropriate staff development. The staff CVs give an indication of the nature and extent of the staff development undertaken in recent years by the course team.

### **5.2 Staff Development in support of the Foundation Degree**

The college is aware that in pursuing a major new collaborative course development there will be issues of staff development that need addressing. Specifically, the college will look to UWE to ensure that the course team are 'brought up to speed' through meetings, reciprocal visits and discussions over all course-related matters that impinge on the effective operation of this programme such as they relate to the UWE's processes, regulations, standards and expectations.

Such matters could include, for example, the setting and marking of assessment tasks or, at an administrative level, advice and support to ensure the effective merging of administrative processes and the correct application of UWE Academic Regulations.

As a partner in the UWE confederation, GLOSCOL staff can access staff development opportunities available to staff within UWE.

## **6. TEACHING LEARNING AND ASSESSMENT**

### **6.1 Teaching & Learning**

The diverse teaching and learning approach reflects the theoretical, practical and skills-orientated nature of the course. T&L will take place through a combination of lectures, tutorials, laboratory work, design office and IT work combined with independent and group-based activities which are student-led and intended to result in graduates who are self-motivated and independent learners.

Work-based learning is an essential element of the course and has been focused around a number of modules where all students, irrespective of their place of work, can gain maximum benefit from this type of learning activity. In designing the course, account has been taken of UWEs policy document on WBL. The amount of WBL also exceeds the minima (40 credits) as defined in section 6.11 of UWEs Assessment Regulations.

### **6.2 Work-based Learning**

Work-based learning is an important and essential element of the course and has been focused around a number of modules where all students, irrespective of their place of work can gain maximum benefit from this type of learning activity.

The aim is to foster independent learning that enhances lifelong learning and the student's own professional development. Tutor support in the form of tutorials will be provided and college staff will visit the student in the workplace particularly while s/he is undertaking the project modules, UFEEV4-20-2, UFEEV5-20-1 and UFMEST-15-2. Students will be further supported in the workplace by a work-based supervisor/mentor from within their own organisation. This supervisor/mentor will be approved by the College and will engage with the College's visiting tutor to ensure that the student gains maximum benefit from the work-based learning opportunities. As part of the approval process all supervisors will be briefed on the requirements and expectations of their role. This briefing may be on an individual basis or a collective basis as appropriate.

In all cases the student, the employer and the college will implement a 'Learning Agreement' which will ensure common understanding and an effective learning experience for each student within their workplace.

The work-based nature of the student body is such that utilising work-based learning opportunities should be relatively easy to manage. However, the course is not catering for any single employer within the region and the employer base will be quite diverse. For this reason the course team's biggest challenge will be to develop and maintain effective employer engagement. This will be achieved through (i) the operation of an employer's forum where course developments can be discussed (ii) visits by college staff to each student in their work place, (iii) the appointment (approved by the college) of an industrially based mentor for each student who will be expected to participate in the learning and assessment process and (iv) bi-annual meetings of these mentors as a collective group where all relevant work-based operational issues can be debated and appropriate training can be given.

### **6.3 Assessment.**

The assessment regime reflects the diversity of the T&L within the programme is appropriate for the nature of each module and is intended to give students a wide range of opportunities to demonstrate the knowledge, skills and learning outcomes acquired and developed throughout their studies.

Appendix D shows the range of assessments types used from which it can be seen that account has been taken of UWEs Assessment regulations that requires both Type A and Type B assessments - type A being set under conditions that guarantee the authenticity of the student's work. In nearly all cases, the module mark is made up from only two component marks (A and B) although each component may have sub-sets of activities contributing to the component mark.

### **6.4 Promoting equality and diversity.**

This is at the heart of all of the college's work. It has an Equal Opportunities Policy, Disability Statement and Race Equality Policy which are reviewed annually and monitors performance indicators by age, disability, ethnicity and gender. Targets are set for learner enrolments, retention and achievement based on EDIM targets. Targets are also set for staff recruitment and promotions, and activities to promote equality and diversity awareness are embedded in staff development programmes.

## **7. RESOURCES**

Current programmes are delivered through the Technology Wing in Gloucester and on employer's premises. GLOSCOL's last Ali/OfSTED Inspection Report on engineering provision found that 'workshops were well resourced and spacious'. However, these facilities have been significantly improved in the new Gloucester campus, which opened in the summer of 2007.

This new site forms part of the ambitious Gloucester Quays redevelopment scheme. The College occupies an excellent site within this wider scheme having frontage to the Gloucester and Sharpness Canal, the new Gloucester SW Bypass and Llanthony Secunda Priory. Access to the Priory grounds has been agreed with Gloucester City Council, as owner, and the redevelopment of Gloscol on this brownfield site next to the Priory has been welcomed by English Heritage as a means of breathing new life into this scheduled ancient monument.

The curriculum offers new opportunities created by this new site which includes:

- "Construction Street" and workshops for training and assessment purposes
- Enhanced IT facilities
- Science Labs
- Electronic Lab
- Engineering and Motor Vehicle Workshops
- Sports Hall

It is envisaged that The Foundation Degree in Electronic Engineering will become an integral part of the Gloucestershire Advanced Technology Centre. This is currently at the planning stage and builds on the proposals for a Centre of Vocational Excellence in Engineering to deliver a significant expansion in engineering learning, particularly at level 3, 4 and 5, with greater collaboration with and responsiveness to employers. This centre will be managed by

Gloucestershire College, and will include a range of Engineering courses including 14-19 Specialised Diplomas and Foundation Degrees, as well as Innovation Incubation Units. The Centre will be a showcase for sector new and innovative developments in technology and equipment, including sponsorship from suppliers and the dissemination of best practice.

## **8. INSTITUTIONAL POLICIES, MISSION & STRATEGY, REGULATIONS, PROCEDURES AND NOTES FOR GUIDANCE.**

The programme is consistent with the policies of both institutions.

Appendix A Staff CVs

Appendix B Gloscol Quality Manual

Appendix C Staff Development Policy

Appendix D Assessment Profile





