

Programme specification

(Notes on how to complete this template are provide in Annexe 3)

1. Overview/ factual information

Programme/award title(s)	Foundation Degree (FD) in Building Services with Sustainable Energy
Teaching Institution	South West College
Awarding Institution	The Open University (OU)
Date of first OU validation	September 2020
Date of latest OU (re)validation	N/A
Next revalidation	March 2025
Credit points for the award	240
UCAS Code	N/A
JACS Code	
Programme start date and cycle of starts if appropriate.	September 2020
Underpinning QAA subject benchmark(s)	Engineering benchmark statement, 2019 QAA Foundation Degree Characteristic Statement, 2015
Other external and internal reference points used to inform programme outcomes. For apprenticeships, the standard or framework against which it will be delivered.	<ul style="list-style-type: none"> • Draft Programme for Government; • Government Industrial Strategy – Economy 2030; • South West Colleges’ Development Plan; • QAA UK Quality Code for Higher Education, Part A; • Feedback from industry (Industrial Advisory Board) and student focus groups; • Chartered Institute Of Building Services Engineers CIBSE
Professional/statutory recognition	Propose to request CIBSE accreditation.
For apprenticeships fully or partially integrated Assessment.	N/A
Mode(s) of Study (PT, FT, DL, Mix of DL & Face-to-Face) Apprenticeship	PT, FT – Face to Face (an element of blended learning support will be available)
Duration of the programme for each mode of study	FT – 2 Years (Two 15 week semesters per year) PT – 2 Years (Three 15 week semesters per year)
Dual accreditation (if applicable)	N/A

Date of production/revision of this specification

February 2020

Please note: 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 s/he 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 each module can be found in student module guide(s) and the students' handbook.

The accuracy of the information contained in this document is reviewed by the University and may be verified by the Quality Assurance Agency for Higher Education.

2.1 Educational aims and objectives

This course has an industry focused approach to building services with sustainable energy, where graduates will develop an extensive range of professional subject knowledge and technical skills. This knowledge will equip students to work within the industry to help achieve the UK's commitment to bring all greenhouse gas emissions to net zero by the year 2050.

The overall aim of the course is to provide a broadly-based education in this industry that prepares graduates either to follow a productive career as technicians in Building Services and Renewable Energy industries or to proceed to a higher academic qualification. A Work-based Learning component is built into the programme to enhance the student's employability and effectiveness in the workplace.

The Fd in Building Services with Sustainable Energy seeks to:

- Equip students with a sound knowledge and understanding of the theory and principles underlying building services and renewable energy engineering processes and practices within an architectural approach.
- Enable students to use, compare, analyse and evaluate a range of formal and informal techniques, theories and methods applied to the solution of building services and energy engineering problems.
- Develop students' abilities in the evaluation, selection, application and integration of a range of design techniques.

- Develop students' ability to carry out a programme of supervised work within a team environment.
- Instil in students an understanding of good practice within the professional and ethical framework of building services and renewable energy engineering and the need for continuing professional development.
- Develop students in a range of key skills, personal qualities and attitudes essential for successful performance in working life.

The CertHE in Building Services with sustainable Energy seeks to:

- Equip students with a basic knowledge and understanding of the theory and principles underlying building services and renewable energy engineering processes and practices within an architectural approach.
- Enable students to use and compare a range of formal and informal techniques, theories and methods applied to the solution of Building Services and sustainable Energy engineering problems.
- Develop students' abilities in the selection and application of basic design techniques.
- Instil in students a basic understanding of good practice within the professional and ethical framework of Building Services and Energy and the need for continuing professional development.
- Develop students in a range of key skills, personal qualities and attitudes essential for successful performance in working life.

Academic Development at Levels 4 & 5:

At Level 4 the aim is to develop the students in terms of the undertaking of independent research, fundamental enquiry and questioning of process and practices. Encouraging students to undertake academic reading, utilising journals and moving beyond Google. The emphasis here is on embedding the underlying concepts and principles associated with the Building Services and Energy industries, providing students with the skills needed to interpret, analyse and start to challenge concepts, with discussion. The skills gained here will form the basis of further learning and development at Level 5. Level 5 will equip the students with the skills of analysis and critical thinking, develop the professional and presentation skills needed for progression on to higher level study or entry to industry. Students at Level 5 will be able to apply their knowledge of practices to the work place

through completing the Work Base Learning module and exert confidence in their decision making as a result of analysis and evaluation.

2.2 Relationship to other programmes and awards

(Where the award is part of a hierarchy of awards/programmes, this section describes the articulation between them, opportunities for progression upon completion of the programme, and arrangements for bridging modules or induction)

South West College consists of 4 campuses in Omagh, Dungannon, Cookstown and Enniskillen, which serves a population catchment area of 190,000. The South West College is the main provider of further and higher education in the west of the province and covers the widest geographical area.

While many companies operating in the Building Services and Energy sector are under increased pressure from international competition and the current economic climate, there is evidence of government capital investment recently in renewable energy projects including Northern Ireland Water recently completing a £7 million installation for the supply of renewable energy at Dunore Point in May 2018 in addition to a £34 million contract in September 2019 to bring its consumption of electricity from renewable sources to 43% of total demand. The Sustainable Energy Authority of Ireland announced a EUR 30 million community energy fund on community projects for 2017 along with a EUR 2 million fund for sustainable energy research projects. This funding is intended to help meet ambitious targets to deliver 40% of electricity demand and 12% of heating demand from renewable sources by 2020, with the Irish government pledging to raise this to 70% of renewable electricity by 2030. This suggests that there will be strong demand for building services engineers and energy graduates not only in this region but also in the Republic of Ireland, which will strengthen our catchment areas. This evidence indicates there will be a need for industry to upskill existing employees to meet the government targets therefore offering the part time mode will provide opportunity to do this while continue to work in industry. The Foundation Degree part time pathway will attract our existing level 3 apprenticeship students in plumbing and electrical as they can progress to level 4 part time study while remaining in employment.

The evidence of demand for both the Foundation Degree and BEng (Hons) Top Up is based on the current number of electrical, plumbing and construction students

currently due to complete in June 2020 which is in excess of 100 students as well as the number of Foundation Degree graduates in the last 6 years in related disciplines.

BTEC Subsidiary Diploma in Construction;

BTEC Diploma in Construction;

BTEC Extended Diploma in Construction;

Access Degree (General);

NVQ Level 3 Plumbing;

NVQ Level 3 Electrical Installation;

In general, across all of the campuses, there is significant volume of 'A' Level students attending Grammar and Secondary Schools that our courses have also attracted over the last number of years. This course will be very attractive to a large number of A Level students that currently travel out of the South West Region to undertake construction related undergraduate programmes.

Upon successful completion of Level 4 modules students will have attained the exit award of Cert. HE;

Upon successful completion of Level 4 and Level 5 modules students will have attained the award of Foundation Degree (FD).

Successful completion of this programme, at Fd level, will allow for articulation to a range of undergraduate courses through our local universities (Open University, Ulster University and Queens University Belfast) and universities across the UK and further afield.

2.3 For Foundation Degrees, please list where the 60 credit work-related learning takes place. For apprenticeships an articulation of how the work based learning and academic content are organised with the award.

The 60 credits of work-related learning in the main will come from the 40 credit Work Based Learning module in Year 2. The other 20 credits will be effectively

accrued from the CADD & BIM module, the level 4 and 5 Building Services modules and the Renewable Energy Technologies module through the work-related topics, industry relevant software and equipment.

2.4 List of all exit awards

Certificate of Higher Education (Cert.HE) upon successful completion of 120 credits at Level 4.

2. Programme structure and learning outcomes

<u>Programme Structure - LEVEL 4</u>					
Compulsory modules	Credit points	Optional modules	Credit points	Is module compensatable?	Semester runs in
Building Fabric & Energy Conservation	20			Yes	1
Mathematics & Structures	20			Yes	1
CADD & Introduction to BIM	20			Yes	1
Renewable Energy Technologies	20			Yes	2
Building Services (Domestic)	20			Yes	2
Science and Comfort	20			Yes	2

Intended learning outcomes at Level 4 are listed below:

<u>Learning Outcomes – LEVEL 4</u>	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>A1 Demonstrate an understanding of scientific and engineering principles and other concepts and theories involved in Building Services and Sustainable Energy.</p> <p>A2 Identify the fundamental techniques, methods, materials, equipment, products and processes, including appropriate codes of practice and industry standards employed within Building Services and Sustainable Energy.</p> <p>A3 Demonstrate an understanding of the underlying framework of relevant legal requirements governing Building Services & Energy activities, including personnel, health, safety and risk (including environmental risk) issues.</p> <p>A4 Describe and outline an understanding of the industry, professions and allied industries, linkages between elements of the discipline, and between building services engineering, sustainable energies and related disciplines.</p> <p>A5 Demonstrate a basic understanding of introductory commercial and economic context of the Building Services & Sustainable Energy industry.</p> <p>A6 Demonstrate an awareness of the basic requirement for modern Building Services activities and the incorporation of renewable energies to promote sustainable</p>	<p>Learning and Teaching Methods:</p> <p>Subject related qualities are acquired mainly through lectures, tutorials, seminars, laboratory-based exercises, directed reading, videos, IT based resources, case studies and experiential learning. Tutorials promote reflective learning and the development of generic skills. Live projects and work related learning also provide vehicles for learning and teaching.</p> <p>Exploration, analysis and evaluation of industry practice enable learners to not only work on their academic writing skills but also to make judgements and develop arguments pertaining to the industry, expand their knowledge and understanding at Level 4. This familiarity of terminology and context at Level 4 will form the basis of their knowledge and understanding at Level 5 which will then be challenged.</p> <p>Assessment Methods:</p> <p>Testing of the knowledge base is principally through coursework assignments, examinations, reports, on line tests and experimental reports. Visual commentary (including PowerPoint presentations), Presentation Drawings, Technical Drawings, Models, Mock Ups and Prototypes of Design Solutions and CAD Models of Design Solutions.</p> <p>Assessment strategies offer students clear guidance with reference to future development. Self-reflection constitutes an important part of formative assessment. Summative assessment will provide the students with clear and concise feedback that will embed not only good practice</p>

<u>Learning Outcomes – LEVEL 4</u>	
3A. Knowledge and understanding	
development and the low carbon agenda.	in future knowledge acquisition but also feed forward, informing students exactly how to improve and expand their knowledge in their continuing studies, particularly as they move from Level 4 to Level 5 and beyond.
3B. Cognitive skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>B1 Select technical literature and other information sources to inform design decisions within the Building Services and Energy industry.</p> <p>B2 State mathematical methods and related computer software to assist with the solution of Building Services & Renewable Energy problems.</p> <p>B3 Relate creative and innovative ability in the formulation of solutions to simple well defined problems and designs in a practical context.</p> <p>B4 Explore a Building Services and Renewable Energy design problem taking into account environmental, architectural and sustainability limitations, health and safety and risk assessment issues.</p> <p>B5 Identify relevant technologies in Building Services & renewable Energy design problems.</p>	<p>Learning and Teaching Methods:</p> <p>Intellectual qualities are developed mainly through lectures, seminars, tutorials, coursework, assignments, experimental work and projects.</p> <p>Students will be presented with briefs (both live and simulated) that utilises Project Based Learning, a student-centred pedagogy where students will learn through the experience of solving an industry defined problem. This approach enables students to develop their critical thinking, creativity and communication skills. This will create a contagious energy among students to develop a deeper understanding of the subject and quest for further knowledge and skills through active learning.</p> <p>At Level 4 students will be introduced to fundamental practices across the industry that they will further build on and analyse at level 5.</p> <p>Assessment Methods:</p> <p>Assessment focuses on the coursework submissions, class tests, end of semester examinations, essays and project reports. Some of these</p>

3B. Cognitive skills	
	<p>skills are also assessed in formal presentations.</p> <p>Assessment strategies offer students clear guidance with reference to future development. Self-reflection and peer evaluation constitutes an important part of formative assessment.</p>
3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>C1 Undertake individual and group project work during laboratory experiments and practical's.</p> <p>C2 Use a basic range of general, CAD, Revit, Building Services & Renewable specific software.</p> <p>C3 Apply a limited range of practical engineering skills to simple design problems.</p> <p>C4 Demonstrate awareness of environmental, legal and commercial constraints within the Building Services and Sustainable Energy industries.</p>	<p>Learning and Teaching Methods:</p> <p>The learning and teaching methods place emphasis on lectures, experimental work and team projects. Project briefs simulating real practice also contribute to teaching and learning.</p> <p>Project briefs simulating real practice also provide students with opportunities to hone practical and professional skills and produce excellent outcomes.</p> <p>Working within allotted timeframes and resource constraints develop professional skills that are worthy of any workplace. Underpinning practical skills are developed throughout the Level 4 modules, providing students with the building blocks needed to develop new techniques and practices as they progress through the year. At Level 4 the key practical skills will be designed to develop the technical capability needed by students to answer uncomplicated practical problems or briefs, taking responsibility for the production of resolute</p>

3C. Practical and professional skills	
	<p>outcomes. The importance of the Science and Comfort and CAD/BIM modules must not be overlooked as the students will call upon these skills as they progress through Levels 5 and 6 and into industry.</p> <p>Assessment Methods:</p> <p>Testing of the knowledge base is principally through coursework assignments, reports and essays. Other documentation may include: Visual commentary Sketch book, Presentation Drawings, Technical Drawings, Models, Mock Ups and Prototypes of Design Solutions and CAD Models of Design Solutions.</p> <p>Assessment of the practical and professional skills is achieved through the practical elements of level 4 modules, such as CAD, Science and Renewable Energy Technologies. Continuous feedback occurs throughout the learning and assessment process with students receiving final feedback on all assessments in all modules designed to identify practical areas of strength and highlight areas for continuing future improvement in order to strengthen the knowledge, skills and abilities of the individual students. Building confidence and fostering creativity in all.</p>
3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>D1 Communicate orally, in writing and by other basic media to select audiences.</p> <p>D2 Use fundamental Information Technology tools and skills.</p> <p>D3 Apply basic numeracy in understanding, analysing and presentation.</p>	<p>Learning and Teaching Methods:</p> <p>Transferable and key skills are delivered throughout the course, i.e. lectures, coursework assignments, studio work. The teaching and learning of ICT skills will be within the course structure. Workshops include demonstrations such as ICT skills, PowerPoint presentations and Library Research skills. Effective learning environments are engendered in studios, workshops, and CAD/computing based</p>

3D. Key/transferable skills

- D4** Work with others, under supervision or with limited independence.
- D5** Formulate fundamental personal learning and development, time management, personal organisation and continuing professional and educational development.
- D6** Recommend solutions to practical difficulties in limited routine situations.

modules, with staff and students sharing experiences as partners in the process of learning. Other learning and teaching methodologies include team-teaching, demonstration and peer learning.

Workshops with HE Academic Mentors will support development of skills in research, academic writing and referencing throughout the year. Teaching and learning will be placed within the context of social, ethical, legal, relevant to the industry. Collaboration and communication will be utilised through all learning and teaching activities, group discussions and simulations, project-based learning activities, report writing and blended and virtual learning platforms.

Over the course of the year learners will be given key information which they must research, analyse and interpret, then seek out further reading where they must independently broaden their understanding of specific problems and design principles. This will be designed to stretch learners, and develop their skills from Level 4 to Level 5. Creative thinking and critical analysis is engendered in every aspect of the programme and will be further fostered and encouraged through lecturer mentoring on a weekly basis. Discussion and critiques supports the development of problem resolution at a higher intellectual level.

Assessment Methods:

Testing of the knowledge base is principally through coursework assignments, reports, on line assessment, experimental reports and class tests. Assessment of teamwork is through submission of teamwork tasks, student/peer and self-assessment, and oral presentations. Other documentation may include Presentation Drawings, Technical Drawings, Models, Mock Ups and Prototypes of

3D. Key/transferable skills	
	<p>Design Solutions and CAD Models of Design Solutions.</p> <p>Assessment strategies offer students clear guidance with reference to future development. Self-reflection and peer evaluation constitutes an important part of formative assessment.</p>

Exit Award - Certificate in Higher Education in Building Services with Sustainable Energy. (Cert.HE)

<u>Programme Structure - LEVEL 5</u>					
Compulsory modules	Credit points	Optional modules	Credit points	Is module compensatable?	Semester runs in
Building Services for Commercial Projects	20			Yes	1
Management and Contract	20			Yes	1
Microgeneration for Renewable Energy	20			Yes	1
Mathematics for Engineers	20			Yes	2
Work Based Learning	40			No	2

Intended learning outcomes at Level 5 are listed below:

<u>Learning Outcomes – LEVEL 5</u>	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>A1 Apply key scientific, mathematical and engineering principles and other essential concepts and theories involved in Building Services and Sustainable Energy.</p> <p>A2 Identify and compare a range of techniques, methods, materials, equipment, products and processes, including appropriate codes of practice and industry standards employed in Building Services Engineering and Energy.</p> <p>A3 Apply an understanding of the framework of relevant legal requirements governing Building Services & Renewable Energy activities, including personnel, health, safety and risk (including environmental risk) issues.</p> <p>A4 Apply an understanding of the industry, professions and allied industries, linkages between elements of the discipline, and between building services engineering, renewable energies and related disciplines.</p> <p>A5 Explain the commercial and economic context of Building Services Engineering, renewable energies and the management techniques used to achieve engineering objectives within that context.</p> <p>A6 Demonstrate an awareness of the requirement for modern Building Services activities and the incorporation of renewable energies to promote sustainable development and the low carbon agenda.</p>	<p>Learning and Teaching Methods:</p> <p>Subject related qualities are acquired mainly through lectures, tutorials, seminars, laboratory-based exercises, directed reading, videos, IT based resources, case studies and experiential learning. Group critiques and individual tutorials promote reflective learning and the development of generic skills. Live projects, competitions and work related learning also provide vehicles for learning and teaching.</p> <p><i>At Level 5 the students will be encouraged to contextualise their work, undertake research in order to expand and strive for improvement in their knowledge, understanding and application of the theoretical contexts and concepts encountered.</i></p> <p><i>Work-based learning will challenge students to put their acquired knowledge into independent professional practice at Level 5, preparing students for the challenges of Level 6.</i></p> <p>Assessment Methods:</p> <p>Testing of the knowledge base is principally through coursework assignments, examinations, reports, on line tests and experimental reports. Other documentation may include Research and Development File, Log Book/Diary, Visual commentary (including PowerPoint presentations), Presentation Drawings, Technical Drawings, Models, Mock Ups and Prototypes of Design Solutions and CAD Models of Design Solutions.</p>

Learning Outcomes – LEVEL 5

3A. Knowledge and understanding

Assessment strategies offer students clear guidance with reference to future development. Self-reflection and peer evaluation constitutes an important part of formative assessment.

3B. Cognitive skills

Learning outcomes:

- B1** Use technical literature and other information sources to inform design decisions within the Building Services and Renewable Energy industry.
- B2** Use mathematical methods and related computer software in the analysis and solution of Building Services & Renewable Energy problems.
- B3** Demonstrate creative and innovative ability in the formulation of solutions to practical problems and designs.
- B4** Investigate a Building Services and Renewable Energy design problem and identify constraints including environmental, architectural and sustainability limitations, health and safety and risk assessment issues.

Learning and teaching strategy/ assessment methods

Learning and Teaching Methods:

Intellectual qualities are developed mainly through lectures, seminars, tutorials, coursework, assignments, experimental work and projects.

Like Level 4 Students will be presented with briefs, however, at Level 5 Project Based Learning will move to a more complex industry defined problem with live briefs, forcing the students to develop their critical thinking, creativity and communication skills.

At Level 5 WBL will guide the students to develop a more critical awareness, enabling students to formulate ideas and confidently research and experiment to strengthen their outcomes.

Assessment Methods:

Assessment focuses on the coursework submissions, examinations,

3B. Cognitive skills	
<p>B5 Apply a systems approach to design problems through know-how of the application of the relevant technologies within Building Services & Renewable Energy sectors.</p>	<p>essays and project reports. Some of these skills are also assessed in formal presentations. Research and Development File, Log Book/Diary, Visual commentary including PowerPoint presentation.</p> <p>Assessment strategies offer students clear guidance with reference to future development. Self-reflection and peer evaluation constitutes an important part of formative assessment.</p> <p>Where students solve real life problems, cognitive skills are assessed via pitching and presenting of ideas and client feedback on the final outcomes produced.</p>
3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>C1 Undertake individual and group project work during laboratory experiments, practical's and industry-based supervised work experience and be able to act with increasing autonomy, with reduced need for supervision and direction within defined guidelines.</p> <p>C2 Identify and use a range of software relevant to the discipline.</p> <p>C3 Apply practical engineering skills to Building Services design and installation.</p> <p>C4 Take account of environmental, legal and commercial constraints within the Building Services and Energy sectors.</p> <p>C5 Manage the design process and evaluate outcomes by applying appropriate economic and infrastructure project management techniques to specific problems.</p>	<p>Learning and Teaching Methods:</p> <p>The learning and teaching methods place emphasis on lectures, experimental work, team projects and ideas generation and solution development. Project briefs simulating real practice also contribute. The course team will use guest speakers to enhance delivery and to place emphasis on practical and professional skills within the industry.</p> <p>At Level 5 practical and professional skills are inherent in all modules, as students are expected to deliver practical outcomes to a professional standard at this level. Students learn as an individual to study and develop independent thinking, problem solving, analysing, and evaluation and self-reflection skills. Collaborative group-based work will be assessed by work submitted individually by each candidate, and may also include an element of assessment by tutor observation of each candidate's contribution to the team and effectiveness as a team member while the team is working on the project.</p>

3C. Practical and professional skills

The practical and professional skills fostered at Level 4 will be further developed at Level 5. Students moving with confidence from fundamental technical skills to become flexible, adaptive and experimental. Students responding to live briefs and work experience will be able to successfully accommodate the ever-evolving creative, technical industry by identifying and solving complex, challenging issues.

Assessment Methods:

Testing of the knowledge base is principally through coursework assignments, reports and essays. Other documentation may include: Research and Development File, Log Book/Diary, Visual commentary Sketch book, Presentation Drawings, Technical Drawings, Models, Mock Ups and Prototypes of Design Solutions and CAD Models of Design Solutions.

Assessment strategies offer students clear guidance with reference to future development. Self-reflection and peer evaluation constitutes an important part of formative assessment.

In Semester 2 of Level 5, students are expected to demonstrate their professional practice in the Work Based Learning module. In order to achieve success the students must demonstrate independence, make reasoned judgements in a professional setting and present outcomes during a presentation to an industry panel.

3D. Key/transferable skills

3D. Key/transferable skills

Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>D1 Communicate effectively in a manner appropriate to the discipline and report practical procedures in a clear and concise manner in a variety of formats.</p> <p>D2 Manage learning and demonstrate effective use of general Information Technology facilities and select appropriate data from a range of sources to develop appropriate research strategies.</p> <p>D3 Apply numeracy skills in understanding, analysing and presentation.</p> <p>D4 Interact effectively within a team, giving and receiving information and ideas, modifying responses where appropriate and can take responsibility for own learning with minimum direction.</p> <p>D5 Employ personal development skills. Manage personal learning and development, time management, personal organisation and continuing professional and educational development.</p> <p>D6 Identify key area problems and choose appropriate tools/methods for their resolution in a considered manner.</p>	<p>Learning and Teaching Methods:</p> <p>Transferable and key skills are delivered through lectures and workshops to include demonstrations such as ICT skills, PowerPoint presentations and Library Research skills. Effective learning environments are engendered in studios, workshops, and CAD/computing based modules, with staff and students sharing experiences as partners in the process of learning. Other learning and teaching methodologies include team-teaching, demonstration and peer learning.</p> <p>Over the course of the year learners will be given key information which they must research, analyse and interpret, then seek out further reading where they must independently broaden their understanding of specific problems and creative design principles. This will be designed to stretch learners, and develop their skills from Level 5 to Level 6. Work Based Learning and Management modules at Level 5 enable students to work in industry (or simulated) contexts driving them to become effective in their time management, taking responsibility for their work, as well as managing working with others in a professional environment.</p> <p>Creative thinking and critical analysis is engendered in every aspect of the programme and will be further fostered and encouraged through lecturer mentoring on a weekly basis. Discussion and critiques supports the development of problem resolution at a higher intellectual level. At Level 5, students are encouraged to develop their self-reflection and set their own targets with the tutor, reflecting on feedback and responding to this.</p>

3D. Key/transferrable skills

Assessment Methods:

Testing of the knowledge base is principally through coursework assignments, reports, on line assessment, experimental reports and class tests. Assessment of teamwork is through submission of teamwork tasks, student/peer and self-assessment, and oral presentations. Other documentation may include Presentation Drawings, Technical Drawings, Models, Mock Ups and Prototypes of Design Solutions and CAD Models of Design Solutions.

Assessment strategies offer students clear guidance with reference to future development. Self-reflection and peer evaluation constitutes an important part of formative assessment.

4. Distinctive features of the programme structure

- **Where applicable, this section provides details on distinctive features such as:**
 - where in the structure above a professional/placement year fits in and how it may affect progression
 - any restrictions regarding the availability of elective modules
 - where in the programme structure students must make a choice of pathway/route
- **Additional considerations for apprenticeships:**
 - how the delivery of the academic award fits in with the wider apprenticeship
 - the integration of the 'on the job' and 'off the job' training
 - how the academic award fits within the assessment of the apprenticeship

- This programme of study will offer clear routes that facilitate opportunities for successful progression from Level 3 qualifications including BTEC, A Level, NVQ, and Level 4 qualifications, Certificate in Higher Education and HNC to this Foundation Degree in building services with sustainable energy and subsequently onto BEng (Hons) Top-Up in building services with sustainable energy. South West College will be one of the first regional colleges in the Northern Ireland to provide this type of opportunity with multiple entry points, including the prospect of going forward and availing of a one-year full time BEng (Hons) top-up.
- A programme with multiple entry and exit points.
- The Fd in Building services with sustainable energy is subject to high levels of employer engagement, via the Industrial Advisory Board, in areas such as curriculum and module design. Employer engagement will be encouraged throughout the programme in curriculum development, evaluation and self-sourced placements on an ongoing basis. The students are exposed to a number of site visits, guest speakers and industry seminars each year due to the course having strong industry links.
- Innovative technology such as Virtual/Augmented Reality, Renewable Energy Training Rigs, Wind Testing Tunnel, wind generation test equipment, biomass boiler, Solar Thermal Flat Plate system, Solar Thermal Tube collector and solar thermal heat dissipation, Practical workshops, Hydraulic Flume, Passive House Labs, HVAC Training Rigs Etc. will be used to enhance learning.
- Access to a range of Innovation Centres (Innotech and CREST) and dedicated staff to aid project based learning and research. Students having access to high quality resources allows them to relate closely to industry based problems and provides opportunity for them to offer solutions where appropriate. It is clear from retention statistics that the availability of good resources improves the students learning experience and adds value to those learners that prefer practical based problems.

- Learners will engage in Personal and Professional Development (PPD) throughout the programme and Work Based Learning (WBL) in semester 2 of year 2. The work based learning module will provide the student with opportunities to apply the knowledge and skills acquired from level 4 content, and to benefit from being exposed to the building services and renewable energy industry in practice and from meeting and working with other professions. As well as giving opportunities for the application of knowledge, Work Based Learning helps to develop character and realistic attitudes, and to improve students' skills in communication and decision-making and team work. It plays a major part in producing an understanding of the whole process of design, management and operation, and has proved to be a vital factor in preparing students for the world of work. Details of the Work Based Learning are given within the module descriptor. Successful completion of the Work Based Learning is a necessary requirement, in addition to success in the academic components, for the award of the Foundation Degree.
- Study skills support is important for all students and is outlined in the SWC HE Handbook which all HE students in South West College receive a copy. Study skills are embedded into modules of study at level 4 and 5 enabling students to gain skills in report writing, referencing, effective group-working, independent learning, taking notes and examination revision covered in modules within the programme. Further study skills are included in the induction programme and Student Services staff deliver training sessions to students when requested on Study Skills and Revision Skills. A Higher Education academic support officer is allocated on each campus and is available to provide support on a range of study skills such as Academic Writing, Harvard Referencing, Plagiarism, Presentation Skills, Research Techniques, Exam Revision tips and Proof-reading. Academic Support officers can meet students in small groups or on a one to one basis via referrals from HE students, HE Course Tutors or Student Services. Course Directors also offer advice and guidance on study skills during tutorial sessions particularly prior to assessment submissions and during the pre-exam period.
- Access to a strong teaching team in terms of variety of industry experience, academic and professional qualifications supporting high quality teaching and learning. The delivery of the programme has been designed to build upon the good practice of the existing Foundation Degree in Architectural Engineering and Energy. Continuing professional development of staff responsible for learning and teaching is paramount to the ongoing progression of students and the College is committed to ongoing staff training through staff contracts, the lecturers into industry initiative, training needs and staff development seminars. A number of staff on the course team have completed 'lecturers into Industry' staff development which has been an excellent opportunity for staff to up skill in relevant subject areas to ensure their knowledge and skills are up to date with industry standards.
- Industry experts lecturing part time adds focus to current industry demands and offers opportunity for guest speakers, site visits and specialised seminars. The extensive use of resources, differentiated teaching and learning strategies to suit a diverse range of learners and technology allows

the students to receive an engaging and life changing learning experience.

- Building Services and Energy are disciplines in which practical skills and the associated theoretical underpinning must both contribute to the successful education of graduates. Emphasis will be given to involving the student in work-related activities and this is where the participation of industrial partners will provide a real world context, capable of stimulating the student's learning process and help to foster an entrepreneurial spirit in the student. The added value of such an approach is to ensure relevance to the requirements of the Industry and to integrate the architectural universal approach now taken within the industry. Side by side with the academic development of students, the programme seeks to develop the student's key skills profile. The importance of such personal, transferable skills in graduates is widely recognised.

5. Support for students and their learning.

(For apprenticeships this should include details of how student learning is supported in the work place)

Learners and their learning are supported in a number of ways:

Induction sessions provide timely advice on the key aspects of the course and services provided by the college. These are for learners in their first year and are delivered by members of staff from the course teams and the college learner support staff. It welcomes learners to the college, gives detailed information on college structure, staff contact information, teaching and learning resources, health and safety and learner support services and details on the college environment. It also provides advice concerning assessment and how to approach study in higher education.

A course handbook provides all the necessary information about the course. It includes information on the teaching staff, outline information on modules studied and the course calendar. It contains the course specification and the current course regulations.

Module handbooks describe the content of each module delivered in a particular year. These provide learners with the module teaching and assessment schedules and a list of the recommended texts.

Learning resources at SWC are available to support the learner. The VLE is used to enable learners to access resources from lectures plus additional reading, resources and activities in their own private study time. They are directed to on-line resources for research as well as e-books through SWC LRC catalogue. Turnitin plagiarism software is utilised so that they can improve their referencing skills. There are also opportunities for blogs, forums, collaborative and peer learning and support through the VLE which are used to ensure both equality of learning experiences and opportunities for further challenge and research supplementary to the main delivery in the classroom. Regular discussions and support sessions through software (Skype, Collaborate) are provided by teaching staff for part-time learners.

A Course Director for each course year provides a single first point of reference for both new and continuing learners. They will offer pastoral care to each student. This person is an experienced member of the teaching team with the responsibility of assisting learners in their personal and career development. The Course Director will be responsible for direct contact with the students and providing a one-hour tutorial to each group weekly.

Course Tutorials (weekly) with the Course Director are used to guide students in matters affecting progress, curriculum content, assessment, personal and academic development planning and study and examination skills. Students can use (Higher Academic Achievement Record) HEAR to monitor and record this information. Should additional support and guidance be required at any time, the Course Director will direct the student to services such as Careers, Student Support (including Counselling) etc.

Progress and attendance is also recorded on the HEAR tutorial system by the course team. This allows the student to be aware of progress and how to act on comments and progress.

A counselling service is available to learners who are experiencing problems with aspects of their lives other than academic issues. However, if these problems are affecting their studies or academic progress the course tutor/studies advisor and appropriate members of the course team co-operate to provide recommended help and advice to the learner concerned. This service is provided by an external independent counsellor and the Learner Support Officer at South West College.

Strong linkage with learner services in relation to health and welfare, finance, guidance and counselling, careers and special needs.

A careers service is also available for learners to help them in determining their future career and supporting their applications for employment. Learners will discuss career options during meetings with their class tutor/studies advisor. The student/staff consultative committee gives learners the opportunity to raise and discuss general course concerns.

Learners have access to the college library facilities, staff and to IT support staff. Learners are provided with e-mail accounts and have full access to the Internet.

Learners will also have access to lecturer support through e-mail and the College VLE and google classroom.

Feedback is an essential part of a student's learning experience and will be made available to students in each module within Open University timescales. All feedback will be structured so as to provide a beneficial and positive impact on their learning. Students will be given the opportunity to discuss the oral/written feedback with the tutor on an individual basis for each module. Further discussion can be made available to students during tutorial sessions.

Research/Study Skills – students will be required to undertake an initial induction module that will outline research methods and study skills. Students will also develop research skills and study skills through the undertaking of a number of modules. A Higher Education academic support officer is allocated on each campus and is available to provide support on a range of study skills such as Academic Writing, Harvard Referencing, Plagiarism, Presentation Skills, Research

Techniques, Exam Revision tips and Proof-reading. Academic Support officers can meet students in small groups or on a one to one basis via referrals from HE students, HE Course Tutors or Student Services. Course Directors also offer advice and guidance on study skills during tutorials sessions particularly prior to assessment submissions and during the pre-exam period.

6. Criteria for admission

(For apprenticeships this should include details of how the criteria will be used with employers who will be recruiting apprentices.)

Entry point - Year 1:

Students who wish to gain admission at first year of the Foundation Degree.

All applications will be individually considered. Successful applicants must have normally studied at level 3 or above for a minimum of two years. Applicants should possess a minimum of five GCSEs grades A, B, C that should include English and maths or other equivalent qualifications in addition to one of the following

- successful completion of an advanced diploma equating to 48 UCAS points.
- successful completion of a BTEC Extended Diploma/Diploma/Sub Diploma/Certificate in a related subject equating to 48 UCAS points.
- Level 3 Cambridge (OCR) Technical certificates equating to 48 UCAS points.
- Completion of A-level study equating to a minimum of 48 UCAS points;
- equivalent qualifications such as Scottish Certificate of Education or International Baccalaureate, a European Baccalaureate, Irish Leaving Certificate with grade C or above in four subjects at higher level equating to 48 UCAS points.
- qualifications deemed equivalent to the above;
- UCAS tariff score of **48** or above is desired for entry to this program entry can also be made from national certificate/diploma, HE access, NVQ's (students who hold relevant NVQ level 3 qualification will be considered for admission that is supported by experiential learning) or by the colleges policy relating to APEL.

Entry point - Year 2:

Students who wish to gain admission at year two of the Foundation Degree

Learners will require a Certificate in Higher Education or a Higher National Certificate (or equivalent) in a related subject, qualifications deemed equivalent or by the college's policy relating to APEL. Students must also hold GCSE English Language and Maths at grade 4 (grade C) or above (Level 2 literacy and numeracy qualifications are also accepted).

International Students

An international student is defined as a student who requires a Tier 4 (student) visa in order to study in the UK. Such applicants may or may not be living overseas at the time of making their course application. International applicants should apply via the usual route for full-time undergraduates, All International students must meet the college general entry requirements and academic qualifications requirements of the course. In addition, International students must have the required level of English Language IELTS academic 6.0.

All international qualifications will be checked for academic comparability using the online UKNaric qualifications database. The Admissions team has access to UKNaric training materials and guidance on the evaluation and verification of international qualifications.

Students may gain admission through Recognised Prior Learning.

RPL is the process by which the college can identify, assess and certify an applicant's past educational and vocational achievements. Applicants wishing to be considered for APL for a particular program for the purpose of admission or credit must bring this to the attention of the course director at the application and interview stage. Applicants wishing to be considered for direct entry into a level above four or five would normally only be credited a maximum of 240 credits. Gaining credit at level 6 does not qualify.

APEL is where applicants can gain admission to a program on the basis of their experiential learning. At the application stage applicants should inform the admissions staff and the relevant course director of their intention to apply for APEL. APEL can only be used for admission purposes and not to gain credit or exemptions.

All applicants will be interviewed to assess their suitability for this programme of study.

7. Language of study

English

8. Information about non-OU standard assessment regulations (including PSRB requirements)

Not applicable.

9. For apprenticeships in England End Point Assessment (EPA).

(Summary of the approved assessment plan and how the academic award fits within this and the EPA)

Not applicable.

10. Methods for evaluating and improving the quality and standards of teaching and learning.

All HE programmes at SWC are subject to the Quality Management and Enhancement processes. In line with FHEQ Benchmark Statements the following processes are in place:

- Internal verification/moderation, cross marking and external examining processes used to ensure validity and reliability of assessment process.
- The Course Committee considers learner feedback from each module.
- Staff/Student Consultative Committee meetings provide the means of highlighting any difficulties, relating to the course, experienced by the cohort. Class representatives chosen at the start of each academic year will represent the year group and feed back to the course team any feedback or issues that need to be resolved during the SSCM.
- Annual Course Review procedures consider quantitative and qualitative feedback and formulate action plans.
- Learners complete a module evaluation at the end of each module, each semester/year and at the end of the programme.
- The course team reviews the NSS and annual monitoring to ensure improvement is made where applicable in the area of teaching and learning.
- Staff appraisal is carried out on a two-year cycle with attention given to the development needs of the individual staff member.
- The College will annually complete the OU course review & evaluation documentation if applicable.
- The College has a Staff Development Programme, which facilitates specific training/development for staff. Many staff on the course team have completed 'lectures into industry' and have also become or working towards being fellows of the HEA.
- All staff are encouraged to complete Information & Learning Technology qualifications.
- Views of external examiners are considered and SWC/OU reporting mechanisms are/will be followed.
- Informal views and formal written feedback is considered from Employers via the Industrial Advisory Board and subject specific focus groups.

- Learner performance data and career progression is annually monitored.
- Peer observation and assessment has been introduced to assessment matrix.

All team members have to attend programme specific team meetings during the year, all with pre-set agendas, and the Course Directors have to attend Higher Education Committee Meetings, which consider quality management. All new staff to the programme are supplied with a dedicated mentor and a full induction, with extra supervision over their first year in many forms such as Teaching & Learning Mentors and additional peer observations.

11. Changes made to the programme since last (re)validation

Validation of new programme.

Annexe 1: Curriculum map.

Annexe 2: Curriculum mapping against the apprenticeship standard or framework (delete if not required).

Annexe 3: Notes on completing the OU programme specification template.

Annexe 1 - Curriculum map

This table indicates which study units assume responsibility for delivering (shaded) and assessing (✓) particular programme learning outcomes.

Level	Study module/unit	Programme outcomes																										
		A1	A2	A3	A4	A5	A6			B1	B2	B3	B4	B5			C1	C2	C3	C4			D1	D2	D3	D4	D5	D6
4	Building Fabric and Energy Conservation		✓		✓		✓						✓	✓						✓							✓	
	Mathematics & Structures	✓									✓								✓				✓				✓	
	CADD & Introduction to BIM		✓		✓					✓	✓							✓	✓	✓				✓				
	Building Services (Domestic)	✓	✓	✓		✓	✓				✓	✓		✓				✓	✓	✓			✓	✓	✓			✓
	Renewable Energy Technologies			✓		✓	✓					✓	✓	✓				✓	✓		✓			✓				
	Science & Comfort	✓		✓							✓	✓	✓					✓	✓	✓				✓		✓	✓	

Level	Study module/unit	Programme outcomes																										
		A1	A2	A3	A4	A5	A6			B1	B2	B3	B4	B5			C1	C2	C3	C4	C5			D1	D2	D3	D4	D5
5	Building Services For Commercial Projects		✓			✓	✓			✓	✓		✓	✓				✓	✓	✓							✓	
	Management & Contract			✓	✓	✓						✓	✓							✓	✓						✓	
	Microgeneration For Renewable Energy	✓	✓				✓			✓		✓						✓	✓	✓						✓	✓	
	Mathematics For Engineers	✓									✓									✓				✓			✓	✓
	Work Based Learning		✓	✓	✓								✓	✓				✓	✓		✓	✓			✓	✓		

Annexe 2: Notes on completing programme specification templates

- 1 – This programme specification should be mapped against the learning outcomes detailed in module specifications.
- 2 – The expectations regarding student achievement and attributes described by the learning outcome in section 3 must be appropriate to the level of the award within the **QAA frameworks for HE qualifications**: <http://www.qaa.ac.uk/AssuringStandardsAndQuality/Pages/default.aspx>
- 3 – Learning outcomes must also reflect the detailed statements of graduate attributes set out in **QAA subject benchmark statements** that are relevant to the programme/award: <http://www.qaa.ac.uk/AssuringStandardsAndQuality/subject-guidance/Pages/Subject-benchmark-statements.aspx>
- 4 – In section 3, the learning and teaching methods deployed should enable the achievement of the full range of intended learning outcomes. Similarly, the choice of assessment methods in section 3 should enable students to demonstrate the achievement of related learning outcomes. Overall, assessment should cover the full range of learning outcomes.
- 5 – Where the programme contains validated **exit awards** (e.g. CertHE, DipHE, PGDip), learning outcomes must be clearly specified for each award.
- 6 – For programmes with distinctive study **routes or pathways** the specific rationale and learning outcomes for each route must be provided.
- 7 – Validated programmes delivered in **languages other than English** must have programme specifications both in English and the language of delivery.