

Course Specification

A. Course Information				
Final award title(s)	Operating Net Zero Buildings			
Intermediate exit award title(s)				
UCAS Code		Course Code(s)	5824	
Awarding Institution	London South Bank University			
School	<input type="checkbox"/> ASC <input type="checkbox"/> ACI <input checked="" type="checkbox"/> BEA <input type="checkbox"/> BUS <input type="checkbox"/> ENG <input type="checkbox"/> HSC <input type="checkbox"/> LSS			
Division	Civil and Building Services Engineering			
Course Director				
Delivery site(s) for course(s)	<input checked="" type="checkbox"/> Southwark <input type="checkbox"/> Havering <input type="checkbox"/> Croydon <input type="checkbox"/> Other: (please specify)			
Mode(s) of delivery	<input type="checkbox"/> Full time <input checked="" type="checkbox"/> Part time <input type="checkbox"/> Other (please specify)			
Length of course/start and finish dates	Mode	Length years	Start - month	Finish - month
	Full time			
	Full time with placement/sandwich year			
	Part time	1	Jan	June
	Part time with Placement/sandwich year			
Is this course suitable for a Visa Sponsored Student?	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Approval dates:	Course validation date	August 2022		
	Course specification last updated and signed off	August 2022		
Professional, Statutory & Regulatory Body accreditation				

Link to Institute of Apprenticeship (IoA) Standard and Assessment Plan (Apprenticeship only)		
Reference points:	Internal	Corporate Strategy 2020-2025 Academic Quality and Enhancement Website School Strategy LSBU Academic Regulations
	External	QAA The UK Quality Code for Higher Education 2018 Subject Benchmark Statements (Dated) OfS Guidance Competitions and Markets Authority

B. Course Aims and Features

Distinctive features of course	<p>The LSBU School of Built Environment and Architecture (BEA) is one of the UK's largest and most acclaimed schools in the field of Construction. This Short Course is one of four pilots on the theme of Net Zero Buildings, created as pilots in response to the OfS new Lifelong Loan Entitlement (LLE) scheme to be fully launched in 2025.</p> <p>The structure for each of the four pilot courses is similar. A CORE MODULE will be an intact existing LSBU module that offers an introduction to the fundamentals and the latest systems change thinking that are most relevant to that Course. The CORE MODULE is updated with relevant Net Zero content but the learning outcomes will be fundamentally unchanged.</p> <p>The SECOND MODULE will be a new module created specifically for these Short Courses from a combination of existing lessons across different LSBU modules and including new input from LSBU's industry partners.</p> <p>This combined approach gives several benefits:</p> <ul style="list-style-type: none"> - A pathway from these Short Courses to further qualification through APEL (accreditation through prior experiential learning). - Option to study alongside an existing cohort of students in an immersive, cross-disciplinary, on campus environment in central London. - Streamlined integration of Short Courses with LSBU Academic Calendar, Assessment schedule, exam boards, and graduation times. - New modules created from existing lessons and industry input to provide a fresh qualification not yet available at LSBU or elsewhere. - Material developed/delivered with industry partners ensures relevant and useful skills, as well as building links with potential employers.
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	<p>- Industry advisory group to continually refresh the Short Courses to meet the changing needs of a Net Zero economy this decade.</p> <p>The Distinctive Features of this Short Course on Operating Net Zero Buildings is that it uniquely teaches the management and operation of buildings in a way that is fit for purpose and consistent with the needs of a net zero carbon economy.</p> <p>In order to create a truly zero carbon built environment we must not only design effective buildings but operate and maintain them efficiently over their lifetimes. As utility costs increase, and as we work to retrofit existing buildings, knowledge of effective building operation is of increasing demand nationwide. This Short Course is also uniquely suited to responding to this skills/knowledge gap quickly and in a format that allows those attending the course to obtain timely knowledge that can be rapidly applied on relevant projects.</p>
<p>Course Aims</p>	<ol style="list-style-type: none"> 1. To provide update on regulations and standards in energy management 2. To provide the skills required for effective energy management <ul style="list-style-type: none"> o Analytical skills for energy and carbon savings forecasting and performance monitoring o Financial appraisal of energy and carbon reduction options o Effective reporting for investment and carbon 3. To demonstrate the link between good control design and effective and efficient operation of systems 4. To study the characteristics of control devices, components and systems <ul style="list-style-type: none"> • To understand methods for the management of zero carbon buildings and estates • To present strategies for data collection and advanced analytic techniques for effective energy and carbon reduction investments • To understand operational models including contract energy and carbon management, demand management and on-going audit processes • Advanced control techniques for enhanced operations • To present case studies of best practice
<p>Course Learning Outcomes</p>	<p>4.1 Knowledge and Understanding</p> <p>A1 Commercial, economic and regulatory context of energy and carbon management</p> <p>A2 Equipment and processes used to quantify and optimise energy efficiency of buildings</p> <p>A3 Data acquisition, storage and communications protocols</p> <p>A4 Energy management systems: ISO 50001 and relevant 50000 series standards</p> <p>A5 Data collection hardware and comms protocols</p> <p>A6 Operational models for effective management</p>

	<p>4.2 Intellectual Skills B1 Analyse systems, processes and components requiring engineering solutions B2 Data analytics for complex problem solving B3 Advanced analytics and critical thinking B4 Devising appropriate management strategies</p> <p>4.3 Practical Skills C1 Use appropriate mathematical methods and data manipulation for analysing systems in buildings with incomplete, error- prone data, and financial risk. C2 Setting management systems to work</p> <p>4.4 Transferable Skills D1 Use evidence-based methods in the continuous improvement of buildings' energy performance D2 Effective reporting of financial and carbon opportunities and results D3 Contract and contractor engagement and management</p>
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C. Teaching and Learning Strategy

A Knowledge and understanding

Lectures, tutorials and especially practicals (applications) covered throughout. Project/Assignment work will develop these areas. Statutory requirements, including safety, feature throughout the course, in practical work in particular. Teaching methods include lectures, tutorials, laboratory experiments, computing and online sources for self-study. Case studies and examples from practice are combined with the presentation of theoretical principles.

Throughout the course students have module guides relevant to each topic of study, giving additional reading material which students are encouraged to use for private study to consolidate the formal learning process, and both broaden and deepen their knowledge and understanding in the subject area. All students are encouraged to become student members of the professional institutions, use their libraries and resources, and attend meetings.

B Intellectual skills

Classroom time includes tutorial sessions, where students attempt problems. In private study, students develop skills by writing assignment and reports, and tackling problems set by the tutor or informed by past assessments. The ability to apply quantitative methods to understand the performance of systems and components is taught. Students are taught how to solve engineering problems and recommend appropriate actions. Students are taught to apply an integrated or systems approach to engineering problems. The students learn how to deal with uncertainty and incomplete information and apply problem-solving skills. Students are taught awareness of team roles in lectures, tutorial and group projects.

C Practical Skills

Lectures and tutorials at all levels cover the use of relevant equipment. Basic IT skills for engineering and science are developed, as are experimental methods. The wider aspects of management will be covered using assignments/tutorials within the Management lectures. Students are taught how to apply information from technical literature.

D Transferable Skills

The ability to understand and manipulate data is covered in assignment, tutorial, project and practical work: students for example obtain data from handbooks, live case studies, or computer databases and use it in calculations, graphical solutions and computer applications. Self-learning and personal development are taught throughout and lifelong learning is encouraged throughout the course through exposure to continuing professional development such as the CIBSE ASHRAE group.

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D. Assessment

100% Coursework

FEEDBACK

Feedback will normally be available to students 15 working days after the submission of an assignment.

Assignments should be submitted online

E. Academic Regulations

The University's Academic Regulations apply for this course. Any course specific protocols will be identified here.

F. Entry Requirements

- A Level BBC **or**;
- BTEC National Diploma DDM **or**;
- Access to Engineering qualifications with 15 Distinctions and 30 Merits **or**;
- Equivalent level 3 qualifications worth 128 UCAS points
- Level 3 qualifications must include Maths and Physics
- Applicants must hold 5 GCSEs A-C including Maths and English or equivalent (reformed GCSEs grade 4 or above).
- We welcome qualifications from around the world. English language qualifications for international students: IELTS score of 6.0 **or** Cambridge Proficiency **or** Advanced Grade C.

Mature students who do not possess any of the above formal qualifications but can demonstrate working experience which includes significant study or application of mathematical skills appropriate to level III (i.e. 'A' Level) or similar, may be allowed to join the course at the course director's discretion.

G. Course Structure(s)

Course overview

- The courses will be taught in a mixed mode with primarily classroom based learning alongside existing LSBU cohorts. This will be supplemented on some modules by additional web based content available through a virtual learning environment or through LSBU's new PowerHouse Hub platform

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Operating Net Zero Buildings - Part time

	Semester 2		Semester 2	
Year 1	Energy Management and Controls	20	Operation for Zero Carbon Building Performance	20

Placement information

H. Course Modules

Module Code	Module Title	Level	Semester	Credit value	Assessment
BEA_6_473	Energy Management and Controls	6	2	20	100% CW
BEA_6_OZB	Operation for Zero Carbon Building Performance	6	2	20	100% CW

I. Timetable Information

The Timetable will follow a block teaching format each year. The example below is an indication of the breakdown between in person learning on LSBU campus and online learning. The exact weeks and dates will vary each year, as well exact coursework deadlines. Students should consult the Course Guide for the year they are studying for details.

Academic Week			Taught Hours	Monday	Tuesday	Wednesday	Thursday	Friday	CW
1	Full Week Onsite	Module 1	32	8	8	4	8	4	CW1 Assigned
2	Online	Module 1	0						
3	Online	Module 1	4			4			
4	Online	Module 1	0						CW1 Due
5	Two days onsite	Module 1	12				8	4	CW 2 Assigned
6	Online	Module 1	0						
7	Online	Module 1	4			4			CW2 Due
8	Full Week Onsite	Module 2	32	8	8	4	8	4	CW1 Assigned
9	Online	Module 2	0						
10	Online	Module 2	4			4			
Easter		Module 2	0						
Easter		Module 2	0						
Easter		Module 2	0						CW1 Due
11	Two days onsite	Module 2	12				8	4	CW 2 Assigned
12	Online	Module 2	0						
13	Online	Module 2	4			4			CW2 Due
		Total	104						

J. Costs and Financial Support

Course related costs

- In addition to tuition fees, students should be prepared to attend campus in central London twice per module, for a total of four visits overall. Students will have selected group activities which may include some catering but should plan for their own travel, room, and board at their own expense for the duration of their attendance in London.
- Trip #1 – Semester 2 Week 1 – 5 days, 4 nights in London
- Trip #2 – Semester 2 Week ~5 – 2 days, 1 nights in London
- Trip #3 – Semester 2 Week 8 – 5 days, 4 night in London
- Trip #4 – Semester 2 Week ~11 – 2 days, 1 nights in London

- While on campus, students may access computer facilities included in their tuition costs, but if off campus will be expected to find their own means of accessing computer facilities. They will be expected

to find broadband access and join some online lectures or view recordings of lessons remotely and maintain contact with study groups/workshops.

Tuition fees/financial support/accommodation and living costs

- There is a new Lifelong Learning Entitlement (LLE) loan scheme to support tuition costs for short courses: <https://www.gov.uk/government/consultations/lifelong-loan-entitlement>
- Information on tuition fees/financial support can be found by clicking on the following link - <http://www.lsbu.ac.uk/courses/undergraduate/fees-and-funding> or
- <http://www.lsbu.ac.uk/courses/postgraduate/fees-and-funding>
- Information on living costs and accommodation can be found by clicking the following link- <https://my.lsbu.ac.uk/my/portal/Student-Life-Centre/International-Students/Starting-at-LSBU/#expenses>

List of Appendices

- Appendix A: Curriculum Map
- Appendix B: Personal Development Planning (postgraduate courses)
- Appendix C: Terminology

Appendix A: Curriculum Map

This map provides a design aid to help course teams identify where course outcomes are being developed, taught and assessed within the course. It also provides a checklist for quality assurance purposes and may be used in validation, accreditation and external examining processes. Making the learning outcomes explicit will also help students to monitor their own learning and development as the course progresses.

The letters T for taught, D for developed and A for assessed should be added as appropriate to each Course Outcome.

Modules			Course Outcomes																		
Level	Title	Code	A 1	A 2	A 3	A 4	A 5	A 6	B 1	B 2	B 3	B 4	C 1	C 2	D 1	D 2	D 3				
6	Energy Management and Controls	BEA_6_473	T D A	T D A	T D A				T D A	T D A			T D A		T D A	T D A					
6	Operation for Zero Carbon Building Performance	BEA_6_OZB	D	D	D	T D A	T D A	T D A	D	D	T D A	T D A	D	T D A	D	D	T D A				

Appendix B: Personal Development Planning (For Postgraduate Courses Only)

Personal Development Planning (PDP) is a structured process by which an individual reflects upon their own learning, performance and/or achievement and identifies ways in which they might improve themselves academically and more broadly. Course teams are asked to indicate where/how in the course/across the modules this process is supported.

Approach to PDP	Level 7
1 Supporting the development and recognition of skills through the personal tutor system.	
2 Supporting the development and recognition of skills in academic modules/modules.	
3 Supporting the development and recognition of skills through purpose designed modules/modules.	
4 Supporting the development and recognition of skills through research projects and dissertations work.	
5 Supporting the development and recognition of career management skills.	
6 Supporting the development and recognition of career management skills through work placements or work experience.	
7 Supporting the development of skills by recognising that they can be developed through extra curricula activities.	
8 Supporting the development of the skills and attitudes as a basis for continuing professional development.	
9 Other approaches to personal development planning.	
10 The means by which self-reflection, evaluation and planned development is supported e.g. electronic or paper-based learning log or diary.	

Appendix C: Terminology

(Please review the definitions and add those according to your own course and context to help prospective students who may not be familiar with terms used in higher education.)

Some examples are listed below:

accelerated degree	accelerated degrees (also known as two-year degrees) are full bachelor's degrees (undergraduate courses) you can complete in a condensed time period
awarding body	a UK higher education provider (typically a university) with the power to award higher education qualifications such as degrees
bursary	a financial award made to students to support their studies; sometimes used interchangeably with 'scholarship'
collaborative provision	a formal arrangement between a degree-awarding body and a partner organisation, allowing for the latter to provide higher education on behalf of the former
compulsory module	a module that students are required to take
contact hours	the time allocated to direct contact between a student and a member of staff through, for example, timetabled lectures, seminars and tutorials
coursework	student work that contributes towards the final result but is not assessed by written examination
current students	students enrolled on a course who have not yet completed their studies or been awarded their qualification
delivery organisation	an organisation that delivers learning opportunities on behalf of a degree-awarding body
distance-learning course	a course of study that does not involve face-to-face contact between students and tutors
extended degree	an extended degree provides a bridging route for students who don't meet the initial entry requirements for the undergraduate degree. The first year provides the necessary knowledge and skills before students begin the degree-level course.
extracurricular	activities undertaken by students outside their studies
feedback (on assessment)	advice to students following their completion of a piece of assessed or examined work
formative assessment	a type of assessment designed to help students learn more effectively, to progress in their studies and to prepare for summative assessment; formative assessment does not contribute to the final mark, grade or class of degree awarded to students
foundation	foundation year programmes are designed to develop skills and subject-specific knowledge to ensure a student can advance to a degree course. They may be offered as stand-alone one-year courses or integrated into degree programmes.

higher education provider	organisations that deliver higher education
independent learning	learning that occurs outside the classroom that might include preparation for scheduled sessions, follow-up work, wider reading or practice, completion of assessment tasks, or revision
integrated	an integrated Master's degree combines undergraduate and postgraduate study. In relation to Apprenticeships, integrated would usually mean that the End Point Assessment (EPA) is integrated with the academic award
intensity of study	the time taken to complete a part-time course compared to the equivalent full-time version: for example, half-time study would equate to 0.5 intensity of study
lecture	a presentation or talk on a particular topic; in general lectures involve larger groups of students than seminars and tutorials
learning zone	a flexible student space that supports independent and social learning
material information	information students need to make an informed decision, such as about what and where to study
mode of study	different ways of studying, such as full-time, part-time, e-learning or work-based learning
modular course	a course delivered using modules
module	a self-contained, formally structured unit of study, with a coherent and explicit set of learning outcomes and assessment criteria; some providers use the word 'course' or 'course unit' to refer to individual modules
national teaching fellowship	a national award for individuals who have made an outstanding impact on student learning and the teaching profession
navigability (of websites)	the ease with which users can obtain the information they require from a website
optional module	a module or course unit that students choose to take
performance (examinations)	a type of examination used in performance-based subjects such as drama and music
pre-registration (HSC only)	a pre-registration course is designed for students who are not already registered with an independent regulator such as the Nursing and Midwifery Council (NMC)
professional body	an organisation that oversees the activities of a particular profession and represents the interests of its members
prospective student	those applying or considering applying for any programme, at any level and employing any mode of study, with a higher education provider

regulated course	a course that is regulated by a regulatory body
regulatory body	an organisation recognised by government as being responsible for the regulation or approval of a particular range of issues and activities
scholarship	a type of bursary that recognises academic achievement and potential, and which is sometimes used interchangeably with 'bursary'
semester	either of the parts of an academic year that is divided into two for purposes of teaching and assessment (in contrast to division into terms)
seminar	seminars generally involve smaller numbers than lectures and enable students to engage in discussion of a particular topic and/or to explore it in more detail than might be covered in a lecture
summative assessment	formal assessment of students' work, contributing to the final result
term	any of the parts of an academic year that is divided into three or more for purposes of teaching and assessment (in contrast to division into semesters)
top-up degree	A top-up degree is the final year (Level 6) of an undergraduate degree course. It allows students to top-up an existing qualification to a full BA, BSc or BEng.
total study time	the total time required to study a module, unit or course, including all class contact, independent learning, revision and assessment
tutorial	one-to-one or small group supervision, feedback or detailed discussion on a particular topic or project
work/study placement	a planned period of experience outside the institution (for example, in a workplace or at another higher education institution) to help students develop particular skills, knowledge or understanding as part of their course
workload	see 'total study time'
written examination	a question or set of questions relating to a particular area of study to which candidates write answers usually (but not always) under timed conditions