EST 1892 LSBU

Course Specification

A. Course Information

Final award title(s)	BEng (Hons) Civil Engineering (TAC Design Apprenticeship)	**Course Code(s)**	Part-time: 5123
Intermediate award title(s)	N/A		
Awarding Institution	London South Bank University		
School	☐ ASC ☐ ACI ☒ BEA ☐ BUS ☐ ENG ☐ HSC ☐ LSS		
Division	Civil and Building Services Engineering		
Course Director	Simon Leung		
Delivery site(s) for course(s)	☒ Southwark ☐ Havering ☐ Croydon ☐ Other: (please specify)		
Mode(s) of delivery	☐Full-time ☒Part-time ☐ Both		
Length of course	<table><tr><th>Mode</th><th>Length years</th><th>Start - month</th><th>Finish - month</th></tr><tr><td>Part-time</td><td>5</td><td>September</td><td>June</td></tr></table>		
Is this course generally suitable for students on a Tier 4 visa?	Please complete the International Office questionnaire Yes No ü Students are advised that the structure/nature of the course is not suitable for those on a Tier 4 visa.		
Approval dates:	Course(s) validated	Revalidated September 2023	
	Course review date	September 2028	
	Course specification last updated and signed off	September 2023	
Professional, Statutory & Regulatory Body accreditation	Joint Board of Moderators (on behalf of the Engineering Council), representing; • The Institution of Civil Engineers (ICE) • The Institution of Structural Engineers (IStructE) • The Chartered Institution of Highways and Transportation (CIHT) • The Institute of Highway Engineers (IHE) • Permanent Way Institution (PWI) **Accredited to 2024 intake**		
Link to Institute of Apprenticeship (IoA) Standard and Assessment Plan (Apprenticeship only)	https://www.instituteforapprenticeships.org/apprenticeship-standards/civil-engineer-degree-v1-0		
Reference points:	Internal	- Corporate Strategy 2020-2025 - Academic Quality and Enhancement Website - School Strategy - LSBU Academic Regulations	

		- LSBU Curriculum Framework
	External	- Engineering Council, Accreditation of Higher Education Programmes (AHEP4, Fourth Edition August 2020); - The course is informed by the Joint Board of Moderators Guidelines for Developing Degree Programmes, April 2022 - Institute for Apprenticeships and Technical Education (IfATE), Civil Engineer (Degree) Level 6 Standard ST0417 - The institution of Civil Engineers for EPA and On-the-Job training programme - Industrial Advisory Panel for programme support - QAA Quality Code for Higher Education 2018 - Framework for Higher Education Qualifications Subject Benchmark Statements March 2023 - Framework for Higher Education (FHEQ) Outcome Qualifications Descriptions for Level 6 - Competitions and Markets Authority - Office for Students (OfS) Guidance - SEEC Level Descriptors for Higher Education 2021 - Professional Statutory and Regulatory Bodies (PSRBs)

B. Course Aims, Features and Outcomes

Distinctive features of course	This course partially contributes to the requirements of the Apprenticeship Standard ST0417 to prepare apprentices for a career as a civil or structural engineer. The course embraces recent industry developments, in particular, the inclusion of the ECUK UK Standard for Professional Engineering Competence (UK-SPEC), and gives apprentices the opportunity to achieve the professional status of both Incorporated Engineer and Chartered Engineer. The curriculum emphasises the development of traditional engineering numerical strengths coupled with both an enquiring creative and practical approach as required by employers and the Apprenticeship Standard. Developing the latter approach is sometimes culturally difficult but it is our aim to get apprentices to eventually approach with relish a blank sheet of paper and an ill-defined, uncertain brief to which they can develop a theoretical and practical rational solution. The principles of Building Information Modelling, Computer Aided Design and Finite Element Analysis are studied in a thread of modules and applied in group projects. We do seek both to educate and train for the achievement of knowledge, skills and behaviours. Because civil engineering is such a broad area, there is a wide range of different specialisms for apprentices to consider after graduating and achieving the End Point Assessment, but our degree gives to our apprentices a solid background and expertise for entering any of them. This a fully-fledged part-time course timetabled on one-day-a-week attendance.
Course Aims	**The BEng (Honours) Civil Engineering Apprenticeship aims to:** 1. Produce graduated apprentices who are committed to a career in civil engineering with a range of employers in a variety of countries. 2. Produce graduated apprentices equipped for postgraduate study and to take up responsible professional employment both in the construction industry and become lifelong learners with an appreciation of the value to society of an education in civil engineering. 3. Produce graduated apprentices who have a breadth and depth of knowledge and understanding of the key aspects of civil engineering. 4. Allow graduates apprentices to acquire and develop analytical and problem-solving knowledge and skills, and subject-specific practical knowledge, skills and behaviours. To acquire and develop the ability to evaluate evidence, arguments and assumptions, to reach sound judgements and communicate effectively.

	5. Develop graduated apprentices who approach design problems creatively and who have the technical skills to see their ideas through to realisation. 6. Provide graduates apprentices with a structure and support to undertake and achieve the whole Apprenticeship Scheme whilst being employed. 7. Create an educational and professional environment that may benefit from the practical experience of apprentices. 8. Provide an engineering education, centred within the built environment that recognises the important roles of other professions in the development of the built environment and cultivates interaction and teamwork with these other professionals. 9. Provide graduated apprentices with the necessary academic qualification which equips them to enter advanced postgraduate study thus satisfying an approved course of further learning comprising the full educational base for a Chartered Engineer.
Course Outcomes	The course outcomes have been developed concerning the Joint Board of Moderators (**JBM**) guidelines and the Engineering Council's Accreditation of Higher Engineering Academic Programmes, **Fourth Edition (August 2020)**. The codes in brackets (**C1 to C18**) refer to the **JBM** and **AHEP4** and are mapped with the Learning Outcomes at LSBU, Appendix C. The curriculum map showing the modules in which the material that each of the learning outcomes covers is in Appendix A. **C1** Apply knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Some of the knowledge will be at the forefront of the particular subject of study. **C2** Analyse complex problems to reach substantiated conclusions using first principles of mathematics, statistics, natural science and engineering principles. **C3** Select and apply appropriate computational and analytical techniques to model complex problems, recognising the limitations of the techniques employed. **C4** Select and evaluate technical literature and other sources of information to address complex problems. **C5** Design solutions for complex problems that meet a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health and safety, diversity, inclusion, cultural, societal, environmental and commercial matters, codes of practice and industry standards. **C6** Apply an integrated or systems approach to the solution of complex problems. **C7** Evaluate the environmental and societal impact of solutions to complex problems and minimise adverse impacts. **C8** Identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct. **C9** Use a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity. **C10** Adopt a holistic and proportionate approach to the mitigation of security risks. **C11** Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits and importance of supporting equality, diversity and inclusion. **C12** Use practical laboratory and workshop skills to investigate complex problems.

C13 Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations.

C14 Discuss the role of quality management systems and continuous improvement in the context of complex problems.

C15 Apply knowledge of engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights.

C16 Function effectively as an individual, and as a member or leader of a team.

C17 Communicate effectively on complex engineering matters with technical and non-technical audiences.

C18 Plan and record self-learning and development as the foundation for lifelong learning/CPD.

The course also contributes to the fulfilment of the occupational profile of the apprenticeship standard Civil Engineer (Degree) Level 6 ST0417specified by the following Knowledge, Skills and Behaviours (KSBs). This KSBs are mapped against the learning outcomes (Appendix A)

APPRENTICESHIP STANDARDS

a) Knowledge Apprenticeship Standards

K1: The principles and techniques used to evaluate the impact of civil engineering infrastructure on society and the environment taking account of its construction, management and use. This includes the importance of welfare, health, safety and sustainability. Examples include: knowledge and understanding of environmental impact assessment, building information modelling taking into account the context of sustainability, CEEQUAL (a sustainability assessment tool used for the assessment of all types of civil engineering, infrastructure, coastal protection works, coastal landslides, sewerage and drainage systems, and public realm projects and contracts) the environmental impact of materials, integrated transport systems, water quality and supply as well as urban drainage systems for a sustainable built environment.

K2: The mathematical, scientific and engineering principles, methods and modelling that underpin the design and construction of civil engineering infrastructure. This will include understanding structural and ground responses, properties of materials and their predicted behaviour as part of integrated systems. Examples include, knowledge of the design and construction of buildings, transportation systems, water and wastewater networks, foundations and temporary works, coastal protection, understanding slope stability, retaining walls, groundwater movement, elastic/plastic and failure behaviour of materials such as concrete, steel, asphalt and timber, behaviour of structural elements such as beams, land surveying and formulating applicable mathematical solutions through suitable software.

K3: The use and validation of digital solutions to model, evaluate, design, build and manage civil engineering infrastructure. Examples include knowledge of software packages including building information modelling, structural engineering design and analysis, computational fluid dynamics and finite element modelling software.

K4: A range of research techniques used to develop innovative solutions to civil engineering problems and the use of current and emerging technologies and products.

	Examples include knowledge of site investigation techniques, flood risk management, materials testing, physical and numerical modelling, transport analysis, road traffic flow, growth, traffic management and safety. K5: The design and quality standards, codes of practice, legal and regulatory frameworks, such as those of asset owners and regulatory bodies, that govern the life cycle of civil engineering infrastructure. Examples include British Standards, Construction (Design and Management) policies, building regulations, Eurocode, Network Rail, and nuclear industry standards, K6: The principles and techniques of effective project management including resources, cost management and risk assessment. Examples include: knowledge of project and contract management in terms of cost, quality, performance and continuous improvement; procedures and processes involved in procuring projects, producing tenders and estimates and factors that affect profitability; management structures and relationships involved in project delivery; commercial and financial risks; project management systems and procedures for forecasting, planning, allocating and controlling human, material and financial resources; continuous quality improvement strategy. K7: How to manage teams and develop staff to meet changing technical and managerial needs. Examples include: knowing how to build teams, effective team working, time management, reviewing and appraising performance in relation to the delivery of civil and infrastructure engineering projects and related wider operations. Using change-management techniques to address client changes and impacts on civil engineering design and delivery. K8: How to communicate effectively through reports, drawings, specifications, presentations, digital media, and discussions with those both inside and outside the industry. K9: The professional and ethical codes of conduct and associated responsibilities as set out by the relevant professional engineering institution. **b) Skills Apprenticeship Standards** S1: Evaluate the impact of civil engineering infrastructure on society and the environment taking account of its construction, management and use. Examples include: the ability to use the CEEQUAL toolkit, carry out environmental impact assessments, designing and constructing the built infrastructure to ensure that it is safe, usable, appropriate and cost-effective. S2: Proactively consider welfare, health, safety, and sustainability in the life cycle of civil engineering infrastructure S3: Apply mathematical, scientific and engineering principles, methods and models to the design and construction of civil engineering infrastructure. Examples include: the design, construction and maintenance of buildings, transportation systems, water and wastewater networks, foundations and temporary works, understanding slope stability, retaining walls, groundwater movement, coastal works, elastic/plastic and failure behaviour of materials such as concrete, steel, asphalt and timber, behaviour of structural elements such as beams, land surveying. S4: Use and validate digital solutions to model, evaluate, design, build and manage civil engineering infrastructure. Examples include the ability to use building information

	modelling, structural engineering design and analysis, computational fluid dynamics and geospatial information systems software. S5: Develop innovative solutions to civil engineering problems through the use of research techniques, market intelligence and best practice. Examples include the ability to use a range of research methods to collect and analyse data to draw well-founded practical conclusions for implementation, applicable research strategy and methodology, literature searches. S6: Interpret and apply design and quality standards including codes of practice, legal and regulatory frameworks, in the development of civil engineering solutions. Examples include: planning, designing, construction and maintenance of buildings and infrastructure in compliance with current codes, standards and legislation, industry regulations, the use of Risk Assessment Method S7: Manage and apply safe systems of work including taking responsibility for own obligations for health, safety, and welfare issues, assessing and controlling risk, working with health, safety and welfare legislation and best practice. Examples include: recognise the health and safety aspects of civil and infrastructural projects as well as assess associated risks and identify appropriate safety measures in site work and for undertaking construction works. Apply the principles of civil engineering and construction business risk management S8: Manage the planning, budgeting and organisation of tasks, people and resources through the use of appropriate management systems, working to agreed quality standards, project programme and budget, within legal, contractual and statutory requirements. S9: Manage teams and develop staff to meet changing technical and managerial needs. S10: Communicate effectively through reports, drawings, specifications, presentations, digital media, and discussions with those both inside and outside the industry S11: Carry out and record the continuing professional development necessary to maintain and enhance knowledge and competence as a civil engineer. **c) Behaviour Apprenticeship Standards** B1: Be aware of the needs and concerns of others, especially in relation to diversity and equality. B2: Demonstrate reliability, integrity, and respect for confidentiality. B3: Be confident and flexible in dealing with new and changing interpersonal situations. B4: Create maintain, and enhance productive working relationships B5: Demonstrate a strong commitment to health, safety and welfare. B6: Demonstrate a personal commitment to professional and ethical standards, recognising one's obligations to society, the profession and the environment B7: Demonstrate self-awareness of knowledge and skills and only undertake work that they are competent to do

	B8: Take responsibility for personal development, demonstrating a commitment to learning and self-improvement and be open to feedback.

C. Teaching Learning and Assessment Strategy

This course is taught by delivering lectures, tutorials, individual and group works, laboratories, computer laboratories, site visits, field trips, and any other activity the module leaders consider relevant and useful for apprentices learning.

LSBU provide access to laboratories, computer rooms, a library, equipment, and many other resources that can be found by visiting the Student Life Centre or talking to the academics and personal tutors. Information about resources can also be found on Home Page - London South Bank University (lsbu.ac.uk). Further, student can contact staff via Salesforce and the student services via MyAccount. In the case of MyAccount, students can do live Chat from the bottom right corner to get a prompt response. Students are supported throughout this strategy and the activities involved primarily through SAL and MyAccount as the default, with additional support offered via our VLE moodle, Microsoft Teams, emails, and direct face-to-face meetings.

Every academic provides surgery hours (in person and/or on Teams) and can be contacted by email, Teams messages and in person during the classes.

When necessary, due to professional, personal, health or other circumstances, hourly paid lecturers, PhD students, or any other qualified person can cover part of the lectures and activities of this course. This could also include guest lecturers, who will be introduced by the module leader. Guest lecturers will be brought in to provide students with information on how what they are doing relates to industrial practice, advancements in the industry around a particular subject area and the current research that is being carried out within that subject area. They will be always supervised by academics covering the role of module leaders and course directors.

This course is delivered by a blended approach. This means the material and the delivery of the teaching include physical notes in many cases but electronic notes, recorded videos, and multimedia as well. All of this is offered to boost the learning process of apprentices.

It is important to understand, however, that this course involves an understanding of concepts by attempting all the tutorial questions, watching videos, and reading notes, articles, and books. To succeed in this course, the apprentices must invest a minimum private study time of 3,000 hours. This time, of course, is variable depending on the previous knowledge of the apprentice (background).

The effort must be continuous and steady throughout the academic year.

In the next paragraphs, a detailed teaching, learning and assessment strategy is provided in connection with the modules and learning outcomes and the curriculum map established previously and in appendices A and B.

The codes in brackets (C1 to C18) refer to the Learning Outcomes described in the AHEP4

documentation.

The codes in brackes (K1 to K9; S1 to S8; B1 to B7) refer to the occupational standard ST0417

Apply knowledge of mathematics, statistics, natural science, and engineering principles to the solution of complex problems **(outcome C1; K2, S3)** are taught and assessed in *Mathematics A, Fluid Mechanics A, Hydraulics, Advanced Mathematics, and Structures & Design*.

The evaluation of the environmental and societal impact of solutions to complex problems and minimising adverse impacts **(outcome C7; K1, S1, S2)** are taught and assessed at level 4 in *Materials & Geology A,* at level 5 *in BIM & Design* and level 6 in *Geotechnical Engineering,* and *Environmental Engineering modules*.

Apprentices are taught and assessed to identify and analyse ethical concerns and make reasoned ethical choices informed by professional codes of conduct **(outcome C8; K9, B6)** in the *Construction Practice C* module at level 4, *Structures and Construction Management* at level 5*, Structures and Design and Environmental Engineering and PD* at level 6.

Using a risk management process to identify, evaluate and mitigate risks (the effects of uncertainty) associated with a particular project or activity **(outcome C9; K6, S7)** is taught and assessed in *Materials & Geology A, Soil Mechanics,* and *Highways Engineering.*

In all the laboratory activities, site visits and field trips, a holistic approach is implemented to mitigate risks (the effect of uncertainty) associated with those activities **(outcome C10; B2)**. This outcome is taught and assessed in *Construction Practice C, BIM & Design and Environmental Engineering & PD.*

Apply knowledge of engineering management principles, commercial context, project and change management, and relevant legal matters including intellectual property rights **(outcome C15; K6, S8)** is taught and assessed in *Construction Practice C, Structures & Construction Management, and Environmental Engineering & PD.*

Throughout the course apprentices have module guides relevant to each topic of study, giving additional reading material which apprentice 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 apprentices are encouraged to become student members of professional institutions, use their libraries and resources, and attend meetings.

Apprentices are taught and assessed to analyse complex problems to reach substantiated conclusions using the first principles of mathematics, statistics, natural science, and engineering principles **(outcome C2; K2, S3)** in Mathematics A, *Fluid Mechanics A, Hydraulics, Advanced Mathematics* and *Geotechnical Engineering by covering all the levels 4 to 6.* The apprentice's skills are further developed in most level 6 modules.

The ability to select and apply appropriate computational and analytical techniques to model complex problems and recognise the limitations of the techniques employed **(outcome C3; K3, S4)** is taught and assessed in *Engineering Surveying, Hydraulics, Advanced Mathematics, Structures & Construction Management, Structures & Design and Environmental Engineering & PD*.

Design solutions for complex problems that meet a combination of societal, user, business and customer need as appropriate **(outcome C5; K1, K5, S1, S6, B5)** is taught and assessed in *Construction Practice C, Design of Elements, Structures & Design, and Highway Engineering.* It is taught as well in *Group Design Project* and *BIM and Design*.

Apply an integrated or systems approach to the solution of complex problems **(outcome C6; K3, S4)** is taught and assessed in *Engineering Surveying*, *Design of Elements*, and *Group Design Project***.**

In *Structures & Construction Technology A, BIM & Design, and Group Design Project* at each level, apprentices learn and are assessed on how to discuss the role of quality management systems and continuous improvement in the context of complex problems **(outcome C14; K6, S8).**

(Outcomes C17; K8, S10) Communicating effectively on complex engineering matters with technical and non-technical audiences is taught and assessed in *Engineering Surveying*, *Design of Elements* and *Individual Research Project*.

Select and evaluate technical literature and other sources of information to address complex problems **(outcome C4; K4, S5)** is taught and assessed in *Structures & Construction Technology A*, *Design of Elements*, and *Individual Research Project*.

Adopt an inclusive approach to engineering practice and recognise the responsibilities, benefits, and importance of supporting equality, diversity, and inclusion **(outcome C11; B1, B3, B4)** is taught and assessed in *Construction Practice C, BIM & Design, Group Design Project and Highway Engineering.*

Use practical laboratory and workshop skills to investigate complex problems **(outcome C12; K3, S4)** are largely taught and developed at levels 4 and 5, in technical and computing laboratories and lectures and tutorials. This is assessed in *Fluid Mechanics A, Hydraulics, Soil Mechanics, and Structures & Design.*

Select and apply appropriate materials, equipment, engineering technologies and processes, recognising their limitations **(outcome C13; K2, S4)** is taught and assessed in *Materials & Geology A, Structures & Construction Management, Soil Mechanics and Individual Research Project.*

The ability to function effectively as an individual, and as a member or leader of a team **(outcome C16; K7, S9, B3, B4)** is taught in seminars in the Research project. Exercising personal responsibility is part of *Engineering Surveying, Design of Elements, Soil Mechanics, Group Design Project* and *Highway Engineering*.

Apprentices acquire their transferrable skills of design **(outcome C5; K1, K5, S1, S6, B5)** and are taught and assessed in *Construction Practice C, Design of Elements, Structures & Design, and Highway Engineering.* It is taught as well in *Group Design Project* and *BIM and Design*.

Plan and record self-learning and development as the foundation for lifelong learning/CPD **(outcome C18; S11, B7, B8)** are taught in *Construction Practice C* and developed in the final year projects as well as in the professional development component of the *Environmental Engineering & PD* module.

D. Assessment Methods

General definitions

The assessment in this course is made by coursework (CW) and exams (EX).

CW can be in the form of phase-tests, reports, quizzes, etc. (individual or in groups; on-campus and/or online via Moodle).

Exams are individual assessments and can be in the form of on-campus written exercises or online.

There are modules which are CW 100%, there are others with different weights on CW and exams. CW can have several components.

The modality is defined module by module in the module guides.

Details about weights can be found at **H. Course Modules** in these specifications.

This course, through its modules, includes summative and formative assessments for students to prepare for their exams.

Summative assessments are the assessments that define the student's official marks on coursework and exams.

A formative assessment is like a summative assessment, but the marks obtained (if any) are not part of the official assessment. These marks are just a tool for the student to test themselves. A formative assessment can be a previous year's coursework or exam paper, an original coursework or an original exam paper, quizzes, tests, etc. This will be decided and designed by the module leader.

Summative assessments can be reviewed and clarified after the students' requirements but the academic judgment will prevail (principle of academic judgment independence). When students are dissatisfied with their marks, they have an official appeal process to follow.

E. Academic Regulations

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

https://www.lsbu.ac.uk/about-us/policies-regulations-procedures

Since this course is accredited, there are some extra regulations defined by the requirements of the Joint Board of Moderators that in some cases can be more restrictive than the LSBU regulations. They are stated in these specifications and the course guide.

Compensation

A compensated pass is awarded if a minimum of 30% for undergraduate and 40% for masters is achieved at a component level and a minimum of 30% for undergraduate and 40% for masters is achieved at the module level.

A maximum of 20 credits can be compensated, throughout the whole course, excluding the Final Year Project.

Condonement

No Condonement of modules is allowed

F. Entry Requirements

Applicants for admission to the course should normally possess one of the following qualifications:

GCSE passes in six subjects (grade C or above), including English Language and Physics. The University will accept a pass in the Key Skills qualification at Level 2 in place of GCSE English Language. Additionally, applicants must possess one of the following:

- A Level BBC - Must include Mathematics and preferably a Science in either Chemistry or Physics (UCAS points: 112)
- T-level (Merit or above) in Construction: Design, Surveying And Planning. (UCAS points: 120)
- BTEC Level 3 Extended Diploma DDM in an Engineering subject area, with a minimum of merit in Mathematics and Advanced Mathematics. (UCAS points: 128)
- Civil Engineering Technician level 3 apprenticeship DD (UCAS points: 96) alongside grade Pass or Distinction at EPA
- Access to Engineering qualifications with 15 Distinctions and 30 Merits including Maths and Physical Science credit
- Applicants must hold 5 GCSEs A-C including Maths and English or equivalent (reformed GCSEs grade 4 or above).

For Advanced Entry to year 3 (start of Level 5) applicants must have BTEC HNC - Level 4 with six Merit passes. Must include Mathematics, Structural Analysis, Surveying and Fluid Mechanics.

Applicants not meeting these requirements may be accepted for Advanced Entry to year 2 (to fulfil the professional body requirements of Level 4) applicants must have BTEC HNC - Level 4 six Merit passes. Must include Mathematics. This entry will allow students to study the key modules noted above (Structural Analysis, Surveying and Fluid Mechanics).

G. Course Structure

Part-time Course Overview

The Course is delivered on a semester pattern; each semester is 15 weeks in duration.
Students study six modules at each of Level 4, Level 5, and Level 6.

Year 1

Construction Practice C	(L4)
Materials and Geology A	(L4)
Mathematics A	(L4)

Year 2

Fluid Mechanics A	(L4)
Structures and Construction Technology A	(L4)
Engineering Surveying	(L4)

Year 3

BIM and Design	(L5)
Design of Elements	(L5)
Structures and Con Man A	(L5)
Hydraulics	

Year 4

Soil Mechanics	(L5)
Advanced Mathematics	(L5)
Structures and Design	(L6)
Group Design Project	(L6)

Year 5

Environmental Engineering and Professional Development	(L6)
Geotechnical Engineering	(L6)
Highway Engineering	(L6)
Individual Research Project	(L6)

Year	Semester 1	Credits	Semester 2	Credits	Level	
1	Mathematics A			20	4	Core
	Construction Practice C			20	4	Core
	Materials and Geology A			20	4	Core
	Gateway Preparation			0	4	Core
2	Structures and Construction Technology A			20	4	Core
	Fluid Mechanics A			20	4	Core
	Engineering Surveying			20	4	Core
	Gateway Preparation			0	4	Core
3	Hydraulics	20	Design of Elements	20	5	Core
	Structures and Construction Management			20	5	Core
	BIM and Design			20	5	Core
	Gateway Preparation			0	5	Core
4	Advanced Mathematics	20	Soil Mechanics	20	5	Core
	Structures and Design			20	6	Core
	Group Design Project			20	6	Core
	Gateway Preparation			0	5	Core
5	Highway Engineering	20	-	-	6	Core
	Geotechnical Engineering	20	Environmental Engineering and Professional Development	20	6	Core
	Individual Research Project			20	6	Core
	Gateway Preparation			0	6	Core
End Point Assessment						

H. Course Modules

M. Code	Module Title	Level	Semester	Credit value	CW/Exam Weight
BEA_4_529	Materials and Geology A	4	1 – 2	20	50/50
BEA_4_486	Construction Practice C	4	1 – 2	20	100/0
BEA_4_404	Mathematics A	4	1 – 2	20	100/0
CBE_4_GW1	Gateway Preparation	4	1 – 2	0	N/A
BEA_4_406	Engineering Surveying	4	1 – 2	20	50/50
BEA_4_512	Fluid Mechanics A	4	1 – 2	20	50/50
BEA_4_405	Structures and Construction Technology A	4	1 – 2	20	50/50
CBE_4_GW2	Gateway Preparation	4	1 – 2	0	N/A
BEA_5_410	Hydraulics	5	1	20	50/50
BEA_5_413	Design of Elements	5	2	20	50/50
BEA_5_414	BIM and Design	5	1 – 2	20	100/0
BEA_5_411	Structures & Construction Management	5	1 – 2	20	50/50
CBE_5_GW3	Gateway Preparation	5	1 – 2	0	N/A
BEA_5_415	Advanced Mathematics	5	1 – 2	20	100/0
BEA_5_412	Soil Mechanics	5	1 – 2	20	100/0
BEA_6_420	Structures and Design	6	1 – 2	20	50/50
BEA_6_424	Group Design Project	6	1 – 2	20	100/0
CBE_5_GW4	Gateway Preparation	5	1 – 2	0	N/A
	Industrial placement (optional)				
BEA_6_482	Highway Engineering	6	1	20	50/50
BEA_6_421	Geotechnical Engineering	6	1	20	50/50
BEA_6_422	Environ. Eng. and Professional Development	6	2	20	100/0
BEA_6_425	Individual Research Project	6	1 – 2	20	100/0
CBE_6_GW5	Gateway Preparation	6	1 – 2	0	N/A

All the modules are core modules

I. Timetable Information

Once students are fully enrolled, they will have access to the Moodle Site, MS Teams and the official timetable via MyAccount. This is usually available in the second half of September.

Apart from the teaching timetable, there are other activities offered to the student by several other teams. Sporting, cultural, and other activities that are not mandatory must be managed by the students themselves.

J. Costs and Financial Support

Course related costs

For Materials and Geology Module, students will need to purchase safety boots which cost around **£20**. For compulsory field trips, accommodation and travel will be provided, but there might be food costs that will have to be covered. A small cost in the area of up to **£10** can be anticipated (poster, any printed chapter drafts for supervisor and logbook). A USB flash drive will also be submitted but the student can collect it back from the supervisor at the end of the semester. A Constructionarium in Bircham Newton will vary from year to year (information will be provided each year) per student, this includes transportation, food and accommodation for 5 days (this trip is recommended but **optional**).)

Tuition fees/financial support/accommodation and living costs.

Information on tuition fees/financial support can be found by clicking on the following link:
http://www.lsbu.ac.uk/study/undergraduate/fees-and-funding or
http://www.lsbu.ac.uk/study/postgraduate/fees-and-funding
https://www.lsbu.ac.uk/international/fees-and-funding

Information on living costs and accommodation can be found by clicking the following link:
https://www.lsbu.ac.uk/student-life/our-campuses/southwark/cost-of-living

List of Appendices

Appendix A: Curriculum Map

Appendix B: Terminology

Appendix C: Apprenticeship Standard

Appendix A - Curriculum Map AHEP4

This map provides a design aid to help course teams identify where course outcomes are being assessed within the course. It also provides a checklist for quality assurance purposes and may be used in validation, approval/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. **(T: Taught; D: Developed; A: Summative Assessment)**

	Module	AHEP4 Learning Outcome Code																		Year	
		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	FT	PT
LEVEL 4	BEA_4_529 Materials & Geology A							TDA		TDA			TD	TDA						1	
	BEA_4_486 Construction Practice C				TD	TDA		TD	TDA		TDA	TDA				TDA		TD	TDA		1
	BEA_4_404 Mathematics A	TDA	TDA		TD																
	BEA_4_406 Engineering Surveying	TD	TD	TDA			TDA										TDA	TDA		1	
	BEA_4_512 Fluid Mechanics A	TDA	TDA										TDA								2
	BEA_4_405 Structures & Construction Technology A	TD			TDA										TDA						
LEVEL 5	BEA_5_410 Hydraulics	TDA	TDA	TDA									TDA								
	BEA_5_413 Design of Elements	TD			TDA	TDA	TDA										TDA	TDA			
	BEA_5_414 BIM & Design	TD		TD		TD		TDA			TDA	TDA			TDA						3
	BEA_5_411 Structures & Construction Management			TDA					TDA				TD	TDA		TDA				2	
	BEA_5_415 Advanced Mathematics	TDA	TDA	TDA																	
	BEA_5_412 Soil Mechanics	TD								TDA			TDA	TDA			TDA				4
LEVEL 6	BEA_6_420 Structures & Design	TDA		TDA		TDA			TDA				TDA								
	BEA_6_424 Group Design Project						TDA					TDA			TDA		TDA	D			
	BEA_6_482 Highway Engineering					TDA				TDA		TDA					TDA				
	BEA_6_421 Geotechnical Engineering		TDA					TDA												3	
	BEA_6_422 Environmental Engineering & Professional Development A	TD	TD	TDA				TDA	TDA	TD	TDA					TDA			TDA		5
	BEA_6_425 Individual Research Project			D	DA	D		D	D					DA				DA			

(a: formative assessment to contribute to the fulfilment of the occupational standard. The summative assessment is undertaken by the EPAO during the EPA process)

Civil Engineer (Degree) Standard ST0417																		
APPRENTICESHIP STANDARD	K S B	Learning Outcomes AHEP4																
		Science and mathematics	Engineering Analysis			Design and innovation		The engineer and society					Engineering practice					
			Problem Aanalysis	Analytical tools and Techniques	Technical Literature	Design and innovation	Integrated/Systems Approach	Sustainability	Ethics	Risk	Security	EDI	Practical and Workshop Skills	Material, Equipment, Technologies and Processes	Quality Management	Engineering and Project Management	Teamwork	Communication	Lifelong Learning
		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
	Knowledge																		
	K1					**a**		**a**											
	K2	**a**	**a**											**a**					
	K3			**a**			**a**						**a**						
	K4				**a**														
	K5					**a**													
	K6									**a**					**a**	**a**			
	K7																**a**		
	K8																	**a**	
	K9								**a**										

	Skills																	
	S1					**a**		**a**										
	S2							**a**										
	S3	**a**	**a**															
	S4			**a**			**a**						**a**	**a**					
	S5				**a**														
	S6					**a**													
	S7									**a**									
	S8															**a**	**a**		
	S9																	**a**	
	S10																		**a**
	S11																		**a**
	Behaviour																		
	B1											**a**							
	B2										**a**								
	B3											**a**						**a**	
	B4											**a**						**a**	
	B5					**a**													
	B6								**a**										
	B7																		**a**
	B8																		**a**

Appendix B: Terminology

accelerated degree	accelerated degrees (also known as two-year degrees) are full bachelor's degrees (undergraduate courses) you can complete in a condensed time.
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
end-point assessment	End-point assessment (EPA) tests the knowledge, skills and behaviours that an apprentice has gained during their training. Unique to each standard, EPA demonstrates the competence of an apprentice in their role. Only approved End-Point Assessor Organisations (EPAOs) can carry out assessments as set out in the assessment plan.
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 are 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, progress in their studies and 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.

gateway	gateway takes place before an End-Point Assessment (EPA) can start. The employer and LSBU will review their apprentice's knowledge, skills and behaviours to see if they have met the minimum requirements of the apprenticeship set out in the apprenticeship standard and are ready to take the assessment. Usually includes off-the-job training and reviews.
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. About 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, the 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
material information	information students need to make an informed decision, such as what and where to study
mode of study	different ways of studying, such as full-time, part-time, e-learning or work-based learning
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 '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
non-integrated	about Apprenticeships, non-integrated would usually mean that the End-Point Assessment (EPA) is not integrated with the academic award
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 / regulatory body	a course that is regulated by a regulatory body, which is an organisation recognised by the 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	A formal assessment of students' work, contributes to the final result.
term	any of the parts of an academic year that are 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/workload	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 skills, knowledge or understanding as part of their course
written examination	a question or set of questions relating to an area of study to which candidates write answers usually (but not always) under timed conditions

Appendix C: Apprenticeship Standard

An apprenticeship is aligned to a standard which is referred to as an 'apprenticeship standard'. An apprenticeship standard is designed by groups of employers known as 'trailblazer groups' to meet skill shortages in their sectors and is linked to an occupational profile. Apprenticeship standards are designed by industry and lay out which Knowledge, Skills and Behaviours (KSBs) must be mastered by the Apprentice by the end of apprenticeship programme in order to successfully achieve the apprenticeship qualification. Note that this degree programme is non-integrated.

The academic element of the apprenticeship programme is mapped to some extent to the apprenticeship standard. A list of KSBs that must be evident in additional to the degree programme. LSBU e-portfolio system will allow Apprentice to set tasks to address any outstanding elements of the Standard and to ensure that the progress is tracked regularly. Evidence for the Skills and Behaviours should be collected and stored on LSBU e-portfolio. For example: A Witness Testimony, from your employer, detailing a task that you have undertaken whilst at work, which meets a criterion of the Standard.

Completing the academic element only partly satisfy the requirements of the Apprenticeship Standard, there are also skills and behaviours that need to be addressed at the workplace. Details of your Standard can be located on the Institute of Apprentices website and via your LSBU e-portfolio.

Link to Institute for Apprenticeships & Technical Education (IfATE) Standard and Assessment Plan:

https://www.instituteforapprenticeships.org/apprenticeship-standards/civil-engineer-degree-v1-0

20% off-the-job Training

Apprentices are required to spend 20% of the contracted hours on off-the-job activities that directly relate to your apprenticeship. It is the responsibility for the Apprentice and the employer to create a working plan to show 20% off-the-job training.

ESFA Definition

"Off-the-job training is defined as learning which is undertaken outside of the normal day-to-day working environment and leads towards the achievement of an apprenticeship. This can include training that is delivered at the apprentice's normal place of work but must not be delivered as part of their normal working duties."

Off-the-job training can include:	Off-the-job training does not include:
The teaching of theory (for example: lectures, role playing, simulation exercises, online learning or manufacturer training)	Preparing for Functional Skills English and Maths (If applicable)
Practical training (for example: Shadowing, job rotation, industry visits and attendance at competitions)	Progress Reviews
Group discussions & Tutorials	On-programme assessment required for the apprenticeship standard
Learning Support (If applicable)	Training which takes place outside of your paid working hours
Time spent writing assessments / assignments	Induction into university or work place

The 20% off-the-job activity cannot be part of the normal work, however, the employer can utilise some of this 20% by undertaking projects within the organisation, so long as it would not be part of normal role. The 20% hours must be logged on LSBU e-portfolio to provide evidence, which will be used in the progress reviews and End Point Assessment. It's important to note that an apprenticeship is not solely an academic programme; the academic programme and corresponding qualification is just one element of an apprenticeship. There are different and additional commitments and expectations required of both the apprentice and the employer.

Apprenticeship Progress Reviews (APRs)

It is important that the progress are made and tracked throughout the course and it is written on record. Progress reviews are conducted at the end of each semester between LSBU, the apprentice and the employer via meetings or conference call and LSBU e-portfolio. The attendance and results will be uploaded when the review is due for employer to access.

THE FULFILLMENT OF THE KNOWLEDGE, SKILLS AND BEHAVIOURS WILL BE ACHIEVED WITH THE COLLABORATION OF THE EPAO UNDER THEIR ON PROGRAMME ASSESSMENT AND END-POINT ASSESSMENT.

Gateway Preparation Module

The Gateway is the entry point to End-Point Assessment (EPA). It is the point at which the apprentice has completed their learning, met the requirements of the standard, 20% off-the-job (OJT) training, and that they, alongside their employer and LSBU agree that they are ready to enter their EPA.

The Gateway Preparation module is a pass/fail, zero credit module designed to support apprentices to identify and work towards meeting the Gateway criteria from an early stage in their apprenticeship, particularly those that sit outside of an academic qualification. The module will be completed each year throughout the duration of the apprenticeship up to passing the Gateway.

The Gateway

LSBU will be required to submit evidence of the following to progress onto the final stages of the EPA, this will include:

- English & Maths
- Degree
- 20% off the job training requirement met
- Academic qualification

End-Point Assessment (EPA) (Completion) Module End-point assessment (EPA) is the final stage of an apprenticeship and must be completed after the apprentice successfully passes through Gateway. It is an assessment of whether the apprentice has developed the skills, knowledge and behaviours outlined in the apprenticeship standard.

The End Point Assessment (Confirmation) module is a pass/fail independent summative assessment carried by the End Point Assessment Organisation (EPAO) that facilitates achievement and progress of the non-integrated End Point Assessment. It is assessed and confirmed by the EPAO as set out in the assessment plan for the standard. The grade is confirmed by the EPAO.

End Point Assessment

To successfully complete your apprenticeship, you will need to achieve in the End Point Assessment (EPA), during which your competence of the KSBs, as set out in the apprenticeship standard, is assessed. The EPA plan is a document which was created by the

trailblazer group which sets out the requirements, assessment methods and grading criteria for the EPA. All current apprenticeship standards and assessment plans can be found on the Institute for Apprenticeships website. There is a certain period once you have completed the degree to complete the EPA.

To know about the EPA assessment plan, please refer to the link provided.

For further details, please refer to the Apprentice Team at apprenticeships@lsbu.ac.uk.