Course Specification

A. Course Information			
Final award title(s)	MEng (Hons) Electrical Engineering and Power Electronics		
Intermediate exit award title(s)	BEng (Hons) Electrical Engineering and Power Electronics Dip HE in Electrical and Electronic Engineering Cert HE in Engineering		
UCAS Code	**H631**	**Course Code(s)**	Full time 4622 Part time 4623
	London South Bank University		
School	☐ ASC ☐ ACI ☐ BEA ☐ BUS ☒ ENG ☐ HSC ☐ LSS		
Division	Electrical and Electronics Engineering		
Course Director	Dr Saim Memon (S.Memon@lsbu.ac.uk)		
Delivery site(s) for course(s)	☒ Southwark ☐ Havering ☐ Other: please specify		
Mode(s) of delivery	☒Full time ☒Part time ☒other please specify -SANDWICH		

Length of course/start and finish dates

Mode	Length years	Start - month	Finish - month
Full time	4	Sep	June
Full time with placement/ sandwich year	5	Sep	June
Part time	6	Sep	June
Part time with Placement/ sandwich year	Not Offered		

Is this course generally suitable for students on a Tier 4 visa?	Please complete the International Office questionnaire **Yes** Students are advised that the structure/nature of the course is suitable for those on a Tier 4 visa but other factors will be taken into account before a CAS number is allocated.	
Approval dates:	Course(s) validated	2019
	Course specification last updated and signed off	2019
Professional, Statutory & Regulatory Body accreditation	The MEng course is accredited by the **Institution of Engineering and Technology** and **fully meets** the academic requirements for registration as a **Chartered Engineer.** (Accreditation visit took place in Nov 2017 and the course is accredited for a full 5-year period, until 2022 intake)	
Reference points:	Internal	Corporate Strategy 2020-2025

		Academic Quality and Enhancement Manual School Strategy LSBU Academic Regulations
	External	Competitions and Markets Authority Guidance SEEC Level Descriptors 2016 QAA -Subject benchmark statement Engineering, 2018 Framework for Higher Education Qualifications (QAA, 2018) THE ACCREDITATION OF HIGHER EDUCATION PROGRAMMES - UK Standard for Professional Engineering Competence (AHEP3 2014)
B. Course Aims and Features		
Distinctive features of course	This MEng course in Electrical Engineering and Power Electronics combines the more traditional subjects of electrical engineering with the more recent advances in power electronics and computer control. Many modern electrical installations include advanced machine drives which are computer controlled for optimised performance and efficiency. This course provides insight into these and prepares the graduate to meet the challenges of advanced power engineering systems. The course further has a strong component of electrical services for buildings which is an area receiving much attention. The course offers common modules at level 4 setting the background for more detailed power engineering as well as electrical services for buildings at level 5. Levels 6 and 7 offer advanced topics in renewable energy and power electronics and also in power systems engineering. The MEng course offers full accreditation for Membership of the Institution of Engineering and Technology registration as a Chartered Engineer.	
Course Aims	The programme shares with other MEng Honours engineering programmes in the division, the aim to produce engineering graduates who have demonstrated the following abilities. • Systematic understanding of key aspects of their field of study, including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of a discipline. • Ability to deploy accurately established techniques of analysis and enquiry within a discipline. • Conceptual understanding that enables them: ▪ To devise and sustain arguments, and/or to solve problems, using ideas and techniques, some of which are at the forefront of their own discipline as well as other related disciplines. ▪ To describe and comment upon particular aspects of current research, or equivalent advanced scholarship, both within in their discipline and other relevant disciplines. • Appreciation of the uncertainty, ambiguity and limits of knowledge. • Ability to manage their own learning and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to their own discipline and related disciplines). • Ability to apply the methods and techniques that they have learned to review, consolidate, extend and apply their knowledge and understanding, and to initiate and carry out projects in their own	

	discipline area as well as contribute to projects in related discipline areas. • Be able to critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgments, and to frame appropriate questions to achieve a solution - or identify a range of solutions - to a problem. • Know how to communicate information, ideas, problems and solutions to both specialist and non-specialist audiences. • Have the qualities and transferable skills necessary for employment requiring: ▪ The exercise of initiative and personal responsibility ▪ Decision-making in complex and unpredictable contexts ▪ The learning ability needed to undertake appropriate further training of a professional or equivalent nature. ▪ Criticise and appreciate work of others in the related discipline areas at a professional level. • Understand the role of, and have skills in, Engineering Applications, as defined by the Engineering Council and the IET, setting their educational experience in the context of work, the working of industry; the creation and lifecycle of products. • Appreciate the importance of developing their professional career (all students are encouraged to join the IET as student members). • Be able to apply a professional engineering approach in their activities including Innovation and Enterprise. **Specific to MEng (Hons) in Electrical Engineering and Power Electronics (EEPE)** The MEng EEPE programme aims to produce graduates who have acquired and can use a broad base of active knowledge in the field of Electrical Engineering and Power Electronics, and the skills necessary to update, extend and deepen it for career development or further study; this includes: • Appropriate mathematics and circuit theory. • Digital, analogue and particularly hybrid electronic systems. • Computer hardware and software. • Present trends in electrical and electronic systems engineering. • The theory and applications of control engineering. • Technologies, apparatus and designs used in electrical power transmission and distribution, electrical services, power electronics and electrical machine drives. • Concepts, analytical and computer modelling techniques used in electrical services and electrical power engineering. • The dynamic life cycle of a building and its services particularly those, which concern the electrical engineer. • The special rules and standards, which apply in Electrical services for buildings, for QA and the cost and legal implications of their electrical designs. • Designs for electrical services and systems that are not only technically sound but also safe, reliable, cost effective and environmentally friendly and where possible, sustainable.
Course Learning Outcomes	The defined learning outcomes used in this course specification are those published by the Engineering Council in the UK Standard for Professional Engineering Competence (UK-SPEC):

Program Specific Learning Outcomes (UKSPEC)

1. Knowledge and Understanding

A1: Knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, to enable appreciation of its scientific and engineering context, and to support their understanding of historical, current, and future developments and technologies.

A2: Knowledge and understanding of mathematical principles necessary to underpin their education in their engineering discipline and to enable them to apply mathematical methods, tools and notations proficiently in the analysis and solution of engineering problems.

A3: Ability to apply and integrate knowledge and understanding of other engineering disciplines to support study of their own engineering discipline.

Enhanced MEng learning outcomes:

A1+A3-ENHANCED: A comprehensive understanding of the scientific principles of own specialisation and related disciplines.

A4: An awareness of developing technologies related to own specialization and related areas.

A5: An understanding of concepts from a range of areas including some outside engineering, and the ability to apply them effectively in engineering projects.

A6: An awareness of developing technologies related to own specialisation.

Teaching and learning strategies:

A1: Acquisition starts in first year lectures and tutorials concentrating on the essentials of science and mathematics. The Engineering Principles module covers the essential physics behind the study of thermodynamics, electrical circuits, mechanics, materials and matter. This work continues in the Introduction to Electrical and Electronic Engineering module which covers the science behind dc and ac circuit behaviour and the sensing of light, temperature, movement and force in terms of basic laws and principles.

In years 2 and 3 this appreciation of scientific principles in engineering continues as constraints on circuit and apparatus performance become evident, for example transformer cooling and its relation to cyclic loading are covered in a L5 module.

A2: This is covered by the Mathematics module, which teaches the mathematical techniques and tools needed to model, understand and predict the science behind engineering designs and operations. In year 2 these techniques are continued in another Mathematics module where studies cover more advanced mathematical and computational techniques - advanced vector and matrix algebra, experience in solving differential equations analytically, numerical methods and optimisation techniques. Some mathematical principles are covered in the specialist modules where they are used, for example development of the 120-degree operator and its application in symmetrical components and asymmetrical fault studies is covered in the specialist module in Power Systems in year 3.

	A3: The acquisition starts in year 1 with practical examples in the use and interfacing of transducers, sensors and basic I/O devices in the Introduction to Electrical and Electronic Engineering module. This is covered further in the teamwork design exercises in the Design and Practice module, where integration of mechanical design and software engineering is introduced for product prototyping. The Control Engineering modules in years 2 and 3 also utilise design problems taken from mechanical/robotic engineering and a wide variety of engineering subjects. However, the multidisciplinary nature of the level 6 individual project and the Level 7 group project explores this integration of engineering discipline more than other modules. Students undertaking their project are routinely required to demonstrate their knowledge from other engineering fields. **A1+A3 (ENHANCED):** At level 4 this is covered in the module Introduction to Electrical and Electronic Engineering. This carries on at level 5 with Electrical Machines and PE module, while at level 6 it is taught and developed further in higher level modules such as Technical, Research and Professional Skills. Advanced Power Electronics, Systems for Environmental Services and Power Systems also cover this LO at level 7. **A4:** This is covered in Mathematics at level 4 and Advanced Mathematics at level 5 and in specialist level 7 modules, Advanced Power Electronics, Systems for Environmental Services and Power Systems. **A5:** This is covered in team design project at level 5 and Innovation and Enterprise at level 6. **A6:** This is covered in level 4 Design and Practice, level 5 team project and Level 6 individual project. Level 7 group project in particular relates different disciplines through a group project allocated with this in mind. Advanced Power Electronics and Renewable Energy module at level 7 covers different energy sources that span physics and chemistry areas as well as geology. **Assessment** **A1, A3:** Assessment of the knowledge base is through examinations, mini tests and assignments, which frequently demand that the student extend knowledge of a subject by self-learning. **A2, A4:** Underpinning the understanding of their engineering discipline is assessed via assignments and laboratory activity. Emphasis is made on producing a design component in assignments as well as written examinations. **A3, A5:** Ability to apply and integrate knowledge is assessed by larger scale project work as well group assignments (where appropriate) and logbooks. Additionally in written examination emphasis is placed on producing conceptual design solutions to projects that span across engineering disciplines. **A6:** This is assessed by examination at level 6 as well as project work at level 7. **2. Intellectual Skills** **B1:** Understanding of engineering principles and the ability to apply them to analyse key engineering processes.

	B2: Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques. **B3:** Ability to apply quantitative methods and computer software relevant to engineering discipline, in order to solve engineering problems. **B4:** Understanding of and ability to apply a systems approach to engineering problems. **Enhanced MEng learning outcomes:** **B3-ENHANCED:** Ability to extract data pertinent to an unfamiliar problem, and apply its solution using computer based engineering tools when appropriate. **B5:** Ability to use fundamental knowledge to investigate new and emerging technologies. **B6:** Ability to apply mathematical and computer based models for solving problems in engineering, and the ability to assess the limitations of particular cases. **Teaching and learning strategies:** Acquisition of **B1** and **B2** is achieved by study in year 1 of dc circuit theory, electromagnetic and electrostatic fields, analogue and digital components and circuits, single and 3-phase supplies. Engineering Principles introduces the foundations and these are explored further within Introduction to Electrical and Electronic Engineering. This continues in years 2 and 3 via the study of Circuit and System behaviour, Electrical Machines and Power Electronics, Electrical Services for Buildings at level 5 and also Lighting & Electrical Systems module at level 6, Electrical Energy Conversion at level 6, Control Systems levels 5 and 6, Power Systems at level 7 and other specialist nodules. These modules include the development and use of mathematical models for components and systems for analysis and synthesis, performance evaluation, and understanding practical operation. Standard analytical methods for representation and analysis of systems and components are also studied, for example Fourier, Laplace and z-transforms; the per-unit system of analysis; the Lumen method for lighting calculations. The **B3** learning outcomes are achieved in year 1 within the Engineering Principles and Mathematics modules where for example, node and mesh analysis and matrix manipulation methods are taught. In year 2 computer-based mathematical tools such as Matlab/Simulink or Mathcad/VisSim are used to solve problems, including matrix inversion, iterative techniques, finite difference analysis of nodes and meshes. Students use industry standard software for power systems analysis, lighting design, and low voltage electrical design in modules in years 2 and 3 for quantitative analysis of performance, to evaluate scenarios, and produce designs. The level 6 individual project requires acquisition of quantitative analysis and software skills to complete and demonstrate understanding of the work undertaken. The **B4** learning outcome is achieved after the basic design building blocks have been taught and understood in earlier years. A generic approach to systems is found in team design project at level 5 where systems thinking and the Hard Systems Methodology are covered within the context of project

	management. A number of modules at higher levels utilise systems design strategies to achieve their goal. For example, Electrical Energy Converters and Drives module covers applications and characteristics of various electrical drives and the impact of load characteristics on the choice and operation of drive systems. In year 4 the Power Systems Engineering module looks at power flows in networks and the effects of VAR flows, compensation etc, reliability of electrical systems apparatus in buildings. **B5:** At level 4 this is introduced through Engineering Principles module. Here the trends in technological advances are introduced. Project based modules at higher levels focus on new developments and how these impact engineering practice. In particular Innovation and Enterprise at level 6 considers novel designs for problem solving. **B3-ENHANCED:** Unfamiliar problem solving is covered in Innovation and Enterprise at level 6. Other more technical aspects are covered in computer simulation work done in control modules as well as Power Systems Engineering at level 7 and also other modules where software tools are used to aid analysis and design. **B6:** Many modules have a systems component and hence require students to learn to use mathematical and computer based models to solve problems. Most notable modules that do this are circuits and systems, control at levels 5 and 6. **Assessment** **B1, B5:** Engineering analysis skills in applying the knowledge base are assessed in tutorials. The more extended skills are assessed via assignments and project reports. (**B2, B3-ENHANCED:** Modules at levels5, 6 and 7 see progressively more design based and systems analysis questions in examinations. **B3:** Level 6 individual project offers the best chance for students to demonstrate their ability to apply a systems approach to solving engineering problems. At levels 5 and 6 laboratory workshops and assignments are often based on analyzing systems ranging from lighting design to power systems load flow analysis. **B6:** Mathematical modelling and simulation skills are assessed by coursework assignments and logbooks. **3. Practical Skills** This involves the practical application of engineering skills, combining theory and experience, and the use of other relevant knowledge and skills. Students must be able to demonstrate: **C1**: Understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology development, etc). **C2:** Knowledge of characteristics of particular materials, equipment, processes, or products. **C3:** Workshop and laboratory skills. **C4:** Understanding use of technical literature and other information sources. **C5:** Awareness of nature of intellectual property and contractual issues.

	C6: Understanding of appropriate codes of practice and industry standards. **C7:** Awareness of quality issues. **C8**: Ability to work with technical uncertainty. **C9**: A thorough understanding of current practice and its limitations and some appreciation of likely new developments. **C10:** Ability to apply engineering techniques taking account of a range of commercial and industrial constraints. **C2-ENHANCED:** Extensive knowledge and understanding of a wide range of engineering materials and components. **Teaching and learning strategies:** The **C2**outcome is delivered in year 1 by the study of different materials and measurement principles in the Engineering Principles module along with use of CAD tools and measurement equipment in the Design and Practice module. This continues throughout the course where characteristics of electrical materials and equipment are covered in later technical modules. **C3** is acquired through a large number of modules where laboratory activity is recorded in logbooks. At level 4 in Design and Practice a general approach to engineering workshop and laboratory work is taken. In later years this activity continues with more technically specific laboratory, design and computer-based workshops which include practical investigations, design exercises and CAD simulations to develop more advanced skills. The achievement of **C1, C4 and C5** is facilitated mainly by the team design project module that covers planning, research and communication process in project management but also in other modules. The ability to understand and use technical literature along with the understanding of intellectual property, starts in the professional and industrial thread in year 1 Design and Practice module and gradually builds throughout the course, to include the coverage of industry standards and environmental impact issues in the Innovation and Enterprise module at level 6. The industrial codes of practice and quality issues of **C6** and **C7** are similarly covered in the professional modules on the course and in some other modules. For example, lighting design standards and relevant parts of the standards for power transformers are covered in the relevant technical modules. Recommendations, industry codes and regulations on design and operation of the power system are covered in the specialist year 4 modules. Working with uncertainty, outcome **C8** is introduced in the year 1 practical sessions, with its theory being covered in the year 1 Mathematics module. In the project modules at levels 6 and7, students are expected to discuss their outcomes in terms of error predictions, measurements and the optimisation of technical uncertainties. **C9, C2-ENHANCED:** This is initially covered at level 4 through Design and Practice. Some work is also done in principles module. It is also covered in the team design project that expects teams of students to specify and design real engineering solutions. Technical, Research and Professional Skills module at level 7 also covers this learning outcome.

	C10: This is mainly covered in modules teaching power systems and energy systems design that are often subject to commercial constraints. **Assessment** **C1** is assessed by design assignments and some exercises and tests in the early modules, and later by forming part of the checklist of elements for which marks are awarded in the assessment of small and larger projects. **C2** is assessed by laboratory exercises and tutorial assignments. **C3** is assessed specifically via standard logbooks and reports based on laboratory activity. **C4** is assessed by project work where students are required to provide background information as well as suitable referencing for their assignment. Level 7 Technical, Research and Professional Skills specifically addresses referencing and literature survey LOs. It is also assessed specifically in the Advanced Power Electronics and Renewable Energy module, by an assignment to perform a literature review of a journal publication in the relevant subject area. **C5** and **C6** are formally assessed in year 1 in simple \'design and make\' exercises. Further development of these skills is indirectly assessed through design assignments in Power Systems and Energy Converters and Drives as well as Systems for Environmental Services at L7. Additionally, these are assessed in the level 6 individual project that includes assessment by presentation and viva-voce examinations. **C7** is specifically assessed through examination in Power Systems Engineering at level 7 as well as Systems for Environmental Services. It is also indirectly assessed by work on the individual project at level 6 and also the group project at level 7. **C8** is assessed in design exercises during tutorial session and well as assignments and also level 6 individual project work and level 7 group project. **C9:** This is assessed at level 5 by examination and at levels 6 and 7 by project assessment components. **C10**: Assessed by report in project work and examination in taught modules such as power systems and also advanced power electronics and renewable energy where cost models are used. Feasibility study in Technical, Research and Professional Skills covers project costing and payback calculations. **C2-ENHANCED:** This is assessed by a project report at levels 6 and 7. **4. Transferable Skills** Design is the creation and development of an economically viable product, process or system to meet a defined need. It involves significant technical and intellectual challenges and can be used to integrate all engineering understanding, knowledge and skills to the solution of real problems. **D1:** Investigate and define a problem and identify constraints including environmental and sustainability limitations, health and safety and risk assessment issues;

	D2: Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal; **D3**: Identify and manage cost drivers; Manage the design process and evaluate outcomes. **D4:** Knowledge of management techniques, which may be used to achieve engineering objectives within that context; **D5:** Awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues; **D6:** Wide knowledge and comprehensive understanding of design processes and methodologies and the ability to apply and adapt them in unfamiliar situations. **D7:** Ability to generate an innovative design for products, systems, components or processes to fulfill new needs. **D8:** Extensive knowledge and understanding of management and business practices, their limitations, and how these may be applied appropriately to strategic and tactical issues. **Teaching and learning strategies:** **D1:** Essential design constraints including environmental and sustainability considerations are introduced at level 4 through the Design and Practice module, which is common to all engineering programmes. Team design project at level 5 also contains material on resources and budgets for engineering project management. Design exercises in specialist modules at levels 5, 6 and 7, also focus on environmental, sustainability and health and safety compliance. **D2:** Fitness of purpose as well as life-cycle product management are considered in modules in the professional and industrial thread and also in specialist modules, for example failure mode analysis is covered in the Systems for Environmental Services module at level 7. **D3:** Managing the design process and evaluating outcomes features in many modules where the design thread runs in order to enable students to exercise their ability to be creative in providing solutions to engineering problems. Cost as a factor in design is taught at levels 5 in modules that deal with project management and at level 6 where for example, the cost of electrical machine drives is considered in the specifications. At level 7 the specialist modules also consider project costing. **D1-D3** are also addressed in varying degrees in the level 6 individual project and also in the level 7 group project, where students are expected to find fit for purpose creative solutions by managing and applying the design processes taught in earlier years. An evaluation of the outcomes of their solution is required. **D4** is acquired in Design and Practice at level 4 and at higher levels through team design project at level 5 and at level 6 Innovation and Enterprise. At Level 7 the module Technical, Research and Professional Skills teaches risk analysis, and this is supplemented by the level 7 group project Sustainable development **ET4p** is introduced at level 4 in Design and Practice. Further work is done at higher levels through design components in modules that embody systems features and components for example in Electrical Services for Buildings L5. At

	level 7 Advanced Power Electronics and Renewable Energy module specifically addresses sustainability. **D5** is acquired at level 4 in Design and Practice and continues at level 5 through team design project. Aspects of the legal and regulatory environment covering both Electricity Supply and Electrical Contracting/Installation are covered in specialist modules at levels 5, 6 and 7. **D6** is covered in the common module entitled Design and Practice at level 4. In the level 6 specialist modules aesthetics are considered in relation to lighting and electrical systems design. User needs are covered in the Innovation and Enterprise module at level 6. innovative ideas to fulfill requirements are covered in team design project at level 5, Innovation and Enterprise at level 6. It is also a major part of the level 7 group project. **D7:** Innovative technical solutions are taught in the design component of each specialist module, mainly at levels 6 and 7. The generic creative and innovative process is covered in the Innovation and Enterprise module at level 6. **D4** and **D8** are taught and developed in project-oriented modules at levels 5, 6 and 7 as well as the specialist modules at level 7. **Assessment** **D1** is assessed specifically via standard logbooks and some exercises and tests in the early modules, and later by forming part of the checklist of elements for which marks are awarded in the assessment of small and larger projects. These are formally assessed in year 1 in simple 'design and make' exercises. Further development of these skills is more indirectly assessed, in that significant achievement in these areas is necessary for the highest marks, particularly in project work at levels 6 and 7, which includes assessment by presentation and viva-voce examinations. **D2, D7** are assessed via engineering reports and presentations. Some modules specifically employ practical simulation exercises as a major part of the assessment. Project management plays a primary role in assessment of the major level 6 individual project, both in an initial (progress) report and in the final report which has to describe the projects process activity. Similar assessment applies to level 7 group projects. **D3** is assessed by design assignment reports at different levels across modules that have a strong design component. Systems and software engineering at level 6 covers software cost estimation models. In early years **D4** is assessed primarily by log books and assignments based on tutorial work and laboratory activity. In years 3 and 4, these are assessed by the project modules assessment criteria. **D5** is assessed by assignments which are based on tutorial work and laboratory session and which require formal design based on user requirements. **D6:** Practical laboratory sessions and software workshops provide a means to assess this through assignments and logbooks. Examinations are also used to challenge students to design a system based on specific (that are necessarily brief) user requirements. Students are encouraged to make design

	assumptions in order to demonstrate their understanding of the importance of requirements specification. **D4 and D8** are assessed in project work, through various components including presentation session and viva-voce examination.

C. Teaching and Learning Strategy

General Learning Outcomes (UK-SPEC)
Knowledge and Understanding:
Graduates must be able to demonstrate their knowledge and they must have an appreciation of the wider multidisciplinary engineering context and its underlying principles. They must appreciate the social, environmental, ethical, economic and commercial considerations affecting the exercise of their engineering judgement.

Teaching and learning strategies:
Acquisition of knowledge and understanding is acquired through in the main by the following modules:

- Engineering Principles L4
- Intro to Electrical and Electronic Engineering L4
- Electrical Machines and Power Electronics L5
- Electrical Energy Converters and Drives L6
- Advanced Power Electronics and Renewable Energy L7
- Systems for Environmental Services L7
- Power Systems Engineering L7

All of these modules teach and develop knowledge and understanding within a multidisciplinary engineering context and those at higher levels involve a degree of commercial awareness through design of systems to specifications.

Assessment
Assessment is through examinations and also practical work and assignments using logbooks and formal reports.

Intellectual Abilities:
Graduates must be able to apply appropriate quantitative science and engineering tools to the analysis of problems. They must be able to demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs. They must be able to comprehend the broad picture and thus work with an appropriate level of detail.

Teaching and learning strategies:
Acquisition of IA is gained through the specialist level 6 modules as well as the level 6 BEng honours project. In these modules students are taught the appropriate tools to solve engineering problems. Innovation is covered in the module entitled Innovation and Enterprise at level 6 which develops business ideas from innovative research and development activities.

Assessment
Assessment of IA is through presentations and also formal reports at various stages of project work including a feasibility study. Innovation and design skills are assessed by group work as well as a formal report.

Practical skills:
Graduates must possess practical engineering skills acquired through, for example, work carried out in laboratories and workshops; in industry through supervised work experience; in individual and group project work; in design work; and in the development and use of computer software in design, analysis and control. Evidence of group working and of participation in a major project is

expected. However, individual professional bodies may require particular approaches to this requirement.

Teaching and learning strategies:

- Acquisition of PS is acquired during the practical laboratory sessions which constitute a part of nearly every module for this course.
- Electrical Energy Converters and Drives at level 6 offers advanced power electronics workshop exercises as well as machines drives based workshop exercises.
- Control systems at level 6 offers classical control workshops as well as a variety of computer based laboratory exercises.
- Power Systems module at level 7 incorporates a significant practical laboratory element involving design and analysis together with hardware exercises in the area of power quality that effects voltage profiles in power networks.
- Further development of these skills is acquired in the Level 6 individual project.

Assessment

PS is assessed by log books, coursework assignments and also the level 6 individual project and level 7 group project both of which include presentation and a viva voce examination.

General transferable skills:

Graduates must have developed transferable skills that will be of value in a wide range of situations. These are exemplified by the Qualifications and Curriculum Authority Higher Level Key Skills and include problem solving, communication, and working with others, as well as the effective use of general IT facilities and information retrieval skills. They also include planning self-learning and improving performance, as the foundation for lifelong learning/CPD.

Teaching and learning strategies:

Acquisition of GTS is achieved through communication of knowledge in formal reports. These constitute a part of the assessment for the majority of modules on the course to include,

- Electrical Services for Buildings L5
- Team Design Project L5
- Electrical Energy Converters and Drives L6
- Innovation and Enterprise L6
- Project L6
- Technical Research and Professional Skills L7
- Advanced Power Electronics and Renewable Energy L7
- Systems for Environmental Services L7

These skills are also developed during work on the level 7 group project.

Assessment

GT skills are assessed by formal reports, presentations and viva voce examinations of the L6 individual project & L7 Group Project.

In addition to these and in respect of general transferable skills, the following enhanced outcomes should be expected of MEng Degree graduates:

• The ability to develop, monitor and update a plan, to reflect a changing operating environment;

Teaching and learning strategies:

Acquisition of these skills is through the module entitled Technical, Research and Professional Skills. The module on Innovation and Enterprise also deals with assessing opportunities of technologies within the business context.

Assessment

Assessment is by way of a formal report in the relevant modules.

• The ability to monitor and adjust a personal programme of work on an on-going basis, and to learn independently;

Teaching and learning strategies:

Acquisition of these skills is through the module entitled Technical, Research and Professional Skills as well as project-based modules at levels 5, 6 and 7.

Assessment

Assessment is by way of a formal report in this module where students are required to perform a feasibility study in a discipline relevant to their degree.

• The ability to exercise initiative and personal responsibility, which may be as a team member or leader;

Teaching and learning strategies:

Acquisition of these skills is through the team group project at level 5 and also the major group project module at level 7.

Assessment

Assessment of these is through the group project assessment stages as outlined in the module descriptor.

• The ability to learn new theories, concepts, methods etc and apply these in unfamiliar situations.

Teaching and learning strategies:

Acquisition of these skills is through the module on Innovation and Enterprise. Here students are expected to consider innovative technology ideas derived from academic areas and assess these for suitability in a commercial environment.

Assessment

Assessment of these is through formal reports associated with this module as well as a group presentation.

Teaching and Learning overview

The course is made up of several modules (see section G below) and each module is delivered through a combination of lectures, tutorials, practical workshops, computing workshops etc all of which amounts to directed teaching (class room contact). There is a variance in the make up of the number of hours dedicated to lectures, workshops etc but the total number of study hours attracted by each module is dependent on the module weighting in credits. Typically, a 20-credit module, attracts 200 hours of learning which constitutes both directed learning and independent learning.

Independent Learning

The number of hours of independent learning required is dependent on the nature of the module. Generally, the number of hours of independent learning required increases as you progress from your first year (L4) to final year (L6/L7). Typically, in most taught modules, the directed teaching varies between a third (65 hours at L4) to a quarter (52 hours at L6 & L7). This may significantly vary in some modules such as Mathematics where more support is offered and Project modules where more individual involvement is expected.

subject-related and generic resources

The core and optional reading lists are supplied at the end of each module guide produced by the module leader. A copy of the module guide will be made available on the Virtual Learning Environment, VLE (Moodle) and the reading lists can also be accessed through LSBU Library website (http://www1.lsbu.ac.uk/library/).

Learning Support

To support students in their learning journey, academic and support staff are available during the normal operating hours of the university via prior appointment. Academic staff also operate surgery sessions where no prior appointments are needed. The university

buildings and library are open from 8am to 9pm during term time, while the library operates for an extended period during examinations. Some specialist workshops/computing spaces etc are not accessible outside the normal operating hours of 9am to 5pm, unless timetabled for use in a module. Teaching sessions for PT students run until 8/9pm and the relevant and required areas are open for access as timetabled.

All students are allocated a Personal tutor when they begin their study at LSBU and your personal tutor is who you would see about **any** problems, not just academic ones (most academic problems will probably be dealt with by module teachers or Course Directors). Students are advised to establish contact with their personal tutor ASAP, if for some reason you have not done this at during the enrolment and orientation process.

Teaching staff

Most modules are delivered by full-time academic staff from within the parent division where the course resides and often by staff from other areas with in the school or university where expertise lies. Occasionally, PG students or part-time staff may support certain sessions and, in such cases, the relevant tutors are trained and care is taken to ensure the quality of the provision.

VLE

Each course has a course site, where relevant information is posted by the respective course director.

Each module on the course has a Module site and all relevant teaching and learning material such as module guides, lecture notes, teaching slides, tutorial and seminar sheets, workshop exercises, past exam papers etc are made available by the module leader.
The virtual learning environment (Moodle) can be accessed using your windows login credentials and can be accessed from any internet connect PC inside or outside of the campus.

D. Assessment

Course work in modules can be either formative or summative and the details are usually made available in the module guide and explained to you by your module leader at the beginning of the semester. The module guide will also provide details as to the weightage of these assessment components and when the relevant brief will be made available, including submission instructions and deadlines.

Each module has a number of assessment *components*, usually, but not always, two. These can consist of assignments, mini tests, essays, laboratory reports and logbooks and examinations of various kinds. The assessment components for each module are specifically defined and kept up to date in the current Module Guides. Note that a component is not necessarily a single piece of work - several pieces of coursework (often referred to as a portfolio) may constitute a single component of the module assessment.
To pass a module, students must obtain an overall **module mark of no less than 40%** and also a minimum **threshold** mark of **30% in each component.** The weighting of each component in calculating the overall module mark is given in the Module Guide, and your module coordinator will often cover the details of this at the beginning of the module.

Progression means moving on from one year to the next, during your studies. You need to complete (pass) all modules taken/studied at that level by obtaining the minimum component marks and the minimum module marks. Occasionally, with the discretion of the exam board, you may be allowed to progress with an outstanding module(s) and your course director will explain you in detail about these. It is important that you understand how progression works and what the rules are. The rules about progression and what happens if you fail modules

are carefully set out (along with all the other University rules) in your Student Handbook, a copy of which is handed to you during enrolment.

The rules about referrals, repeats and extenuating circumstances are defined by the University's Academic Regulations for Taught Programmes and are described in the Student Handbook and also included in your course guide.

E. Academic Regulations

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

Course specific protocols are usually prescribed by the professional bodies, accrediting the relevant courses. The IET is the professional body that accredits this course and the specified protocol supersedes any applicable universities protocols.

The IET's protocol, relating to this course, requires that the resit mark for a module is capped to a maximum of 40% in the absence of a supported extenuating circumstances claim. Where a claim made by the student is supported by the university's extenuating circumstances panel, the student receives a full uncapped mark and such an attempt is termed as a deferral, as against a referral.

F. Entry Requirements

This course has been stopped in 2019 and therefore there is no entry to this course. However, there are current students enrolled mostly in final year.

Generally, when this course accepted entry, the course applicant's entry requirements were required to have the following qualifications:

Full-time/Part-time students

- A Level AAB including Mathematics (136 UCAS points) **or;**
- BTEC National Diploma DDD, including Level 3 Mathematics (144 UCAS points) **or;**
- EAL Technical Extended Diploma in Engineering Technologies, D, including: Further Engineering Mathematics; Electrical and Electronic Engineering Principles; and other options relevant to Electrical and Electronic Engineering **or;**
- Access to HE qualifications with 36 Distinctions and 9 Merits, with at least half the course in Mathematics and Physical Science subjects (134 UCAS points) **or;**
- Equivalent level 3 qualifications worth 144 UCAS points and including Mathematics **and**
- Applicants must hold 5 GCSEs A-C including Maths and English or equivalent (reformed GCSEs grade 4 or above) **or;**
- 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, **and** a Mathematics qualification equivalent to reformed GCSE grade 4 or above, as assessed by UK NARIC

Accredited Prior Learning/Transfer Credit

Applicants may be considered for entry to the second year of the course with the following

qualifications. Applicants will normally be interviewed and may be required to sit a Mathematics test to ensure their preparedness for direct entry.

Full-time/Part-time students

- BTEC Higher National Diploma in Electrical and Electronic Engineering or a closely-related subject **or;**
- DipHE in a directly-relevant subject **or;**
- Transfer of 120 Level 4 credits from a directly-equivalent degree course and with the approval of the director of that course **or;**
- An overseas qualification assessed by UK NARIC as equivalent to at least BTEC HND in a closely-related subject **and** an IELTS score of 6.5 or equivalent.

Applicants may be considered for entry to the third year of the part-time course with the following qualifications and will be interviewed to ensure their preparedness for direct entry.

Part-time students

- Foundation Degree (FdEng) in a directly-related subject, **or;**
- Exceptional performance on the part-time HND in Electrical and Electronic Engineering at London South Bank University with the recommendation of its course director

Applicants may be considered for entry to the final year of the full-time course only under the following circumstances and will be interviewed to ensure their preparedness for direct entry.

Full-time students

- Transfer from another IET-accredited course with the approval of the director of that course

Direct entry to the final year of the part-time course is not possible.

Accredited Prior Experiential Learning

APEL may be taken into account in determining the entry requirements for candidates with relevant work experience, but cannot replace the requirement for formal qualifications in Mathematics.

Application to the course

Full-time: via UCAS

Part-time: direct to the university, via a dedicated webpage

G. Course structure(s)

Course overview

- The academic year is organised into two semesters, each requiring roughly 15 weeks (12 teaching weeks, 1 revision week and 2 exam weeks) of attendance by students.

- Semester-1 starts in Sep and the 12 teaching weeks happen before the Christmas break begins in mid-December, Christmas break lasts for 3 weeks. Upon return in January, students have a week of revision sessions, followed by 2 weeks of exams.

- Semester-2 follows immediately after the sem-1 exams and typically this occurs in the last week of January/First week of Feb. Sem-2 runs until mid may (with 3 weeks of Easter break in Mar/April). The sem-2 teaching is followed by a week of revision and 2 weeks of exams. Students typically finish all their session by mid-June with examination results published before mid-July.

- Resit exams for sem-1 are scheduled during the Easter break and for sem-2 during the last week of August.

- The MEng course is made up of 480 credits. The course is made up of several modules, most modules attract 20 credits except for some project modules which are weighted double and attract 40 credits.

- The MEng scheme is offered in full-time (4 year) mode, with further options of sandwich industrial training (5 year), or year in Europe (e.g. Germany, 5 year). Students undertake study of 120 credits per year.

- Selection for the MEng route occurs at the end of year 2, at which point students are expected to have passed all modules and have achieved an average mark of not less than 55% without benefit of compensated passes.

- The sandwich year alternatives involve a one-year placement away from the School between the second and third years of academic study and offered only on the FT programs. The placement year is not compulsory and is not assessed. However, students who undertake a placement with a relevant company/industry are required to maintain a portfolio and an academic staff member of the division will ensure a visit is taken place to the placement location during the duration of the placement. The student is expected to lead on finding the placement (short summer placement or year-long sandwich placement) and the university will provide all possible support but will not guarantee finding a placement. It is sometimes possible to undertake a short placement during the summer break, in which case there is no need to inform the university, but it is recommended to inform your course director for future reference as it can be useful when seeking a reference from your course director at the end of your course while seeking employment or further study.

- The part-time MEng course is delivered across 6 years (Sandwich option not offered). The breakdown of credits are Y1-100 credits; Y2-80 credits; Y3-100 credits; Y4-80 credits; Y5 has 40 credits and Y6-80 credits and the attendance days are Y1-Monday, Y2-Tuesday, Y3-Thursday, Y4-Friday, Y5-Wednesday and Y6-Friday. Typically, the day starts at 9am and finishes at 8/9pm.

MEng (Hons) Electrical Engineering and Power Electronics – Full time

	Semester 1		Semester 2	
Level 4	Engineering Mathematics and Modelling – Compulsory Module – 20 Credits			
	Introduction to Electrical and Electronic Engineering– Compulsory Module – 20 Cred			
120 credits	Design and Practice – Compulsory Module – 20 credits			
	Engineering Principles - Compulsory Module	20 credits	Introduction to Digital Electronics- Compulsory Module	20 Credits
			Engineering Computing – Compulsory Module	20 Credits
Level 5	Advanced Engineering Mathematics and Modelling – Compulsory Module – 20 Cred			
120 credits	Circuits Signals and Systems- Compulsory Module	20 Credits	Electrical Services for Buildings - Compulsory Module	20 Credits
	Electrical Machines and Power Electronics - Compulsory Module	20 Credits	Principles of Control - Compulsory Module	20 Credits
	Team Design Project – Compulsory Module – 20 Credits			
Level 6	Innovation and Enterprise - Compulsory Module	20 Credits	Control Engineering - Compulsory Module	20 Credits
120 credits	Lighting & Electrical Systems- Compulsory Module	20 Credits	Electrical Energy Converters and Drives - Compulsory Module	20 Credits
	Individual BEng Project – Compulsory Module **– 40 Credits**			
Level 7	Technical Research and Professional Skills- Compulsory Module	20 Credits	Power Systems Engineering - Compulsory Module	20 Credits
120 credits	Systems for Environmental Services - Compulsory Module	20 Credits	Advanced Power Electronics and Renewable Energy - Compulsory Module	20 Credits
	MEng Group Project – Compulsory Module **– 40 Credits**			

MEng (Hons) Electrical Engineering and Power Electronics – Part time

	Semester 1		Semester 2	
Year 1 **100 credits**	Engineering Mathematics and Modelling – Compulsory Module – 20 Credits			
	Introduction to Electrical and Electronic Engineering– Compulsory Module – 20 Credit			
	Design and Practice – Compulsory Module – 20 credits			
	Engineering Principles - Compulsory Module	20 Credits	Introduction to Digital Electronics- Compulsory Module	20 Credits
Year 2 **80 credits**	Advanced Engineering Mathematics and Modelling – Compulsory Module – 20 Cr			
	Circuits Signals and Systems- Compulsory Module	20 Credits	Principles of Control - Compulsory Module	20 Credits
			Engineering Computing – Compulsory Module	20 Credits
Year 3 **100 credits**	Electrical Machines and Power Electronics - Compulsory Module	20 Credits	**Electrical Services for Buildings - Compulsory Module**	20 Credits
	Innovation and Enterprise - Compulsory Module	20 Credits	Control Engineering - Compulsory Module	20 Credits
	Team Design Project – Compulsory Module – 20 Credits			
Year 4 **80 credits**	**Lighting & Electrical Systems- Compulsory Module**	20 Credits	**Electrical Energy Converters and Drives - Compulsory Module**	20 Credits
	Individual BEng Project – Compulsory Module **– 40 Credits**			
Year 5 **40 credits**	Systems for Environmental Services - Compulsory Module	20 Credits	Advanced Power Electronics and Renewable Energy - Compulsory Module	20 Credits
Year 6 **80 credits**	Technical Research and Professional Skills- Compulsory Module	20 Credits	Power Systems Engineering - Compulsory Module	20 Credits
	MEng Group Project – Compulsory Module **– 40 Credits**			

Placements information

The sandwich year alternatives involve a one-year placement away from the School between the second and third years of academic study and offered only on the FT programs. The placement year is not compulsory and is not assessed. However, students who undertake a placement with a relevant company/industry are required to maintain a portfolio and an academic staff member of the division will ensure a visit is taken place to the placement location during the duration of the placement. The student is expected to lead on finding the placement (short summer placement or year-long sandwich placement) and the university will provide all possible support but will not guarantee finding a placement. It is sometimes possible to undertake a short placement during the summer break, in which case there is no need to inform the university, but it is recommended to inform your course director for future reference as it can be useful when seeking a reference from your course director at the end of your course while seeking employment or further study.

H. Course Modules

- All modules offered on this course are core/compulsory modules

Module Code	Module Title	Level	Semester	Credit value	Assessment	
					Cw%	Ex%
ENG_4_401	Engineering Mathematics and Modelling L4	4	S1 & S2	20	50	50
ENG_4_402	Engineering Principles L4	4	S1	20	40	60
ENG_4_403	Design & Practice L4	4	S1 &S2	20	100	
ENG_4_404	Introduction to Electrical & Electronic Engineering L4	4	S1 &S2	20	50	50
ENG_4_405	Engineering Computing L4	4	S2	20	100	
ENG_4_406	Intro to Digital Electronics L4	4	S2	20	50	50
ENG_5_410	Advanced Mathematics & Modelling L5	5	S1 &S2	20	50	50
ENG_5_524	Electrical Machines and Power Electronics L5	5	S1	20	30	70
ENG_5_412	Circuits, Signals and Systems L5	5	S1	20	30	70
ENG_5_525	Electrical Services for Buildings L5 (20)	5	S2	20	30	70
ENG_5_414	Team Design Project L5	5	S1 &S2	20	30	70
ENG_5_415	Principles of Control L5	5	S2	20	30	70
BEA_6_470	Lighting and Electrical Systems L6	6	S1	20	30	70
ENG_6_528	Electrical Energy Converters & Drives L6	6	S2	20	30	70
ENG_6_422	Innovation and Enterprise L6	6	S1	20	100	
ENG_6_423	Control Engineering L6	6	S2	20	30	70
ENG_6_980	Project L6 (40)	6	S1 &S2	40	100	
EEB_7_882	Technical Research & Professional Skills L7	7	S1	20	100	
EEB_7_404	Advanced Power Electronics & Renewable Energy L7	7	S2	20	30	70
ENG_7_529	Systems for Environmental Services L7	7	S1	20	30	70
ENG_7_530	Power Systems Engineering L7	7	S2	20	30	70
ENG_7_431	Group Project L7 (40)	7	S1 &S2	40	100	

I. Timetable information

Full-time students are usually timetabled between 9am and 6pm and the teaching spans out typically across 3 to 4 days in a week, with Wednesday afternoon, where possible, reserved for extracurricular activities.

Part-time students are usually timetabled for a day and the same evening of their attendance day (see section G, Pg-18 for information on attendance days). The day usually lasts until 8pm or 9pm.

The timetables are made available to students at least 2 weeks before commencement of the semester. Students are however advised to check their timetables via MyLSBU, more frequently, in the early weeks of the semester, where there are usually some changes to rooms and/or re-arrangement of sessions.

Any changes to the timetable after the start of the term are also circulated by the respective module leaders and course directors.

J. Costs and financial support

Course related costs

The course fee is the fee published by the university's fee office. Field trips and placement activities, where organised, may cost extra and are not compulsory to attend but students are advised to utilise the opportunities where possible.

Cost of books and other learning materials is also not included in the course fee. Learning resources are usually made available through VLE (Moodle) and the library holds copies of books recommended as core reading.

The course was usually found on the LSBU webpage by following the below link: This link is no longer active because this course was stopped entry since 2019
http://www.lsbu.ac.uk/courses/course-finder/electrical-engineering-and-power-electronics-meng-hons

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/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: Educational Framework (undergraduate courses)
Appendix C: Personal Development Planning (postgraduate courses)
Appendix D: 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.

Modules			Course outcomes															
Level	**Title**	**Code**	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**C1**	**C2**	**C3**	**C4**
4	Engineering Mathematics and Modelling	ENG_4_401		TA	TA	TA								TA				
4	Engineering Principles	ENG_4_402	TA		TA		TA		TA	TA	TA	TA	TA		TA	TA	TA	
4	Design & Practice	ENG_4_403							TA								TA	TA
4	Introduction to Electrical & Electronic Engineering	ENG_4_404	TAD	TA	TA		TA	TA	TA	TA		TA		TA		TA	TA	
4	Engineering Computing	ENG_4_405	TA	TA					TA	TA	TA			TA		TA		
4	Introduction to Digital Electronics	ENG_4_406	TA	TA					TA			TA				TA	TA	
5	Advanced Mathematics and Modelling	ENG_5_410	TA	TAD	TA	TA			TA	TA	TA	TA		TA				
5	Electrical Machines & Power Electronics	ENG_5_524	TAD					TA	TA								TA	
5	Circuits, Signals and Systems	ENG_5_412	TAD	TAD	TA				TA	TA	TA	TAD		TA			TA	
5	Electrical Services for Buildings	ENG_5_525	TAD								TAD	TA					TA	
5	Team Design Project	ENG_5_414			TA		TAD		TA	TAD					TAD	TA	TAD	TA
5	Principles of Control	ENG_5_415	TA		TA				TAD	TA	TA	TA		TA			TA	
6	Lighting and Electrical Systems	BEA_6_470	TA		TA			TA						TA			TA	
6	Electrical Energy Converters and Drives	ENG_6_528	TA		TAD			TA		TA	TA						TA	
6	Innovation and Enterprise	ENG_6_422	TAD	TAD	TA				TAD	TAD	TAD	TAD	TAD	TA			TA	
6	Control Engineering	ENG_6_423	TAD	TAD	TA				TAD	TAD	TAD	TAD		TA		TA	TA	
6	Individual Project	ENG_6_424	A		TA		TA	A			TA				A			TA
7	Systems for Environmental Services	ENG_7_529			TAD	TA		TA	TAD		TAD				TA		TA	
7	Power Systems Engineering	ENG_7_530	TAD	TA	TAD	TA			TAD	TA	TA	TAD	TA	TAD	TA		TA	
7	Advanced Power Electronics & Renewable Energy	EEB_7_404			TAD	TA		TA			TA		TA		TA	TA	TA	
7	Technical Research and Professional Skills	EEB_7_882		TA	TA	TAD				TA	TA				TAD	TA	TAD	TAD
7	MEng Group Project L7	ENG_7_431			TA		TA	A	A		A			TA	A			TA

Modules			Course outcomes													
Level	Title	Code	C5	C6	C7	C8	C9	C10	D1	D2	D3	D4	D5	D5	D7	D8
4	Engineering Mathematics and Modelling	ENG_4_401				TA										
4	Engineering Principles	ENG_4_402					TA									
4	Design & Practice	ENG_4_403	TA				TA	TD	TA	TA	TA	TA	TA	TA	TA	
4	Introduction to Electrical & Electronic Engineering	ENG_4_404								TA						
4	Engineering Computing	ENG_4_405						TD	TA		TA					
4	Introduction to Digital Electronics	ENG_4_406														
5	Advanced Mathematics and Modelling	ENG_5_410								TA						
5	Electrical Machines & Power Electronics	ENG_5_524														
5	Circuits, Signals and Systems	ENG_5_412														
5	Electrical Services for Buildings	ENG_5_525								TA	TA		TA			
5	Team Design Project	ENG_5_414	TAD	TAD	TA	TA		TA	TAD	TAD	TAD	TA	TA	TA	TAD	TAD
5	Principles of Control	ENG_5_415														
6	Lighting and Electrical Systems	BEA_6_470		TA	TA				TA	TA	TA			TA		
6	Electrical Energy Converters and Drives	ENG_6_528								TA	TA					
6	Innovation and Enterprise	ENG_6_422			TAD						TAD					
6	Control Engineering	ENG_6_423			TAD											
6	Individual Project	ENG_6_424					A	A		A	A	TA	TAD	A	A	TA
7	Systems for Environmental Services	ENG_7_529			TA			TA	TAD	TAD	TA	TA	TA			
7	Power Systems Engineering	ENG_7_530		TA	TA	TA		TA	TA		TA					
7	Advanced Power Electronics & Renewable Energy	EEB_7_404				TA	TAD	TA	TAD		TAD	TA	TA			
7	Technical Research and Professional Skills	EEB_7_882		TA			TAD		TA		TA	TAD	TAD			TA
7	MEng Group Project L7	ENG_7_431							TAD	A	TAD	TA	TAD	TAD	A	TA

Appendix B: Embedding the Educational Framework for Undergraduate Courses

The Educational Framework at London South Bank University is a set of principles for curriculum design and the wider student experience that articulate our commitment to the highest standards of academic knowledge and understanding applied to the challenges of the wider world.

The Educational Framework reflects our status as University of the Year for Graduate Employment awarded by *The Times and The Sunday Times Good University Guide 2018* and builds on our 125 year history as a civic university committed to fostering social mobility through employability and enterprise, enabling our students to translate academic achievement into career success.

There are four key characteristics of LSBU's distinctive approach to the undergraduate curriculum and student experience:

- Develop students' professional and vocational skills through application in industry-standard facilities
- Develop our students' graduate attributes, self-awareness and behaviours aligned to our EPIIC values
- Integrate opportunities for students to develop their confidence, skills and networks into the curriculum
- Foster close relationships with employers, industry, and Professional, Statutory and Regulatory Bodies that underpin our provision (including the opportunity for placements, internships and professional opportunities)

The dimensions of the Educational Framework for curriculum design are:

- **informed by employer and industry** needs as well as professional, statutory and regulatory body requirements
- **embedded learning development** for all students to scaffold their learning through the curriculum taking into account the specific writing and thinking requirements of the discipline/profession
- **high impact pedagogies** that enable the development of student professional and vocational learning through application in industry-standard or authentic workplace contexts
- **inclusive teaching, learning and assessment** that enables all students to access and engage the course
- **assessment *for* learning** that provides timely and formative feedback

All courses should be designed to support these five dimensions of the Educational Framework. Successful embedding of the Educational Framework requires a systematic approach to course design and delivery that conceptualises the student experience of the curriculum as a whole rather than at modular level and promotes the progressive development of understanding over the entire course. It also builds on a well-established evidence base across the sector for the pedagogic and assessment experiences that contribute to high quality learning.

This appendix to the course specification document enables course teams to evidence how their courses meet minimum expectations, at what level where appropriate, as the basis for embedding the Educational Framework in all undergraduate provision at LSBU.

Dimension of the Educational Framework	Minimum expectations and rationale	How this is achieved in the course
Curricula informed by employer and industry need	Outcomes focus and professional/employer links All LSBU courses will evidence the involvement of external stakeholders in the curriculum design process as well as plan for the participation of employers and/or alumni through guest lectures or Q&A sessions, employer panels, employer-generated case studies or other input of expertise into the delivery of the course provide students with access to current workplace examples and role models. Students should have access to employers and/or alumni in at least one module at level 4.	Industrial Advisory boards, both at school level and division level, feeds into the curriculum design through its twice annually convened meeting. Representatives from professional bodies, are invited to a short seminar session as part of the module Design and Practice where students are informed about how they can engage with professional bodies and build relation with the local networking bodies to secure learning of state-of-the-art aspects of their discipline of engineering in the work arena and also to have access to facilities and professional networks operating in the local area. Students are encouraged to become student members of the professional body (IET) and the division pays for the membership to provide a sound start to their professional engagement. Alumni and employers are invited as guest speakers on the above module whose valuable inputs contribute to the student's ideas and activity which they later put use when competing on a national level in challenges such as the London Mayoral Challenge, Engineers without Borders etc.
Embedded learning development	Support for transition and academic preparedness At least two modules at level 4 should include embedded learning development in the curriculum to support student understanding of, and familiarity	Modules at L4 prepare form the basis for academic preparedness and help them with transisiton to later years in their course. For e.g.,

	with, disciplinary ways of thinking and practising (e.g. analytical thinking, academic writing, critical reading, reflection). Where possible, learning development will be normally integrated into content modules rather than as standalone modules. Other level 4 modules should reference and reinforce the learning development to aid in the transfer of learning.	The mathematics module provides the underpinning knowledge to enable them to think analytically. This is then reinforced in the Engineering computing module where mathematical modules taught in the Mathematics module are now analysed and simulated using MATLAB Simulink models. This allows students to dissect the model deeper and gain a better understanding in terms of boundary conditions and constraints within which these analytical models can be validated. Academic writing, in its various forms is introduced and strengthened when they produce a variety of reports for the various modules they study at L4: • As part of Design and Practice module, they produce individual and team reports, engage with a personal tutor, maintain record of their meetings, produce a portfolio etc. • As part of the Engineering computing module, they produce evidence of working on simulations through a comprehensive logbook and case study. • As part of the Intro to Digital Electronics, they produce a log book digitally and experience the submission of their records digitally through VLE and receive individual feedback via the VLE. • As part of the Intro to Electrical and Electronics Engineering module, students experience the work place scenario where they are required to follow basic health and safety aspects related to working in places where death by electrocution is a hazard. They also maintain a hand-written record of their experience in the workshop while they progress through a set of times exercises. This helps them to put learning into practice in a timely and organised way whilst also recording data in a meaningful way and they are encourage to pay attention to ease of retrievability of data. later.
High impact pedagogies	<u>Group-based learning experiences</u> The capacity to work effectively in teams enhances learning through working with peers and develops	The following modules, encourage and allow students to work in small groups of 2 to 3 in various settings, and experiencing various learning techniques be

	student outcomes, including communication, networking and respect for diversity of perspectives relevant to **professionalism** and **inclusivity**. At least one module at level 4 should include an opportunity for group working. Group-based learning can also be linked to assessment at level 4 if appropriate. Consideration should be given to how students are allocated to groups to foster experience of diverse perspectives and values.	it peer learning, or communication and networking with their buddies and respect their diversity and individual perspectives: • Design and Practice, • Engineering Computing • Engineering Principles • Intro to Digital Electronics • Intro to Electrical and Electronics Engineering Some module leaders, form groups where students are forced to work with random classmates in certain assignments and they are given a free choice to form groups for certain tasks.
Inclusive teaching, learning and assessment	<u>Accessible materials, resources and activities</u> All course materials and resources, including course guides, PowerPoint presentations, handouts and Moodle should be provided in an accessible format. For example, font type and size, layout and colour as well as captioning or transcripts for audio-visual materials. Consideration should also be given to accessibility and the availability of alternative formats for reading lists.	All teaching and learning materials are available as soft copies on the VLE in an appropriate accessible format. Module leaders also encourage students to approach them should they need the material in a different format.
Assessment *for* learning	<u>Assessment and feedback to support attainment, progression and retention</u> Assessment is recognised as a critical point for at risk students as well as integral to the learning of all students. Formative feedback is essential during transition into university. All first semester modules at level 4 should include a formative or low-stakes summative assessment (e.g. low weighted in final outcome for the module) to provide an early opportunity for students to check	The modules at L4 employ a range of course work assessments, categorised into formative or summative assessments that are integral to the learning and progression of all students. Formative assessments are important in the early years of a student's journey on the course as this will provide an opportunity to quickly act on the formative feedback obtained and work to address weaknesses which then helps them to progressively gain better marks in the later part of that assessment and other assessments.

	progress and receive prompt and useable feedback that can feed-forward into future learning and assessment. Assessment and feedback communicates high expectations and develops a commitment to **excellence**.	Also, due to the nature of the subjects studied, sometimes summative assessment are more suitable as it takes time for students to develop their understanding of complex concepts and then fully put them into practice or use, in either a classroom exercise or a work-place related case study. In situations where summative assessments are undertaken, formative feedback forms part of the scheduled contact time/meetings between the students and member of academic staff. Feedback for summative assessments is generally provided to students within the recommended timeframe as per the school/university regulations, which is currently 2 weeks after submission. Summative assessments contribute with a lower weighting, to the final module mark. The weightings can range from 5 to 50% depending on the number and type of assessment components that form part of the course work for that specific module.
High impact pedagogies	<u>Research and enquiry experiences</u> Opportunities for students to undertake small-scale independent enquiry enable students to understand how knowledge is generated and tested in the discipline as well as prepare them to engage in enquiry as a highly sought after outcome of university study. In preparation for an undergraduate dissertation at level 6, courses should provide opportunities for students to develop research skills at level 4 and 5 and should engage with open-ended problems with appropriate support. Research opportunities should build student autonomy and are likely to encourage **creativity** and problem-solving. Dissemination of student research outcomes, for	Students on this course are required to undertake small-scale independent enquiry based study and contribute to either their individual projects/task or to a group/team project that they are part of. The module Design and Practice at L4, facilitates such aspects for students to experience as part of their individual and team tasks and also as part of the major design challenge that all students on the module undertake. The design challenge is more of a cross disciplinary nature and required groups to be constituted with students from different courses which allows then to work as an interdisciplinary team and enjoy the diversity of the team and raise to the challenging academic aptitude required. The Team Design Project module at L5 builds on the students experiences and competencies gained in their L4 study and facilitates the teams to work on an open-ended, academically challenging aspect within the students own discipline where they are required to work as a team to undertake research

	example via posters, presentations and reports with peer review, should also be considered.	(both individually and as a team) and explore creative and innovative solutions. They are also then required to present their working formally to heir peers and lecturers. They also experience writing of reflective reports and undertake peer review/assessments which are moderated by the academic in charge of the session/project/task/module. Students on this module also experience the use of disseminating their work & ideas, using a range of techniques like posters, presentations, sketches etc. The above aspects feed into and further challenge the students when they undertake their individual project at L6 and their group project at L7.
Curricula informed by employer and industry need / Assessment *for* learning	<u>Authentic learning and assessment tasks</u> Live briefs, projects or equivalent authentic workplace learning experiences and/or assessments enable students, for example, to engage with external clients, develop their understanding through situated and experiential learning in real or simulated workplace contexts and deliver outputs to an agreed specification and deadline. Engagement with live briefs creates the opportunity for the development of student outcomes including **excellence**, **professionalism**, **integrity** and **creativity**. A live brief is likely to develop research and enquiry skills and can be linked to assessment if appropriate.	Students are invited to talks by alumni and the industrial advisory panel members, who often share their experiences and current issues in the industry, through case studies or presentations, relevant to the courses and this will help develop the understanding of students where they are able to see how their classroom knowledge can be transformed to provide solutions to problems in workplace.
Inclusive teaching, learning and assessment	<u>Course content and teaching methods acknowledge the diversity of the student cohort</u> An inclusive curriculum incorporates images, examples, case studies and other resources from a broad range of cultural and social views reflecting diversity of the student cohort in terms of, for example, gender, ethnicity, sexuality,	Owing to the nature of the subject material, there will be little contribution based on cultural or social diversity among the students of the cohort. However, industry practices vary from country to country and since our student body is diverse and arrive form different countries, this then becomes contextual in their learning, for e.g. Earthing and Bonding techniques/arrangements are traditionally different in different countries and

	religious belief, socio-economic background etc. This commitment to **inclusivity** enables students to recognise themselves and their experiences in the curriculum as well as foster understanding of other viewpoints and identities.	are also industry specific, so what is applicable to land-based equipment is not relevant to off-shore equipment etc
Curricula informed by employer and industry need	<u>Work-based learning</u> Opportunities for learning that is relevant to future employment or undertaken in a workplace setting are fundamental to developing student applied knowledge as well as developing work-relevant student outcomes such as networking, **professionalism** and **integrity**. Work-based learning can take the form of work experience, internships or placements as well as, for example, case studies, simulations and role-play in industry-standards settings as relevant to the course. Work-based learning can be linked to assessment if appropriate.	Direct Work based learning is not part of this course, however PT student who currently work will have the benefit of immediately putting their knowledge into practice. FT and PT students are often mixed in lectures and often contextually PT students share their work aspects and how they relate to the classroom learning, which is an important experience to FT students. Assignments where possible are designed to be based on case studies, which are close to real world scenarios and guest talks often feed into these.
Embedded learning development	<u>Writing in the disciplines: Alternative formats</u> The development of student awareness, understanding and mastery of the specific thinking and communication practices in the discipline is fundamental to applied subject knowledge. This involves explicitly defining the features of disciplinary thinking and practices, finding opportunities to scaffold student attempts to adopt these ways of thinking and practising and providing opportunities to receive formative feedback on this. A writing in the disciplines approach recognises that writing is not a discrete representation of knowledge but integral to the	The courses offers varying assessment aspects which supports students attempts to adopt ways of thinking and practising, which is underpinned by knowledge and skills gained, the formative feedback provided and the opportunities to put them into practice. Students also undertake a variety of presentation techniques, they are generally required to assimilate information while performing a task in the laboratory or during a group discussion and quickly note it down as a running commentary in a logbook for formal presentation. Further in their study, they are required to retrieve date from the information recorded which enables them to experience their own strengths and weaknesses associated with their personal style of recording information.

	process of knowing and understanding in the discipline. It is expected that assessment utilises formats that are recognisable and applicable to those working in the profession. For example, project report, presentation, poster, lab or field report, journal or professional article, position paper, case report, handbook, exhibition guide.	In L6/L7, they are also required to make sound judgements based on assimilated information and obtained data to then disseminate the information to a specific target audience in a specified style such as a poster, presentation, formal report etc to either a lay man, a competent co-worker, a consultant, a peer-reviewer, a professional body etc.
High impact pedagogies	<u>Multi-disciplinary, interdisciplinary or interprofessional group-based learning experiences</u> Building on experience of group working at level 4, at level 5 students should be provided with the opportunity to work and manage more complex tasks in groups that work across traditional disciplinary and professional boundaries and reflecting interprofessional work-place settings. Learning in multi- or interdisciplinary groups creates the opportunity for the development of student outcomes including **inclusivity**, communication and networking.	Most of our student cohorts are very diverse and have varying entry qualifications and work in different sectors and are often working despite studying FT. This already brings in a rich and diverse perspective to the teams who work either on lab-based exercises, which are usual from L4 to L7, or on specific group tasks as part of the modules that contribute to the development of soft skills at L4/L5. This is further strengthened when they undertake an interdisciplinary group project at L7 where the culmination of all the knowledge, skills, experiences, is expected to shape the outputs which requires strong inclusivity, communication and networking skills, to bring out the potential of each team member to the maximum benefit of the team.
Assessment *for* learning	<u>Variation of assessment</u> An inclusive approach to curriculum recognises diversity and seeks to create a learning environment that enables equal opportunities for learning for all students and does not give those with a particular prior qualification (e.g. A-level or BTEC) an advantage or disadvantage. An holistic assessment strategy should provide opportunities for all students to be able to demonstrate achievement of learning outcomes in different	The diversity and entry qualifications of the cohorts are considered when setting assessment which are approved by external examiners and are overseen by academic quality review processes, both through LSBU's internal reviews as well as period review at times of accreditation by the professional body. Variation to standard agreed assessments are possible but should be approved by the relevant external examiner and relevant professional body accrediting the course, the IET in this case.

	ways throughout the course. This may be by offering alternate assessment tasks at the same assessment point, for example either a written or oral assessment, or by offering a range of different assessment tasks across the curriculum.	
Curricula informed by employer and industry need	<u>Career management skills</u> Courses should provide support for the development of career management skills that enable student to be familiar with and understand relevant industries or professions, be able to build on work-related learning opportunities, understand the role of self-appraisal and planning for lifelong learning in career development, develop resilience and manage the career building process. This should be designed to inform the development of **excellence** and **professionalism**.	This course provides opportunities and support to enable students to gain general employability skills with help from the university's employability office, such as career planning, Carrer fairs etc Specific employability skills (few listed here) that are directly relevant to the industry are also developed as part of the course: 1. In Engineering Computing, students are taught and trained to used MATLAB Simulink packages which are widely used in the industry and is an important competency to add to their CV. 2. In the module Electrical Services for Building, students develop their knowledge of current wiring regulations (BS7671) and also become familiar with an industry standard package, AMTECH which immensely boosts their employability potential.
Curricula informed by employer and industry need / Assessment *for* learning / High impact pedagogies	<u>Capstone project/dissertation</u> The level 6 project or dissertation is a critical point for the integration and synthesis of knowledge and skills from across the course. It also provides an important transition into employment if the assessment is authentic, industry-facing or client-driven. It is recommended that this is a capstone experience, bringing together all learning across the course and creates the opportunity for the development of student outcomes including **professionalism**, **integrity** and **creativity**.	The individual BEng project undertaken at L6 and the MEng Group project undertaken at L7 will provide an opportunity for students to integrate and synthesise the knowledge and skills gained throughout their course which they are able to apply to real-world scenarios, be it research, or industry linked. This experience develops the students professionalism, integrity and creativity and prepares them to challenges in the real world when they undertake employment.

Appendix C: Personal Development Planning

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 4	LEVEL 5	LEVEL 6	LEVEL 7
1 Supporting the development and recognition of skills through the personal tutor system.	All students allocated a personal tutor– coordinated by the Senior Personal Tutor. Personal tutoring is embedded in the level 4 module, Design and Practice where students are given the opportunity to learn about the aspects of PT on their courses. PT open surgeries are bookable on demand. Induction course, including: 1. Meeting with personal tutor 2. Use of library and learning resources (LIS) 3. Use of University IT facilities/Blackboard VLE 4. Study skills. 5. Access to University support facilities. 6. Induction to 'Don't Panic' – PDP for L4.	Induction for direct entry students. See Level 4	At Level 6 CD and Project Supervisor support the PT system.	The group project supervisor acts as personal tutor for the group of students that the staff member supervises. This enhances team work and allows the PT to interact with the group at two levels, personal as well as academic.

2 Supporting the development and recognition of skills in academic modules/modules.	Most modules have practical elements and this requires keeping a laboratory log book for each module. This occurs across all levels of the course but particular emphasis is placed on this aspect at L4 as logbooks provide a platform for further skills development such as report writing, dissertations and project management occurring at Levels 5, 6 and 7. The following L4 modules have generic skills components, including keeping a laboratory logbook, team-working, planning and managing study: Mathematics, Design and Practice, Engineering principles, Introduction to Electrical and Electronic engineering. In the core mathematics module practice is encouraged by continuous assessment and feedback (weekly) of tutorial logbooks. Remedial Maths tutorials – additional support is	Following on from L4 students continue the practice of keeping log books but this is now complemented in technical modules at L5 by writing formal laboratory reports which requires other skills such as information retrieval and IT. This aspect is featured in the following modules: Electrical Services for Buildings L5, Team Design Project L5, and Principles of Control L5.	At L6 students keep log books but additional transferable skills are developed by setting longer assignments, dissertations and mini projects involving information selection, retrieval and evaluation, for example: Lighting and Electrical Systems L6, Electrical Energy Converters and Drives L6, Innovation and Enterprise L6, individual Project L6.	At L7 students continue to keep log books but the focus is on reports that further develop transferable skills with formal reports, dissertations and mini projects involving information selection, retrieval and evaluation, for example: 1. Technical Research and Professional Skills L7 2. Advanced power electronics and renewable energy, 3. Group Project L7 (40) in particularly focuses on group working aspects which includes organisation and management of projects.

	provided for mathematics to improve basic skills for those students with diverse entry qualifications.			

3 Supporting the development and recognition of skills through purpose-designed modules/modules.	Design and Practice – this module aims to introduce and develop the skills needed by professional engineers to enable them to make use of their technical knowledge, in particular: • Develop students' technical communications, basic report writing and team-working skills• Develop students' skills in project planning and management• Develop students' confidence in undertaking self-managed practical projects.	Team Design Project L5 prepares students for their role as professional engineers in a number of ways, including: • Detailed study of project planning and networking techniques• Planning and preparation for the major project at L6• Introduction to systems thinking• CV writing, evaluation and interview techniques.	Innovation and Enterprise – this module develops skills required to manage the process of gathering, analysing, criticizing and disseminating information which students will use in their engineering career.A series of weekly lectures in S1 provides students with guidance and practical advice to further develop specific skills such as information searches, referencing, software documentation, data presentation, and practical design, prototyping and testing. This module also develops project management skills of students.	At level 7 the Technical, research and professional skills module further develops skills required to manage the process of gathering, analysing, criticizing and disseminating information which students will use in their engineering career. Students are taught how to perform a feasibility study on an engineering project within their degree discipline.

4 Supporting the development and recognition of skills through research projects and dissertation work.	A team project in Design and Practice concentrates on the processes necessary to produce and market an electronic product.	Mini-projects, assignments and dissertations are featured in modules at L5, including: Electrical Machines and Power Electronics L5, Circuits, Signals and Systems L5, Electrical Services for Buildings L5. Team Design Project module specifically tasks a team of students to take a project from requirements through to design solution within their selected degree discipline.	The main individual Project will require the student to develop and demonstrate skills including: • Project planning and time management • Keeping a detailed project log book • Technical report writing and presentation • Preparation of material and participation in an oral technical presentation session with other students and staff • Preparation for an individual oral examination (viva). All of these components form part of the project assessment in addition to the technical aspects.	At level 7, the group project where students Work as a part of a team to carry out a challenging and complex engineering design or investigation, through exploiting the expertise within a team and making informed judgements based on current engineering knowledge and 'state of the art' industrial practice. They further develop their skills to, • Project planning and time management • Keeping a detailed project log book • effectively communicate and critically evaluate observed results in a technical format.

5 Supporting the development and recognition of career management skills.	Students have an introduction to the engineering profession and professional bodies in Design and Practice.	Students attend a presentation about industrial placements and are given additional support to prepare their CV for potential placements. Additional preparation sessions are provided and students use the Careers office support services for interview training etc.	The IET representative gives a lecture on the graduate advantage to final year BEng students	The IET representative gives a lecture on the graduate advantage to final year MEng students
6 Supporting the development and recognition of career management skills through work placements or work experience.	CDs make students aware of potential sandwich placements.	The Industrial Training Officer (ITO) assists students to obtain sandwich and summer work placements. The ITO visits students during their placement and they must maintain a daily log and compile a reflective and evaluative final report. They attend the placement meeting (see 5 above) to feedback to the following year's students. There is an exchange agreement with Hochschule Bremen and BEng students can spend their placement year in Germany.		

7 Supporting the development of skills by recognising that they can be developed through extracurricular activities.	The Widening Participation Module (WPU) gives talks to student cohorts to encourage individuals to join the University Student Ambassadors scheme and the Mentoring scheme in local schools. The department maintains a course Blackboard site including information about professional bodies and this is open to all students throughout their course. Students are encouraged to start their own 'clubs' and laboratory facilities and specific notice-boards are made available for this.	Students can study a language to prepare for exchange courses with overseas links.		
8 Supporting the development of the skills and attitudes as a basis for continuing professional development.	Students are encouraged to join the relevant professional body for the course.	See L4	Students are made aware of the need for CPD in the level 6 module Innovation and Enterprise	Students are further reminded of the need for CPD in the level 7 module Technical, research and professional skills
9 Other approaches to personal development planning.	At Level-4 the personal tutoring initiative will facilitate the student to start thinking and discussing his PDP with his personal tutor,	At Level-5-7, there are more opportunities to gain employable skills in addition to the core skills and knowledge gained by the student as part of his journey on his chosen course. The student is expected to maintain a log of these so as to be able to reflect in his CV appropriately. The course director usually becomes the mentor in this aspects as the student progress to the specialist areas. Module like Team Design Project at L5, Individual project at L6 and Group Project at L7 greatly contribute to this.		

10 The means by which self-reflection, evaluation and planned development is supported e.g. electronic or paper-based learning log or diary.	Students must keep a personal technical logbook for each module with a laboratory or computer workshop component. This is marked periodically and returned with comments and advice. At L4 this forms the basis of the majority of the coursework mark in technical modules.	See L4. The logbook may form part of the coursework in some modules but this is supplemented by formal reports, mini-projects, and dissertations in most technical modules.	Project students meet their supervisors at least once/fortnight where progress is monitored and objectives are discussed.In the individual Project students are expected to keep a logbook, which provides a platform for skills development.	This module requires the inputs of both technical and business elements. Course directors will arrange for students to form teams and will help to allocate staff to act as team supervisors throughout the module. Staff will hold regular meetings with each group to assist and guide. Students will be encouraged to use staff as a resource, as well as other facilities available within and outside the University.

Appendix D: Terminology

[Please provide a selection of definitions 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]

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
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

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
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 earning
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
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)
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