EST 1892 LSBU

Course Specification

<table>
<tr><th colspan="4">A. Course Information</th></tr>
<tr><td>Final award title(s)</td><td colspan="3">BEng (Hons) Chemical Engineering</td></tr>
<tr><td>Intermediate exit award title(s)</td><td colspan="3">CertHE Chemical Engineering
DipHE Chemical Engineering</td></tr>
<tr><td>UCAS Code</td><td></td><td>Course Code(s)</td><td>6008
6012 (Foundation)</td></tr>
<tr><td></td><td colspan="3">London South Bank University</td></tr>
<tr><td>School</td><td colspan="3">☐ ASC ☐ ACI ☐ BEA ☐ BUS ☒ ENG ☐ HSC ☐ LSS</td></tr>
<tr><td>Division</td><td colspan="3">Chemical and Energy Engineering</td></tr>
<tr><td>Course Director</td><td colspan="3">Dr Maria Centeno</td></tr>
<tr><td>Delivery site(s) for course(s)</td><td colspan="3">☒ Southwark ☐ Havering
☐ Other: please specify</td></tr>
<tr><td>Mode(s) of delivery</td><td colspan="3">☒Full time ☐Part time ☐other please specify</td></tr>
<tr><td>Length of course/start and finish dates</td><td colspan="3"><table><tr><th>Mode</th><th>Length years</th><th>Start - month</th><th>Finish - month</th></tr><tr><td>Full time</td><td>3</td><td>September</td><td>July</td></tr><tr><td>Full time with placement</td><td>4</td><td>September</td><td>July</td></tr><tr><td>Full time with Foundation Year</td><td>4</td><td>September</td><td>July</td></tr></table></td></tr>
<tr><td>Is this course suitable for a Visa Sponsored Student?</td><td colspan="3">☒ Yes ☐ No</td></tr>
<tr><td rowspan="3">Approval dates:</td><td colspan="2">Course Validation date</td><td>Aprill 2024</td></tr>
<tr><td colspan="2">Course Review date</td><td>April 2025</td></tr>
<tr><td colspan="2">Course specification last updated</td><td>September 2024</td></tr>
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Professional, Statutory & Regulatory Body accreditation	Institution of Chemical Engineers (IChemE). Re-Accreditation planned for 2024/25 academic year PSRB accreditation will apply to Levels 4-6 only and not Foundation Year.	
Reference points:	Internal	Corporate Strategy 2020-2025 Academic Quality and Enhancement Guidance School Strategy Undergraduate Curriculum Framework 2022 LSBU Academic Regulations
	External	OfS Guidance Framework for Higher Education Qualifications FHEQ Outcome Classification Descriptions Level 6 Subject Benchmark Statements: Engineering (2019) The Accreditation of Higher Education Programmes (AHEP-4 2021) IChemE University Accreditation Guide SEEC Level Descriptors 2021 Competitions and Markets Authority QAA The UK Quality Code for Higher Education
B. Course Aims and Features		
Distinctive features of course	The **Foundation year** is distinctive in the way students are prepared with the specific knowledge and skills required to progress onto the BEng programme at LSBU. The foundation year is designed to respond to the differing needs of students, particularly those from local areas in accordance with the policies and practice of equal opportunities. The content is designed to help students to develop academic, study and practical skills needed at foundation level, including a combination of core engineering modules associated with the provision of study and laboratory skills, mathematics, engineering science and scientific principles and with the specialist engineering subject enabling students to progress to the BEng Chemical and Chemical and Energy Engineering courses offered by the Division of Chemical and Energy Engineering. The **BEng in Chemical Engineering** is distinctive in that it teaches the theory of chemical engineering coupled with computer simulation, laboratory practice and industrial placement that	

	enable graduates to be well equipped with desired skills sought after by employers. This UG Chem Eng programme has the added value of introducing topics that are important for the future energy mix including both oil & gas and renewables. In the first year, students are introduced to basic engineering principles for problem solving by learning mathematics, computer simulations and process design. The second-year focusses on core unit operations and functionalities in processes such as fluid mechanics, thermodynamics, chemical reactions, mass-and heat transfer, process control, separation methods, control and process simulation. After two-years study, the students can opt to having one-year industrial placement. In the final year, students are trained in a more advanced level of process safety, control systems, reaction- and process engineering, environmental management and clean technologies for process and energy. In the project design module, the students apply all the knowledge gained in their previous years into a final year process design project, covering from raw material input to final desired product output.
Course Aims	The aims of the **Foundation year** are: 1. To provide students with the academic and pastoral support to enable them to achieve the foundation content and progress to the BEng. 2. To deliver a content that include study and laboratory skills in an engineering environment offering the best possible opportunity for students to develop their practical, intellectual and personal skills. 3. To fosters students' enthusiasm for their specialist subject, enabling them to develop intellectual, personal, practical and transferable skills as a sound basis for progression into work or further study. 4. To give students an adequate level of scientific and numerical literacy, so that they can thus approach the more advanced content offered by the BEng course. 5. To integrate practical and theoretical aspects of the subject disciplines offered. 6. To develop students' practical scientific skills whilst promoting safe laboratory practices, enabling them to become confident technically proficient and responsible scientists.

	7. To promote student appreciation of the need to work with accuracy, precision and reproducibility, with due regard for the need for accurate and verifiable records. 8. To enable students to continue to develop their range of skills and understanding of modern analytical methods, beyond this course. The **BEng Chemical Engineering** aims to: 1. Produce graduates trained in the core discipline of chemical engineering including mass and energy conversions, reaction engineering, and project management. 2. To produce BEng graduates who are equipped with the relevant understanding, skills and knowledge, required to operate effectively in chemical and energy engineering. 3. Produce graduates capable of contributing to the profession of chemical engineering in the context of modern industrial practice and sustainable development. 4. To enable students to develop an understanding of relevant disciplines associated with chemical engineering in order to operate in multidisciplinary teams. 5. Develop students' knowledge of mathematic problem solving, applied sciences, engineering methods and process health, safety & environment in support of the central themes of the course. 6. Develop students' intellectual and reasoning powers, their ability to perceive the broader perspective, and their problem-solving skills through the integration of a broad range of subject material. 7. Teach students to communicate clearly, to argue rationally and to draw conclusions based on an analytical and critical approach to data and systems. 8. To encourage the development of personal qualities and professional competences of chemical engineers with an emphasis for energy, environment and sustainability 9. Develop the transferable skills expected of an honours graduate who will work in multi-disciplinary teams with technical, commercial and management staff, in industrial and other occupations.

Course Learning Outcomes	**Foundation Year** a) Students will have knowledge and understanding of: A1. subject knowledge underpinning the major disciplines in engineering. A2. experimental methods and the development and testing of hypotheses. A3. methods used in the analysis, evaluation and critical review of evidence in engineering. A4. processes and procedures in sampling, data analysis and expressing precision, accuracy, and reproducibility. b) Students will develop their intellectual skills such that they are able to: B1. understand the role of rational argument. B2. appreciate the key features of a problem and suggest possible means of investigation. B3. be aware of the significance of hypotheses, experimental data and rational arguments. B4. apply a theory, concept, or subject-specific principle to a new context. c) Students will acquire and develop practical skills such that they are able to: C1. demonstrate safe practices and advise on safety procedures associated with a particular technique or methodology. C2. evaluate alternative methodologies for an investigation or completing a process. C3. organise and allocate duties, set targets, and evaluate progress in achieving a specific technical goal. C4. present data in a seminar or lecture C5. demonstrate competence in a range of basic statistical procedures. C6. demonstrate competence in the use of word-processors, spreadsheets, and data presentation packages. d) Students will acquire and develop transferrable skills such that they are able to: D1. manage and adapt their work schedule and learning strategy. D2. adopt skills and techniques to address a particular problem.

	D3. be aware of the full range of sources of information, citing references properly. D4. appreciate the need and begin to communicate ideas, arguments and concepts in a rational and systematic way, using a variety of media; D5. assume responsibility for their own learning and work independently. D6. manage and monitor their role within a group working to meet specific targets. **BEng Chemical Engineering** a) Students will have knowledge and understanding of: A1. Mathematics, science and engineering underlying the practice of chemical engineering. A2. The interactions involved in chemical engineering systems and respective analytical and computational tools to deal with these. A3. The scope of chemical engineering from molecular to large scale. A4. The economic, management and statutory requirements involved in the practice of chemical engineering. b) Students will develop their intellectual skills such that they are able to: B1. Use mathematics, science and engineering skills to support theoretical and practical analysis of process operations. B2. Employ concepts from the applied and engineering sciences & technology, to creatively design industrial processes and operational equipment. B3. Show awareness of the importance of scale-up engineering skills to apply in process design work. B4. Use fundamental engineering skills and knowledge to investigate new and emerging technologies. B5. Extract data pertinent to an unfamiliar problem, and apply it in problem solving, by using computer-based tools when appropriate. B6. Integrate engineering principles of a multi-disciplinary nature to propose solution to problems. B7. Apply management and business practices appropriately. B8. Produce engineering solutions which are consistent with ethical and social responsibilities.

	c) Students will acquire and develop practical skills such that they are able to: C1. Use computers aided tools and relevant software in quantitative and analytical problem solving, as well as general information and data sourcing. C2. Plan and manage work both individually and in teams by communicating effectively using appropriate media. C3. Evaluate designs and process systems to identify areas of potential hazard and environmental threat and propose improvements. C4. Use laboratory, and relevant analytical tools to provide data in supporting the theoretical understanding. C5. Analyse and solve engineering problems, often based on limited and imperfect data by critically apply scientific evidence-based methods in the solution of problems. C6. Apply principles of project planning and management. d) Students will acquire and develop transferrable skills such that they are able to: D1. Manipulate, sort and present data in useful and understandable form by selecting, interpreting and validate data to identify possible errors and inconsistencies D2. Clearly communicate the findings of experiments, projects and other assignments in written reports, oral, and visual presentations. D3. Work effectively in a team and recognising the roles played by different team members. D4. Manage own responsibilities, including time and task management. D5. Undertake self-development and the capacity to learn. D6. Identify and solve problems in both familiar and unfamiliar situations. D7. Adapt to working environment changes.

C. Teaching and Learning Strategy

Foundation Year

Laboratory skills and technical proficiency in analytical methods (A2, A3 and A4) are initiated in the first semester, specifically in the modules Study & Laboratory Skills and Scientific Principles for Engineering, they are then further developed (often involving more subject-specific techniques) in the second semester specialist stream module. These key modules concentrate on practical exercises that students must complete to demonstrate competence.

Diagnostic tests in Study & Laboratory Skills, undertaken within the first few weeks after the star of semester one as part of the module “Study and Laboratory Skills”, allow an assessment of student ability in Mathematics and English, and this module also begins the student’s induction into the scientific method (A2 and A3). A schedule of personal tutoring monitors student progress especially during the first year and is informed by student progress on the Study & Laboratory Skills module, beginning with the outcomes of the initial diagnostic tests.

All modules employ a variety of teaching and learning methods that encourage students to consider and challenge the evidence with which they are presented. Very often, the assessment schedule encourages students to question some key concept or principle. This may be formally assessed or simply be part of group discussions, debates or as part of some problem-solving exercises. Problem-solving exercises typically require students to work individually or collectively by applying their understanding of current thinking or methodologies to a new context (B2, B4).

The second semester coursework is seen as an important part of assessment to measure the student’s ability to integrate their developed scientific and numerical literacy skills with a properly devised methodology to enable them to investigate a subject area closely linked to their intended field of undergraduate study (B3, B4). The student will develop their coursework topic in consultation with the module leader (B2, B3) and are likely to have to address methodological problems to bring the project to completion (B2).

Safe practice in laboratories begins with the first semester module Study & Laboratory Skills and is further reinforced through the stream specialist module in semester two (C1, C3). These modules develop confidence in the laboratory and relate experimental activities to scientific understanding.
In all modules there are some methodological components and techniques, even if there is no practical element associated with the teaching and learning, coursework exercises are used in some modules to assess student understanding of these techniques, often as part of a tutorial or group-work session.

A key emphasis of the integrated foundation year is the development of the student's practical and analytical skills through both subject-specific and generic practical. Students are inducted into teamwork skills in the Study & Laboratory Skills module and part of their assessment of this module is to produce a reflective account of their experiences in the laboratory (C1). Students are encouraged to consider alternative ways to approach specific problems, or to address specific questions (C1, C2, C3), typically through their practical work. This way student is able to build their confidence in their technical and practical skills and reinforce the basic concepts delivered in the associated lecture programme. The stream specialist module integrates many of the previous learned skills, and also requires the students to analyse and present their data in a standard scientific manner. Student must organise their schedule of work in consultation with the module leader and bring their project to conclusion with a properly presented report (C3-C6).

The required skills are fully mapped through the curriculum, and each is met by the combination of modules undertaken. A number of tasks assessed in both the Study & Laboratory Skills and Scientific Principles for Engineering modules measure their progress in managing their own learning (D1, D5) and to work effectively as part of a team (D6). These all require a flexible approach to data acquisition, interpretation and presentation, not least because of the range of topics being covered (D1). Presentations and seminars are used extensively in semester 2. The second semester project work again is seen as serving an important test of many of these skills (D1-D5).

All students are allocated a personal tutor on initial enrolment to the course. The personal tutor is the point of contact for all matters relating to the student's welfare and progress whilst at London South Bank. The personal tutors are supported by the course director. All tutees will meet their course team at the start and throughout the course. The primary teaching contact with students, in classrooms, laboratories and workshop, is supported by online resources available on the VLE Moodle for each module. For their general understanding of the course, students can access a course guide and a summary of the syllabus; these are updated annually and available online.

For each module, the module leader provides a module guide. Students have access to books in the library, based on the information of core and optional resources recommended in the reading list available for each module.

BEng (Hons) Chemical Engineering

A. Lectures, tutorials and laboratory practical, especially at Level 4, cover A1. The behaviour of systems, A2, is introduced in classes at all levels, and is a feature of Design Project work. The Design Project work also shows the scope of the discipline, A3.

Much of the understanding of A4 will be gained in specific modules, mainly at levels 5 and 6. Statutory requirements, including safety, feature throughout the course, in practical work in particular.
Students are encouraged to attend the seminars/event such as those organised by IChemE. Also, invited speakers will deliver presentations at LSBU on relevant and current topics in chemical engineering.

B. Most of the curriculum will support B1-B8; These intellectual skills learning outcomes are developed through lectures, individual and group problem-based work, including the Design Project. In private study, students will develop skills by writing laboratory reports, and solving problems set by the tutor or in past examinations, case studies, and projects.
Learning outcome, B5, is developed in computer laboratory sessions embedded in modules and projects.

C. Learning outcomes in C1 are developed in computing skills for engineering and science in practical workshops at level L4 and L5. Students also learn the principles and study the application of specialist engineering packages at L6.
C2 and C3 will be major part of small projects embedded in some modules and in the Design Project where students will receive guidance on application of principles studied earlier.
C4 will be acquired in practical workshop and laboratory sessions.
The final year Design Project, L6, will be open-ended, developing the outcomes C5 and C6.

D. D1 is developed in laboratory practical work and design tasks; students for example obtain data from handbooks and computer databases, and use it in calculations, graphical solutions, and computer applications.
D2 and D3: report-writing and team-working skills are developed in laboratory and project-oriented modules throughout the course. D4-D7 developed along the course.

Virtual Learning Environment (VLE)
Each course has a course site on the VLE, where relevant information is posted by the respective Course Director. Each module on the course has a Module site on the VLE and all relevant teaching and learning material such as module guides, lecture notes, teaching slides, tutorial and seminar sheets, workshop exercises, past exam papers, assignments, supplement material etc. are made available by the module leader. The VLE is based on the Moodle platform, and can be accessed using the Windows OS login credentials, and from any internet-connected PC inside or outside of the LSBU campus.

D. Assessment

A. Summative assessment: Content, knowledge and understanding is assessed through coursework, or coursework and examination. Coursework can take many forms (based on the practical or theoretical content of the module) including essays, reports, group work, oral presentations, production of posters, and in-class tests. Examinations normally take the form of a 2 or 3-hour unseen end-of-semester paper.

Formative assessment: tutorials exercises, simulation exercises, discussions in classroom, questions and answer sessions, peer discussions, observations, reflection on learning, presentation rehearsals.

B. Intellectual skills are normally assessed through formal examinations, student presentations and individual viva voce examination. Preparation of laboratory and project reports and coursework assessments will also contribute.

C. C1 will be assessed through computing assignments, C2-C6 as parts of the major project assessment, and C4 in the marking of laboratory reports. C5-C6: projects will be marked for a critical approach to problem-solving.

D. A variety of assessment methods are used to assess transferable skills. These include computer laboratory exercises and simulations, oral presentations, written reports, and final project.

For instance: D1 is assessed in many of the written examination papers, also laboratory and project reports. Laboratory teachers give students considerable feedback on the quality of written laboratory reports, D2; students discuss this feedback with their personal tutors. D3, the effectiveness of teamwork is assessed as an element in the major design project.

E. Academic Regulations

1. Assessment regulations

The University's Academic Regulations apply for this course. For course specific protocols and intermediate exit awards please refer to the School of Engineering /Division of Chemical and Energy Engineering protocol document.

Students enrolled onto the BEng course may be offered an opportunity to transfer to the MEng course, after completing level 5, if they fulfil the following criteria:

1. Students must have passed all 120 credits at level 4 (no compensations)
2. Students must have passed all 120 credits at level 5 (no compensations)
3. The average percentage grade from level 4 and level 5 modules must be 55% or more

Support for Students: The University places a high priority on providing support for students. This support is provided by a combination of services, both centrally in the University and locally at the programme level. Much of the support focuses on developing students' skills to enhance their performance on the programme and to facilitate their transition to employment.

1.1 Programme and course level support:

All students are allocated a personal tutor on initial enrolment to the course. The personal tutor is the point of contact for all matters relating to the student's welfare and progress whilst at London South Bank. All tutees will meet their tutor at the start of the course.

The primary teaching contact with students, in classrooms, laboratories and workshop, is supported by print and by electronic material. For their general understanding of the course, students receive a Course Guide and a summary of the syllabus; these are updated annually. For each module, the module leader provides a Module Guide. Subject tutors provide further material as appropriate, including course notes, supporting information and reprints, problem sets, assignment briefs and experiment instructions. Students have access to books in the Library and may obtain copies of past exam papers. All guides and support are found on LSBU's Virtual Learning Environment (VLE).

A programme of industrial visits is included with the aim of introducing students to chemical industries in the UK.

All students are encouraged to take the industrial placement option. Students who complete placements have reported that the experience is invaluable in future employment. Students will find more information on placements via LSBU's Careers Hub

A sandwich placements co-ordinator in Division for Chemical and Energy Engineering will organise placement information events in-class.

The major projects taken by final year degree students have strong industrial orientation. External speakers from industry are invited to visit during the year to give students an

appreciation of industrial technology and practice and, for example, the importance of HAZOP in process industry.

1.2 Student Life Support

Student Life Support- Is the main centre which provides a wide range of personal and academic services to students and works with other departments and faculties in the University to ensure that the services offered meet the needs of students, see below for more breakdown of services. All these services, such as accommodation, enrolment practical information is based on 103 Borough Road, the main campus in Southwark. Some services are provided in the evening. Information about all services is included on the website: https://www.lsbu.ac.uk/student-life
Skills for Learning Centre – offers students a range of interactive workshops, one-to-one tutorials and drop-in sessions delivered by experienced learning developers.

The Academic Practice and English Language team provide guidance to maximise your reading, writing, and thinking, and the Maths and Stats team deliver tailored support to refresh and improve your numerical, mathematical or statistical knowledge.
https://www.lsbu.ac.uk/student-life/student-services/learning-resources

The Employability Team – helps students to access job opportunities and experience the world of work. The team support students an opportunity to undertake a work placement, internship or other professional experience or study abroad during their degree. The Employability Team deliver free employability workshops for students all year round on a variety of employment related topics.

https://www.lsbu.ac.uk/student-life/student-services/student-employability

Careers Hub- Covers a variety of career guidance: Tailoring CVs, cover letters and job applications, one-to-one mock interviews, temporary jobs, placement and internship opportunities and graduate roles. Also supports in sourcing relevant employability related online resources and services.

Personal Development and Advice – an advisory service to discuss personal concerns or difficulties during their programme which might affect their personal development and academic performance, support for students with disabilities including dedicated dyslexia support, chaplaincy to provide confidential pastoral care.

Disability & Dyslexia Support (DDS) https://www.lsbu.ac.uk/student-life/student-services/disability-dyslexia-support

Health and Wellbeing Support https://www.lsbu.ac.uk/student-life/student-services/health-wellbeing

2. Quality indicators

Accreditation is by the professional body Institution of Chemical Engineers IChemE as meeting the educational requirements for Chartered Engineers at BEng(Hons) level.

A course board, made up of staff and student representatives from each year of the course, meets at least once per term to discuss issues to do with learning and teaching and course developments. The course board is convened and chaired by the course director.

The course is reviewed at an annual meeting of teaching staff. The review considers the progression statistics for the individual modules, students' end of module questionnaires (MEQ) and external examiners' comments. Based on these, modifications to modules and the course are proposed and where necessary, submitted to the School Academic Standards Committee for approval. The course is monitored through the annual course development plan for Chemical and Energy Engineering courses.

F. Entry Requirements

Foundation Year:

Entry requirements:

- A Level DD or;
- BTEC National Diploma MPP or;
- Access to HE qualifications with Pass or;
- Equivalent level 3 qualifications worth 64 UCAS points across all subjects.
- Applicants must hold 5 GCSEs A-C including Maths and English or equivalent (reformed GCSEs grade 4 or above).
- We welcome qualifications from around the world.
- English language qualifications for international students: IELTS score of 6.0 or Cambridge Proficiency or Advanced Grade C.

BEng (Hons) Chemical Engineering:

In order to be considered for entry to the programme applicants will be required to have:

- A Level (BBB) or;
- BTEC National Diploma (DDM) or;
- Access to HE qualifications with 24 x Distinctions 21x Merits or;
- Equivalent level 3 qualifications, worth 128 UCAS points, that must include mathematics and a science related subject.
- Applicants must hold 5 x GCSEs A-C including Maths and English or equivalent (reformed GCSEs grade 4 or above).

Equivalent international qualifications can be accepted. English language qualifications for international students: IELTS score of 6.0 or Cambridge Proficiency or Advanced Grade C.

G. Course structure(s)

	Semester 1		Semester 2	
Level S	Applied Mathematics 1	20 credits	Mathematics for Engineering	20 credits
	Scientific Principles for Engineering	20 credits	Engineering Science	20 credits
	Study & Laboratory Skills	20 credits	Chemistry and Applications	20 credits

Course overview

- The Integrated foundation year consists of 6 modules with a total value of 120 credits at level S.
- BEng (Hons) degree programme consists of modules with a total credit value of 360 credits across levels 4, 5 and 6.
- The 360 credits comprise 20 credit modules and a project module of 40 credits at level 6.
- Each year the students need to complete 120 credits.

Foundation Year

BEng (Hons) Chemical Engineering

	Semester 1		Semester 2	
Level 4	Engineering Mathematics and Modelling		Engineering Mathematics and Modelling	20
	Design and Practice		Design and Practice	20
	Mass and Energy Balances	20	Computing for Chemical Engineering	20
	Engineering Principles	20	Materials and Thermofluids	20
Level 5	Advanced Eng Mathematics and Modelling		Advanced Eng Mathematics and Modelling	20
	Thermodynamics		Thermodynamics	20
	Separation Processes	20	Principles of Control	20
	Kinetics and Reaction Engineering	20	Process Design and Simulation	20
	Optional Placement Year			
Level 6	Design Project		Design Project	40
	Separation and Reactor Design	20	Process Control and Compressible Fluids	20
	Process Safety and Environmental Management	20	Sustainability and Process Integration	20

Placement information

Students can take one year placement after completing Level 5 modules. When placement vacancies are available, students will be notified by announcements in Moodle or via engagement with Career Hub The students are encouraged to find likely industrial placement by any means, where support are provided by the Career Hub team.

H. Course Modules and Assessment

Foundation Year

Module Code	Module Title	Level	Semester	Credit value	Assessment
CEE_S_AM1	Applied Mathematics 1	S	1	20	CW
CEE_S_SPE	Scientific Principles for Engineering	S	1	20	CW&Exam
CEE_S_SLS	Study & Laboratory Skills	S	1	20	CW
CEE_S_MFE	Mathematics for Engineering	S	2	20	CW
CEE_S_ESC	Engineering Science	S	2	20	CW
CEE_S_CAP	Chemistry and Applications	S	2	20	CW

BEng (Hons) Chemical Engineering

Module Code	Module Title	Level	Semester	Credit value	Assessment
EEE_4_EMM	Engineering Mathematics and Modelling	4	1&2	20	CW&Exam
MED_4_DAP	Design & Practice	4	1&2	20	CW
CEE_4_EGP	Engineering Principles	4	1	20	CW
CEE_4_MEB	Mass and Energy Balances	4	1	20	CW
CEE_4_CCE	Computing for Chemical Engineering	4	2	20	CW
CEE_4_MMF	Materials and Thermofluids	4	2	20	CW
MED_5_AMM	Advanced Eng Mathematics and Modelling	5	1&2	20	CW&Exam
CEE_5_TMD	Thermodynamics	5	1&2	20	CW
CEE_5_KRE	Kinetics and Reaction Engineering	5	1	20	CW&Exam
CEE_5_SEP	Separation Processes	5	1	20	CW&Exam
EEE_5_POC	Principles of Control	5	2	20	CW&Exam
CEE_5_PDS	Process Design and Simulation	5	2	20	CW
CEE_6_DEP	Design Project	6	1&2	40	CW

CEE_6_SRD	Separation and Reactor Design	6	1	20	CW&Exam
CEE_6_PEM	Process Safety and Environmental Management	6	1	20	CW&Exam
CEE_6_SPI	Sustainability and Process Integration	6	2	20	CW
CEE_6_PCC	Process Control and Compressible Fluids	6	2	20	CW&Exam

I. Timetable information

Students will be able to access a full timetable for the course from the start of semester and will be notified of any changes. Maximum effort is made to leave at least one afternoon/day free from timetable.

J. Costs and financial support

Course related costs

- Although all core books can be found in the library or online as free e-books, the student may wish to buy core reading material for each module. There are also costs associated with printing during the course, workshop laboratory coats and protective eyewear, clothing required for industrial work placements, which are not covered.

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

Appendix C: Terminology

Appendix A: Curriculum Map

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

Foundation Year

Modules			**Course outcomes**																		
Level	**Title**	**Code**	**A1**	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**	**D1**	**D2**	**D3**	**D4**	**D5**	**D6**
S	Scientific Principles for Engineering	CEE_S_SPE	DTA		DTA		D		DT	DT	DT	D				DT	D	D	D		D	
S	Study and Laboratory Skills	CEE_S_SLS		DTA	DTA	DTA	DT	D	DTA		DTA	DT	DTA	DTA	DTA	DTA	DTA	DTA	DTA	DTA	DTA	DTA
S	Applied Mathematics 1	CEE_S_AM1	DTA			D		DT									D	D			DT	
S	Mathematics for Engineering	CEE_S_MFE	DTA			DT		DT							DTA		D				DT	

S	Engineering Science	CEE_S_ESC	DTA			DT	D	DTA		DT		D				DT	D				
S	Chemistry and Applications	CEE_S_CAP	DTA	DTA		DTA	DTA	DTA		DTA		DTA	DTA				DTA	DTA	D	DTA	DTA	D

T: Taught; D: Developed; A: Assessed

BEng (Hons) Chemical Engineering

Module			Course Outcomes																								
Level	**Title**	**Code**	**A1**	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**C1**	**C2**	**C3**	**C4**	**C5**	**C6**	**D1**	**D2**	**D3**	**D4**	**D5**	**D6**	**D7**
4	Engineering Mathematics and Modelling	EEE_4_EMM	TDA	TDA	TDA		TDA	TDA	TDA	TDA											TDA		TDA				
4	Design & Practice	MED_4_DAP		TDA			TDA	TDA	TDA	TDA	TDA	TDA		TDA	TDA	TDA		TDA	TDA	TDA	TDA	TDA	TDA	TDA			
4	Engineering Principles	CEE_4_EGP	TDA	TDA			TDA	TDA								TDA	TDA	TDA			TDA	TDA	TD		TD	TD	
4	Mass and Energy Balances	CEE_4_MEB	TDA	TDA	TDA		TDA	TDA			TDA				TDA				TDA		TDA	TDA	TDA				
4	Computing for Chemical Engineering	CEE_4_CCE	TDA	TDA			TDA	TDA	TDA		TDA				TDA	TDA			TDA		TDA	TDA	TDA	TDA			
4	Materials and Thermofluids	CEE_4_MMF	TDA				TDA					TDA				TDA	TDA	TDA	TDA		TDA	TDA	TDA				

5	Advanced Eng Mathematics and Modelling	MED_5_AMM	TDA	TDA	TDA		TDA	TDA	TDA	TDA											TDA						
5	Thermodynamics	CEE_5_TMD	TDA		TDA		TDA	TDA										TDA	TDA			TDA	TD				
5	Kinetics and Reaction Engineering	CEE_5_KRE	TDA	TDA			TDA	TDA									TDA	TDA	TDA			TDA	TDA	D		D	
5	Separation Processes	CEE_5_SEP	TDA	TDA			TDA	TDA							TDA			TDA	TDA		TDA	TDA		D		D	
5	Principles of Control	EEE_5_POC	TDA	TDA	TDA		TDA	TDA							TDA	TDA	TDA	TD	TD				TD			D	
5	Process Design and Simulation	CEE_5_PDS	TDA	TDA	TDA	TDA	TDA	TDA			TDA		TDA		TDA	TDA			TDA		TDA	TDA	DA	DA			
6	Design Project	CEE_6_DEP		DA	DA	DA	DA	DA	DA	DA	DA	DA	DA	DA	DA	DA	DA		DA	DA	DA	DA	DA	DA	DA	D	D
6	Separation and Reactor Design	CEE_6_SRD	TDA	TDA			TDA	TDA											TDA			DA	DA				

6	Process Safety and Environmental Management	CEE_6_PEM	T D A		T D A	T D A	T D A				T D A	T D A		T D A			T D A		T D A	D A	D A	D A			D	D	
6	Sustainability and Process Integration	CEE_6_SPI	T D A	T D A	T D A		T D A			T D A		T D A			T D A	T D A			T D A		D A	D A	D A	D		D	
6	Process Control and Compressible Fluids	CEE_6_PCC	T D A	T D A	T D A		T D A	T D A							T D A		T D A		T D A		D A	D A	D A	D			

T: Taught; D: Developed; A: Assessed

Appendix B: Terminology

awarding body	a UK higher education provider (typically a university) with the power to award higher education qualifications
bursary	a financial award made to students to support their studies; sometimes used interchangeably
collaborative provision	a formal arrangement between a degree-awarding body and a partner organisation, allowing for the latter to
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
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

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.
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
lecture	a presentation or talk on a particular topic. In general lectures involve larger groups of students than seminars and
learning zone	a flexible student space that supports independent and social
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
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
national teaching fellowship	a national award for individuals who have made an outstanding impact on student learning and the teaching
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
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
scholarship	a type of bursary that recognises academic achievement and potential, and which is sometimes used interchangeably with
semester	either of the parts of an academic year that is divided into two for purposes of teaching and
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
summative assessment	formal assessment of students' work, contributing to the final
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
tutorial	one-to-one or small group supervision, feedback or detailed discussion on a particular
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
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