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">CertHE Software Development</td></tr>
<tr><td>Intermediate exit award title(s)</td><td colspan="3">None</td></tr>
<tr><td>UCAS Code</td><td></td><td>Course Code(s)</td><td>5822</td></tr>
<tr><td>Awarding Institution</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">Computer Science and Informatics</td></tr>
<tr><td>Course Director</td><td colspan="3">Lucia Otoyo</td></tr>
<tr><td>Delivery site(s) for course(s)</td><td colspan="3">☒ Southwark ☐ Havering ☐ Croydon<br>☒ Other: LSBTC</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>1</td><td>September</td><td>August</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>September 2021</td></tr>
<tr><td colspan="2">Course Review date</td><td>September 2026</td></tr>
<tr><td colspan="2">Course specification last updated and signed off</td><td>August 2023</td></tr>
<tr><td>Professional, Statutory & Regulatory Body accreditation</td><td colspan="3"></td></tr>
<tr><td>Link to Institute of Apprenticeship (IoA) Standard and Assessment Plan (Apprenticeship only)</td><td colspan="3">Aligned to Software Developer Occupational Standard (ST0116)<br>https://www.instituteforapprenticeships.org/apprenticeship-standards/software-developer-v1-1</td></tr>
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| | | |
|---|---|---|
| **Reference points:** | Internal | Corporate Strategy 2020-2025<br>Academic Quality and Enhancement Website<br>School Strategy<br>LSBU Academic Regulations |
| | External | QAA The UK Quality Code for Higher Education 2018<br>QAA Subject Benchmark Statement, Computing, October 2019<br>Framework for Higher Education Qualifications<br>ACM curricula for Computer Science 2013<br>SEEC Level Descriptors 2021<br>HTQ Software Developer Occupational Standard (ST0116) |

## B. Course Aims and Features

| | |
|---|---|
| **Distinctive features of course** | The Software Development CertHE course offers the opportunity to develop the knowledge, skills and behaviours necessary for the foundation of a career as a Software Developer or related occupation in the IT industry. It is based upon the first year of our BSc (Hons) Information Technology course and thus successful completion offers learners the opportunity to continue their studies to degree level by direct entry to the second year of that degree. Thus it is intended to be a practical qualification in its own right, with the flexibility to progress to degree study if learners wish to.<br><br>The emphasis is on developing a comprehensive understanding of sophisticated digital technologies focused on software development activities, and applying the knowledge and skills gained studying to real world projects.<br><br>The course actively promotes inclusion and diversity as well as the other values defined in the LSBU EPIIC Values (https://www.lsbu.ac.uk/about-us/mission-vision-values). |
| **Course Aims** | The Software Development CertHE course aims to:<br>1. produce learners who are equipped with the core knowledge and skills to design, develop, use and manage computer systems of diverse kinds.<br>2. provide fundamental practical programming skills to form the basis of continuing professional development in the field of software development.<br>3. provide a combination of theory, practical skills, knowledge and behaviours suitable for the professional role of software developer in a wide range of contexts<br>4. produce learners with the professional and ethical standards required for employment in the industry |
| **Course Learning Outcomes** | **A. Learners will acquire knowledge and understanding of:**<br>1. the foundations and contemporary development of theoretical computer science, computer hardware and application software |

| | |
|---|---|
| | 2. requirements analysis and the formal specification of computer systems<br>3. software development using a variety of software engineering techniques, design notations, development environments and programming languages<br>4. data encoding, storage, management and analysis<br>5. the fundamental issues related to robustness and security in systems, software and networks<br>6. social, ethical and legal issues which affect the development and use of information systems<br><br>**B. Learners will develop their intellectual skills such that they are able to:**<br><br>1. locate and make effective use of reference material including literature from academic, technical and professional sources<br>2. comprehend theoretical arguments in computer science<br>3. recognise likely future developments in computing based upon fundamental principles and evolving trends<br>4. evaluate and apply approaches to software development and systems design<br>5. collaborate effectively and professionally with technical and non-technical colleagues<br>6. analyse practical problems and propose appropriate and feasible technical solutions<br><br>**C. Learners will acquire and develop practical skills such that they are able to:**<br><br>1. design, develop, test and document software representative of contemporary programming practices and using professional development tools and techniques<br>2. analyse and specify requirements for the implementation of a range of computing and information systems<br>3. effectively use formal notations and graphical and numerical representations for data, processes and other relevant concepts<br>4. analyse systems for potential security weaknesses and propose mitigating measures that could be taken<br>5. comprehend the fundamental principles underpinning computer systems and use them to estimate limitations they impose and potential future advancements they might allow<br><br>**D. Learners will acquire and develop transferable skills such that they are able to:**<br><br>1. communicate effectively verbally and in writing<br>2. work effectively in teams |

| | |
|---|---|
| | 3. manage time and personal resources effectively<br>4. sustain self-directed learning to maintain continuing professional development |

## C. Teaching and Learning Strategy

**Overview of teaching and learning activities**

There will be a combination of lectures, tutorials and computer laboratory activities to inform, contextualise, discuss, analyse, explore and critically evaluate the material in order to enable students to assimilate the material and develop students' intellectual abilities around it.

The delivery will aim to ensure a balance of cognitive tasks involving the demonstration and application of factual knowledge, problem-solving, analysis and critique with practical exercises in computer laboratories to reinforce learning through direct experience. Practical applications and utilising real-world examples will be used wherever possible.

Modules exist to support the development of study and communication skills, to develop self-management skills and develop effective team-working. In addition, classroom activities in many other modules will be used to foster these abilities.

**Importance of independent learning**

Students are required to undertake directed self-study and prepare solutions/discussions to questions relative to various topic areas. Students will be encouraged to identify for themselves particular problems of difficulty and to use seminar discussions, where appropriate, for the resolution of these. Students must regularly access the Moodle site for this module. They should download the class/lecture material from the Moodle site, and do the recommended reading, before each lecture/class. Where appropriate, students are also expected to download the relevant seminar questions and study them in advance of each seminar, in order to derive maximum benefit from seminar time. The programme of teaching, learning and assessment gives guidance on the textbook reading required for each week, the purpose of which is to encourage further reading both on and around the topic.

Each 20-credit module has a total of 200 study hours, out of which there are 52 direct contact hours and 148 independent study hours.

**Subject-related and generic resources available**

Students will have access to approximately 200 PCs and 15 Macs in 10 teaching computer labs, which typically have the following ICT software facilities: Microsoft SQL Server, NetBeans with JDK, Oracle, Python, SAS, Visual Paradigm etc. Students also have remote access to AppsAnywhere which includes variety of software required within the course. Printers are available, including large format printers.

Generic resources include:

- Perry library - provides access to traditional books, journal sources, PCs to use and laptops to borrow. The Perry Library is open throughout the week, and during the term are staffed from 10am until midnight from Monday to Friday, and 10.00 to 16.30 at weekends. There is seating capacity for 600 students in the

library and the book-stock is in excess of 600,000 volumes. The building provides wireless access.

- The Students' Support Centre - provides a first stop service for students on academic, personal and financial matters. It is aimed at improving student experience and offers LSBU's best employability, development and student services. The centre also offers home to our Students' Union.
- Fitness - there is also a sports hall, fitness suite and gymnasium
- Catering - there is a large refectory, with a selection of smaller cafes and eating outlets on campus.

**Learning support**

We support students throughout their course in many different ways, such as:

- personal tutoring
- support sessions on core maths & programming skills taking place weekly
- peer student led support sessions
- practical skills workshops
- labs equipped with the latest hardware and software
- lectures, seminars, personal tuition
- online learning materials
- varied assessment methods
- advice on work experience and career options
- opportunities for work placements and projects with employers
- tailored field trips
- training in research methods and assistance with independent research projects.

**Teaching staff**

Many academics have standing with a professional body (e.g. BCS, HEA, IEEE), and either a research background or an industry experience in their teaching area. Some modules may be supported with postgraduate students, who will either support tutorials at a lower level or provide support on modules related to their research area. Module leaders together with the division management will establish the suitability of the teaching team and support and training will be provided where necessary to ensure quality of teaching is delivered.

**Virtual Learning for students**

Moodle, the university's Virtual Learning Environment (VLE) provides online resources and support for all students. It enables students with access to resources and tools to support their teaching and learning, ensuring that any student will have access to the same electronic curriculum resources irrespective of their location (on or off-campus).

The VLE also provides facilities such as on-line timetables, assessment submissions, lecture and tutorial resources, assessment results, as on-line timetables, lecture resources, course information, examination results, module selection and submission systems, revision tools, video, podcasts, module feedback, forums and other systems for both students and staff to support their courses.

The VLE is also used in collaboration with LinkedIn Learning, through which students have free access to a wide range of training materials supporting their course. Typically, the content from LinkedIn Learning is used via embedded links in the VLE (Moodle) to prescribe playlist sequences of audio/video and various media content in support of students learning.

During the COVID-19 pandemic we have developed online delivery techniques that are now used to augment on-campus teaching. We have been using MS Teams to deliver sessions and to record these. The videos are available to the students to watch at any time. The software also enables very effective communication with the students. We also use Panopto, video content management software for lecture recording, screen casting and uploading/embedding videos within our VLE, Moodle.

## D. Assessment

**Formative assessment**

Formative assessment is essential as it is effective in promoting student learning and it helps seek to determine how students are progressing through a certain learning goal. Wherever possible formative assessment will be used to allow students to gauge their own progress and address weak areas. Formative assessment will also provide assessors with the opportunity to learn about the extent to which students have developed expertise and can tailor their teaching accordingly.

Formative assessment will take different forms depending on the module level and type, but in general a selection and combination of the following will be used:

- class discussions
- verbal feedback on tutorial activities
- observation and questioning to provide instant feedback as the student takes part in learning activities
- self and peer assessment
- interactive revision quizzes

**Summative assessment**

For all modules summative assessment consists of 100% coursework. All modules have a 40% pass mark.

Students' acquisition of knowledge and understanding will be assessed by coursework tasks requiring the demonstration of such, including assessed practical tasks, report writing, in-class tests and presentations, individual and team-projects, etc. There is typically one formal coursework component per module, which may consist of two or more sub-components.

The timing of summative assessments are co-ordinated across the modules to ensure no excessive workload is required. See the appendices for a map of the assessment types and timings across the course.

**Progression**

Students must pass all modules in order to be eligible for the award.

## E. Academic Regulations

The University's Academic Regulations apply for this course. For course specific protocols please refer to the Divisional protocol document.

## F. Entry Requirements

- DD at A Level (64 UCAS points)

**or**

- BTEC National Diploma - MPP (64 points)

**or**

- One of the following T-Levels with a Pass (D or E) (72 UCAS points):
  - Digital Production, Design and Development
  - Digital Business Services
  - Digital Support Services

**or**

- Access to HE qualifications with at least 45 credits totalling 64 Tariff points;

  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 learners: IELTS score of 6.0 or Cambridge Proficiency or Advanced Grade C. (See http://www.lsbu.ac.uk/__data/assets/pdf_file/0019/9280/english-language-qualifications-general.pdf for full details of LSBU's English language requirements)

## G. Course Structure(s)

**Course overview**

The course is organized into two semesters, each lasting 15 weeks.
Semester one starts in September and Semester 2 in January.

The standard 'building block' of course delivery are modules – identified in size by CATS (Credit Accumulation and Transfer Scheme) credits. All module size across the course is 20 CATS credits.

This course is delivered as a full-time course over one academic year.

**Software Development CertHE – Full time**

| Year 1 | Semester 1 | | Semester 2 | |
|---|---|---|---|---|
| | Fundamentals of Computer Science, compulsory | 20 credits | Professional Practice, compulsory | 20 credits |
| | Discrete Mathematics, compulsory | 20 credits | Requirements Analysis and UCD, compulsory | 20 credits |
| | Fundamentals of Software Development, compulsory | 20 credits | Software Development, compulsory | 20 credits |

**Placement information**

Not applicable

## H. Course Modules

All modules are compulsory.

| Code | Module Title | Level | Sem | Credit | Assessment |
|---|---|---|---|---|---|
| CSI-4-PPR | Professional Practice | 4 | 2 | 20 | Coursework 100% |
| CSI-4-FCS | Fundamentals of Computer Science | 4 | 1 | 20 | Coursework 100% |
| CSI-4-FSD | Fundamentals of Software Development | 4 | 1 | 20 | Coursework 100% |
| CSI-4-DMA | Discrete Mathematics | 4 | 1 | 20 | Coursework 100% |
| CSI-4-SOD | Software Development | 4 | 2 | 20 | Coursework 100% |
| CSI-4-RAU | Requirements Analysis and User-Centred Design | 4 | 2 | 20 | Coursework 100% |

## I. Timetable Information

Students can expect to receive a confirmed timetable for study commitments as soon as possible. Students are usually expected to have 1.5 days per week teaching free.

## J. Costs and financial support

**Course related costs**

The course fee does not include the cost of text books or personal devices (student laptops). These items are not required for study as alternatives exist (including laptop loan service): All text books that are mandatory for study are usually available via the library in a free form (for example as e-books) and the computer labs provide the essential equipment. The costs of field trips are not included, but where a field trip is required for the purpose of study costs will not exceed typical transport costs within the London area.

**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**

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## Appendix A: Software Development CertHE – Assessment Map

| Module | Sem | Class Test | Practical Assignment | Written report | Presentation |
|---|---|---|---|---|---|
| Fundamentals of Computer Science | 1 | I (w5, 9, 14) | | | |
| Discrete Mathematics | 1 | I (w6, 10) | I (w15) | | |
| Fundamentals of Software Development | 1 | I (w7, 11) | I (w13) | | |
| Requirements Analysis and UCD | 2 | I (w7) | I (w13) | | |
| Professional Practice | 2 | | | I (w7) G (w12) | G (w13) |
| Software Development | 2 | I (w11) | I (w8, 12) | | |

I – individual, G – group, week numbers specified in brackets.
Weeks identified for assessments are indicative but may change as needed, while avoiding excessive workload for learners.

**Appendix B: 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.

| | | | Knowledge | | | | | | Intellectual | | | | | | Practical | | | | | Transferable | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Module** | **cr** | **1** | **2** | **3** | **4** | **5** | **6** | **1** | **2** | **3** | **4** | **5** | **6** | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** |
| L4 | Discrete Mathematics | 20 | ta | ta | | ta | ta | | ta | t | | | | ta | | | t | | ta | | t | | |
| L4 | Fundamentals of Computer Science | 20 | ta | ta | ta | ta | ta | | ta | ta | | | | | ta | | ta | ta | | | | | |
| L4 | Fundamentals of Software Development | 20 | t | ta | ta | t | | | | ta | | | | ta | ta | ta | ta | t | | | t | | t |
| L4 | Professional Practice | 20 | t | ta | ta | ta | t | ta | ta | ta | ta | t | t | | | | | t | | ta | ta | ta | ta |
| L4 | Requirements Analysis and UCD | 20 | ta | ta | ta | t | ta | t | ta | t | ta | ta | ta | ta | ta | | ta | ta | ta | ta | ta | ta | |
| L4 | Software Development | 20 | ta | ta | ta | t | | | | ta | | ta | | ta | ta | ta | ta | t | | ta | t | | t |

t = taught, a = assessed

## 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 |
|---|---|
| 1 Supporting the development and recognition of skills through the personal tutor system. | A personal tutor will be assigned to each learner from among the academic staff teaching on the course modules. |
| 2 Supporting the development and recognition of skills in academic modules/modules. | All modules |
| 3 Supporting the development and recognition of skills through purpose designed modules/modules. | Professional Practice |
| 4 Supporting the development and recognition of skills through research projects and dissertations work. | Professional Practice |
| 5 Supporting the development and recognition of career management skills. | Professional Practice |
| 6 Supporting the development and recognition of career management skills through work placements or work experience. | Opportunities for short internships. |
| 7 Supporting the development of skills by recognising that they can be developed through extra curricula activities. | Extra-curricula and capstone events |
| 8 Supporting the development of the skills and attitudes as a basis for continuing professional development. | Professional Practice, Requirements Analyisis and UCD |
| 9 Other approaches to personal development planning. | Professional Practice |
| 10 The means by which self-reflection, evaluation and planned development is supported e.g. electronic or paper-based learning log or diary. | Professional Practice |

**Appendix D: Terminology**

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

Some examples are listed below:

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

| | |
|---|---|
| **higher education provider** | organisations that deliver higher education |
| **independent learning** | learning that occurs outside the classroom that might include preparation for scheduled sessions, follow-up work, wider reading or practice, completion of assessment tasks, or revision |
| **integrated** | an integrated Master's degree combines undergraduate and postgraduate study. In relation to Apprenticeships, integrated would usually mean that the End Point Assessment (EPA) is integrated with the academic award |
| **intensity of study** | the time taken to complete a part-time course compared to the equivalent full-time version: for example, half-time study would equate to 0.5 intensity of study |
| **lecture** | a presentation or talk on a particular topic; in general lectures involve larger groups of students than seminars and tutorials |
| **learning zone** | a flexible student space that supports independent and social 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 |
| **pre-registration (HSC only)** | a pre-registration course is designed for students who are not already registered with an independent regulator such as the Nursing and Midwifery Council (NMC) |
| **professional body** | an organisation that oversees the activities of a particular profession and represents the interests of its members |
| **prospective student** | those applying or considering applying for any programme, at any level and employing any mode of study, with a higher education provider |

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