LSBU
EST 1892

Course Specification

A. Course Information

Final award title(s)	CertHE Network Engineer
Intermediate exit award title(s)	N/A

UCAS Code		**Course Code(s)**	5948

Awarding Institution	London South Bank University
School	☐ ASC ☐ ACI ☐ BEA ☐ BUS ☒ ENG ☐ IHSC ☐ LSS
Division	LSBU - Electrical and Electronic Engineering (EEE)/ Computer Science and Informatics (CSI) SBTC - Engineering
Course Director	
Delivery site(s) for course(s)	☐ Southwark ☐ Havering ☐ Croydon ☒ Other: (please specify) South Bank Technical College
Mode(s) of delivery	☒Full time ☐Part time ☐Other (please specify)

Length of course/start and finish dates				
	Mode	**Length years**	**Start - month**	**Finish - month**
	Full time	1	September	August

Is this course suitable for a Visa Sponsored Student?	☐ Yes ☒ No

Approval dates:	Course Validation date	June 2023
	Course Review date	June 2028
	Course Specification last updated	August 2023

Professional, Statutory & Regulatory Body accreditation		
Link to Institute of Apprenticeship (IoA) Standard	Aligned to - https://www.instituteforapprenticeships.org/apprenticeship-standards/network-engineer-v1-2	
Reference points (add or remove from internal and external points as necessary)	Internal	Corporate Strategy 2020-2025 Academic Quality and Enhancement Website School Strategy LSBU Academic Regulations
	External	QAA The UK Quality Code for Higher Education 2018 Framework for Higher Education Qualifications (FHEQ) Subject Benchmark Statements for Engineering 2019 OfS Guidance SEEC Level Descriptors 2021 Competitions and Markets Authority Institute for Apprenticeships and Technical Education (IfATE)- Higher Technical Qualifications.

B. Course Aims and Features

Distinctive features of course	The Network Engineer course is work related and offers learners a set of cross functional skills in computer hardware, interface electronics, programming for real-time and embedded systems and data communication; supported by the learning of practical skills in data

	analysis, software, and database design and management. The CertHE qualification provides learners with a clear pathway to employment and a recognised progression route to the second year of a BEng to gain further learning required at level 6 to achieve a Level 6 degree. To acquire further network engineering skills, students can leverage partnerships with industry leader Cisco (current LSBU partners through the Electrical and Electronic Engineering division connection with Cisco Academy), which offer specific qualifications, post-qualification pathways, and progression tickets/requirements for career advancement in networking field.
Course Aims	The Network Engineer course aims to: 1. Produce individuals with a sound knowledge and understanding of the foundations of Network Engineering. 2. Provide learners with relevant techniques to select and apply adequate approaches to solve network engineering problems and communicate results using structured argument and critical analysis. 3. Provide learners with professional and technical procedures and standards required by relevant occupations and industry. 4. Provide learners with transferable practical, laboratory, computer, data management and behavioural skills aligned with requirements for the job in Network Engineering.
Course Learning Outcomes	a) **Students will develop their knowledge and understanding such as they are able to:** **A1** – Demonstrate a comprehensive knowledge and understanding of the causes and consequences of network and IT infrastructure failures. **A2** – Develop a thorough knowledge in engineering and mathematics and modelling, scientific principles and methodologies associated with the architecture of typical IT systems, including hardware, OS, server, virtualisation, voice, cloud and relevant applications. **A3** – Understand the fundamentals and principles of analogue and digital electronic, computer data base systems and network engineering. Further, analyse and apply different routing and

switching concepts and characteristics to network topologies, types, and technologies.

A4 – Explain the techniques for systems performance and optimisation, including diagnostic techniques and tools to interrogate and gather information regarding systems performance.

A5 - Understand and apply organizational procedures for recording information effectively and in line with protocols, and how Service Level Agreements (SLAs) are applied to delivering network engineering activities in line with contractual obligations and customer service.

b) **Students will develop their intellectual skills such that they are able to:**

B1 – Apply the appropriate tools and techniques to identify systems performance issues.

B2 – Apply the appropriate tools and techniques to gather information to troubleshoot issues and isolate, repair or escalate faults.

B3 – Apply the relevant numerical skills (Binary, dotted decimal notation) required to meet the defined specifications.

B4 – Take a wider view of the strategic objectives of the tasks or projects they are working on including the implications for accessibility by users and diversity.

c) Students will acquire and develop **practical skills** such that they are able to:

C1 – Demonstrate the ability to securely operate and test networks using appropriate tools and techniques.

C2 – Install and configure necessary components to maintain and manage a secure network.

C3 – Select and apply networking software packages and protocol analyser to assess and capture network data. Implement techniques to monitor and record systems performance, adhering to defined specifications.

C4 – Ensure the security and performance of systems against known and standard threats through effective maintenance.

C5 – Upgrade, configure, and test system components to meet organizational requirements, minimizing downtime and including backup processes.

C6 – Monitor, identify, and implement required maintenance procedures to optimize systems performance in line with defined specifications.

C7 – Have awareness of quality issues and their application to continuous improvement.

d) **Students will acquire and develop transferrable skills such that they are able to:**

D1 – Demonstrate effective communication skills by recording task details and communicating outcomes of tasks in line with organizational procedures and customer service standards, ensuring clarity and accuracy in both face-to-face and remote communication.

D2 – Apply effective time-management skills by organising and prioritising clients or stakeholders' requests in line with SLAs and organisation processes, whilst considering accessibility and diversity implications.

D3 – Interpret information received from managers, customers, or technical specialists and accurately implement defined requirements to ensure efficient completion of tasks.

D4 – Exhibit professionalism and work within the goals, vision and values of the organisation by explaining their job role within the business context to stakeholders, ensuring a clear understanding of their remit and conveying technical constraints in appropriate language.

D5 – Demonstrate effective stakeholder management skills by communicating with a range of stakeholders taking into consideration the organisation's cultural awareness and technical ability, and meeting or exceeding customers' requirements and expectations.

C. Teaching and Learning Strategy

The teaching and learning activities are designed to promote students' engagement and prepare them to successfully take part in the different type of assessment. Through the programme, learners will be engaged in a dynamic, interactive, and reflective experience. The delivery is supported by the virtual learning environment (VLE) and online resources so that students are stimulated by academic engagement and get challenging and constructive feedback combined with adequate support and mentoring.

The teaching and learning approaches include a combination of lectures, tutorials, workshops, practical demonstration, and experiential industrial tasks.

All activities will be constructed to create complete alignment to the methods of assessment and attainment of the learning outcomes.

Students will receive a wide range of relevant learning experiences which will include individual and group work, experiential and practical sessions, laboratory sessions, workshops, and online activities via the VLE while encouraging the development of independent learning, generic, and transferable skills along with subject specific skills and knowledge.
The delivery of the modules is sequenced so that learners will experience fundamental knowledge and understanding of computer science, engineering knowledge and mathematics and modelling skills from semester one, followed by the introduction of more advanced subject specific areas in semester 2. Relevant fundamentals knowledge and skills of mathematics and modelling, and principles of network engineering are delivered across the 2 semesters as key modules to provide learners with opportunity to develop and practice relevant knowledge, skills and behaviours required for the occupational aspects of Network Engineering. Students are also taught subject related transferable skills e.g., communication and networks, laboratory and computer skills which also aim to build confidence in experimental, practical and computer modelling, and scientific activities and techniques. Students learn and apply appropriate methodology, sound level of numeracy and programming coding, analytical, and literacy skills to solve problems in a subject related context.

D. Assessment

The assessment is accurately determining students' attainment of the relevant learning outcomes, including knowledge, intellectual development, relevant practical, transferable and employability skills.

Students will be engaged with a variety of assessment tools that are accessible, appropriately challenging, and supported the development of their self-efficacy and self-confidence. This includes ensuring that all students engage in assessment positively and honestly.

Assessment is varied and each module include formative and summative assessment. Student will receive supportive and constructive feedback as individual and holistic to the cohort.

The methods of summative assessments to be used across the programme are mainly individual assessments, including coursework, portfolios, logbooks, lab reports, presentations, projects, and examination.

Formative assessment methods including e.g., online tests, quizzes, peer assessments etc are used. Formative assessments are used to provide developmental feedback, facilitate the implementation of additional academic guidance and support as required, as well as to encourage reflective learning practices in students.

To be able to pass a module, student need to pass each assessment component and the pass mark is 40%.

E. Academic Regulations

The University's Academic Regulations apply for this course.
https://www.lsbu.ac.uk/__data/assets/pdf_file/0017/351260/Academic-Regulations-2022-23.pdf

Graduates from the programme can progress to the BEng (Hons) Electronic and Computer Systems Engineering, the BSc (Hons) Computer Science or the BSc (Hons) Information Technology at LSBU with entrance at Level 5 (second year), provided students pass all modules (120 credits) at Level 4 with no compensation or condonement.

F. Entry Requirements

In order to be considered for entry to the course, applicants will be required to have the following qualifications:

The standard entry requirement for the Network Engineer Certificate in Higher Education CertHE is equivalent to 64 UCAS points including Maths alongside a minimum of grade C/4 in GCSE or equivalent qualification including English and Maths.

For students who have recently been in education, the entry profile is likely to include one of the following:

● A* to C grade in GCE Advanced Level Maths (or equivalent).

● A BTEC Level 3 qualification in Engineering or IT.

● A GCE Advanced Level profile that demonstrates strong performance in a relevant subject or adequate performance in more than one GCE subject.

● Other related Level 3 qualifications.

● An Access to Higher Education Diploma awarded by an approved further education institution.

● Related work experience.

● International qualification with equivalent entry requirements as specified above.

G. Course Structure(s)

Course overview

- The CertHE Network Engineer course is offered as full-time mode, delivery in one academic year. The course is organized into two semesters, each lasting 15 weeks. Semester one starts in September and Semester 2 in January.
- The course is structured in 6 core modules of 20 credits, 3 modules are existing validated modules and shared across other BEng Engineering and Computer Science courses at level 4, and 3 modules are subject specific designed to provide cross functional skills and required knowledge and understanding of computer systems, interface electronic, network data and communication and management.

CertHE Network Engineering – **Full time**

All modules are compulsory. No optional modules

	Semester 1		Semester 2	
Level 4	Engineering Mathematics and Modelling			20 credits
	Principles of Network Engineering			20 credits
	Object Oriented Programming C++	20	Data Management and Networking	20 credits
	Fundamentals of Computer Science	20	Professional Practice in Network Engineering	20 credits

Placement information

- There is no placement as part of the programme.

H. Course Modules

All modules are compulsory. No optional modules

Module code	Module Title	Level	Sem	Credit	Assessment	
					CW%	Exam%
EEE_4_EMM	Engineering Mathematics and Modelling	4	1&2	20	50	50
SBC_4_PNE	Principles of Network Engineering	4	1&2	20	100	
EEE_4_OOP	Object Oriented Programming C++	4	1	20	100	
CSI_4_FCS	Fundamentals of Computer Science	4	1	20	100	
SBC_4_DMN	Data Management and Networking	4	2	20	40	60
SBC_4_PPN	Professional Practice in Network Engineering	4	2	20	100	

I. Timetable Information

Information regarding the timetable will be available to students once they have completed enrolment. An informal review of the timetable can be obtained by communicating with the Course Director.

NOTE this informal timetable information may change due to requirements beyond our control.

J. Costs and Financial Support

Course related costs

- The course fee is 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 online through VLE (Moodle) and the library holds copies of books recommended as core reading.

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: Terminology

Appendix A: Curriculum Map

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

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

Modules			Course Outcomes																						
Level	Title	Code	A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	C7	D1	D2	D3	D4	D5
4	Engineering Mathematics and Modelling	EEE_4_EMM	TA	TA	TA			TA	TA	TA	TA								D		TA		
4	Principles of Network Engineering	SBC_4_PNE	TDA	TDA	TDA			TDA	TDA			TDA	TDA						TDA	TDA	TDA		
4	Object Oriented Programming C++	EEE_4_OOP	TDA	TDA				TDA	TDA			TDA	TDA						DA	TDA	TDA		
4	Fundamentals of Computer Science	CSI_4_FCS	TDA	TDA	TDA			TDA		TDA		TDA		TDA				TDA					
4	Data Management and Networking	SBC_4_DMN			TDA	TDA	TDA	TDA	TDA		TDA		TDA	TDA	TDA	TDA	TDA		TDA	TDA	TDA	TDA	TDA
4	Professional Practice in Network Engineering	SBC_4_PPN				DA	TDA			DA	DA				TDA	TDA	TDA	DA	DA	DA	DA	DA	DA

Appendix B: Terminology

awarding body	a UK higher education provider (typically a university) with the power to award higher education qualifications such as degrees
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
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
summative assessment	a type of assessment that 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
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
module	a self-contained, formally structured unit of study, with a coherent and explicit set of learning outcomes and assessment criteria; some providers use the word 'course' or 'unit' to refer to individual modules
optional module	a module or course unit that students choose to take
professional body	an organisation that oversees the activities of a particular profession and represents the interests of its members
prospective student	those applying or considering applying for any programme, at any level and employing any mode of study, with a higher education provider
regulated course / regulatory body	a course that is regulated by a regulatory body, which is an organisation recognised by government as being responsible for the regulation or approval of a particular range of issues and activities
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
top-up degree	A top-up degree is the final year (Level 6) of an undergraduate degree course. It allows students to top-up an existing qualification to a full BA, BSc or BEng.
total study time / workload	the total time required to study a module, module 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
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