

Systems Integration and Utility Coordination

Module Descriptor

Module Code: BSE4SIU
Version: V1.00
Status: Final
Date: 25/03/2026

Summary Module Details

Module details

Module Title: Systems integration and Utility Coordination

Module Leader: TBC

Module Mode: Supported online learning

Semester: Autumn (UK)

Level: 4

Credits: 20 Hours

Learning Hours: 200

Contact & Study Hours

Directed Study Time: 90 hrs (45%)

Self-directed Study Time: 50 hrs (25%)

Assessment Study Time: 60 hrs (30%)

Assessment Type

Coursework: 80%

Computer Marked Assessment: 20%

Module Summary

This project-based module enables students to apply knowledge from earlier modules in a practical context. It explores the coordination of mechanical, electrical, fire, and public health systems using BIM and spatial planning tools. Topics include utility intake planning, service zone design, interdisciplinary collaboration, and installation sequencing. Applied numeracy is embedded through scale interpretation, coordination of service zones, and spatial analysis for clash detection. The module culminates in a project task, requiring students to produce integrated service layouts and a utility interface strategy for a real or simulated building.

Taken on which Programmes

CertHE Building Services Engineering (C)

Core (C) or Elective (E)

Module Aims

This module aims to:

- Enable students to apply knowledge from mechanical, electrical, fire, and public health systems in a coordinated project-based context.
- Develop skills in utility intake planning, service zone design, and installation sequencing using BIM and spatial planning tools.
- Foster interdisciplinary collaboration by simulating the coordination challenges faced in real construction projects.
- Build applied numeracy through scale interpretation, service zone coordination, and spatial analysis for clash detection.
- Culminate in a project task where students produce integrated service layouts and a utility interface strategy for a real or simulated building.

Module Learning Outcomes

- LO1 Demonstrate how mechanical, electrical, and public health systems interface and are coordinated spatially.
- LO2 Explain the process of connecting building systems to incoming utilities, including load and demand considerations.
- LO3 Use drawings or digital models (e.g. BIM) to illustrate coordinated services layouts and utility routes.
- LO4 Evaluate the importance of interdisciplinary communication and sequencing in systems installation and commissioning.

Indicative Module Content

Module topics

Introduction to Systems Integration

The module begins with an overview of how mechanical, electrical, fire, and public health systems interrelate in building projects. Students are introduced to BIM and spatial planning tools as a framework for coordinating services effectively.

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Utility Planning and Service Zones

This theme focuses on utility intake planning and the design of service zones, including risers and plant spaces. Students explore how early design decisions affect service distribution, coordination, and long-term building performance.

Collaboration and Clash Detection

Students examine interdisciplinary collaboration in practice, with emphasis on using digital models to identify and resolve clashes between services. Applied numeracy skills are developed through scale interpretation and spatial analysis exercises.

Project Application and Delivery

The module concludes with a project-based task, requiring students to develop integrated service layouts and a utility interface strategy for a real or simulated building. This final theme consolidates technical and collaborative skills, reflecting industry practice.

Overview

Each module follows a progressive structure of **two summative assessments** designed to build confidence, competence and professional judgement.

Assessment 1 is a computer-marked assessment (CMA) that provides early feedback and supports consolidation of core knowledge and principles. Positioned mid-module, it acts as both a confidence booster and a diagnostic opportunity to identify areas requiring further support, ensuring students are well prepared for the final assessment.

Assessment 2 is an integrated applied task that develops professional competence and judgement through two complementary components.

Part 1 – Developing Professional Judgement

Students interpret and communicate technical information using provided drawings, schedules and structured templates. They analyse well-defined engineering scenarios and present clear, concise technical responses. At this level, no original design production is required; evidence is demonstrated through mark-ups, brief technical commentary and completion of pro-forma documentation.

Part 2 – Applied Professional Output and Reflection

Students produce applied outputs in authentic industry formats (e.g., technical specifications, compliance notes, risk assessments or structured reports). This component aligns with Senior Technician practice and End Point Assessment

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expectations, requiring clear, usable professional documentation suitable for real project contexts. A structured reflective element supports the development of professional judgement and readiness for progression.

Module learning outcomes	Assessment	Word count or equivalent	Weighting
LO1 & LO2	Assessment 1 CMA	600 words equivalent	20%
LO1, LO2, LO3 & LO4	Assessment 2 Coursework	2,400 words equivalent	80%

Module Pass Mark (as a weighted average of all assessments): 40%

Students will also be offered optional pre-course reading and self-assessment activities to refresh basic technical and mathematical skills before starting the module.

Students are encouraged to complete optional pre-course reading and diagnostic quizzes to familiarise themselves with key environmental and scientific principles prior to engaging with the module content.

Key Module Learning Resources

Core Sources and Texts

The core reading resources within each module will be provided via the specific Virtual Learning Environment (VLE) module pages and within the e-Library. Additional reference material and supplementary resources to support your studies are available through the University e-Library.

Module tools

Students will have access to study materials, dedicated academic support, student forums, and learning activities via an online learning platform (VLE).

The module page on the VLE is broken down into structured study weeks to help students plan their time, with each week containing a mixture of reading, case studies, videos/recordings and interactive activities to go through. Online webinars/seminars led by the Module Leader can be attended in real time and provide opportunities to consolidate knowledge, ask questions, discuss topics and

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work through learning activities together. These sessions are recorded to support students who cannot attend and to enable students to recap the session and work through it at their own pace. Module forums on the VLE provide further opportunities to discuss topics with other students, complete collaborative work and get extra help from the module team.

Professional online resources

The e-Library provides access to trusted, quality online resources, selected by subject specialists, to support students' study. This includes journals, industry publications, magazines, academic books and a dissertation/work-based library. For a list of the key industry specific and education resources available please visit [the VLE e-Library](#).

Other relevant resources

Access is also provided to further information sources that include the British Library and Open University UK catalogues, as well as providing a monthly current awareness service entitled, **Knowledge Foundations** - a compendium of news, research and resources relating to the educational sector and the Built Environment.

The module resource list is available on the module VLE page and is updated regularly to ensure materials are relevant and current.