

Technical
Education
Networks



**Route: Construction and
the Built Environment**

Construction and the Built Environment T-levels

Guide to T-level curriculum macro-sequencing

This slide deck offers an overview of the components for
Construction and the built environment T-level curriculum.

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Where did we get the information from?

- The Association of Colleges (AoC) and Gatsby partnered with T-level providers to explore current practices in macro-sequencing of curriculum delivery models between January and August 2023.
- 55 providers took part in the research: 24 completed a survey, 51 had in-depth interviews, and 55 attended focus groups to create the delivery models presented and insight in this presentation.
- Feedback on emerging models was provided by delegates at Gatsby's Technical Education Networks (TEN) Conference in July 2023.
- Gatsby plan to review and update this insight annually. For more details, please contact TEN@gatsby.org.uk

Construction and the built environment T-levels

The Construction and the built environment route includes three T-levels:

1. T Level Design, Surveying and Planning (DSP)
2. T Level Building Services Engineering (BSE)
3. T Level Onsite Construction (OnS)



T Level Design, Surveying and Planning

Qualification information

The technical qualification is organised into 14 topic areas in the core and four occupational specialisms.

The overall grading for the technical qualification will be on a scale of Pass, Merit, Distinction, Distinction* with the Core graded A*- E and the Occupational Specialism graded Pass, Merit, Distinction, Distinction*.

Core knowledge and skills support threshold competence in the construction and the built environment industry. This is assessed through two examinations and the employer set project.

Core exam overview

Exam Paper 1	Exam Paper 2
<ul style="list-style-type: none"> • Health and safety • Science • Measurement • Building technology • Information and data • Digital technology • Construction mathematical techniques 	<ul style="list-style-type: none"> • Design • Construction and the built environment industry • Sustainability • Relationship management • Commercial business • Project management • Law

Design, Surveying and Planning Employer Set Project (ESP)

The Employer Set Project (ESP) assesses core knowledge and skills and four essential skills.

- Core Skill 1 – Communication
- Core Skill 2 – Work with others
- Core Skill 3 – Applying a logical approach to solving problems, identifying issues and proposing solutions
- Core Skill 4 – Primary research

The ESP is completed in May-June or November and there are four tasks to the assessment. Students are permitted 15 hours and 30 minutes to complete the ESP.

- Task 1 – Respond to a client brief and initial designs
- Task 2 – Prepare designs for a building project
- Task 3 – Produce costing documentation for an aspect of a project
- Task 4 – Responding to problems as a team

T Level Building Services Engineering

Qualification information

The technical qualification is organised into 14 topic areas in the core and several occupational specialisms.

The overall grading for the technical qualification will be on a scale of Pass, Merit, Distinction, Distinction* with the Core graded A*- E and the Occupational Specialism graded Pass, Merit, Distinction, Distinction*.

Core knowledge and skills support threshold competence in the construction and the built environment industry and is assessed through two examinations and the employer set project.

Core exam overview

Exam Paper 1	Exam Paper 2
<ul style="list-style-type: none"> • Health and safety in construction • Construction design principles • Construction and the built environment industry • Construction sustainability principles • Building technology principles • Tools, equipment and materials 	<ul style="list-style-type: none"> • Construction science principles • Construction measurement principles • Construction information and data principles • Relationship management in construction • Digital technology in construction • Construction commercial/business principles • Building Services Engineering (BSE) systems • Maintenance principles

Building Services Engineering Employer Set Project (ESP)

The Employer Set Project (ESP) assesses core knowledge and skills and four essential skills.

- Core Skill A – Applying a logical approach to solving problems, identifying issues and proposing solutions
- Core Skill B – Primary research
- Core Skill C – Communication
- Core Skill D – Work collaboratively with other team members and stakeholders

The ESP is completed in April-May and there are six tasks to the assessment. Students are permitted 17 hours to complete the ESP.

- Task 1.1 – Carry out research
- Task 1.2 – Produce a report
- Task 1.3 – Produce a programme of work plan
- Task 1.4 – Oral presentation of findings
- Task 2.1 – Work in small groups to work through a problem
- Task 2.2 – Review how well the project has gone

T Level Onsite Construction

Qualification information

The technical qualification is organised into 11 underpinning knowledge outcomes in the core and four occupational specialisms.

The overall grading for the technical qualification will be on a scale of Pass, Merit, Distinction, Distinction* with the Core graded A*- E and the Occupational Specialism graded Pass, Merit, Distinction, Distinction*.

Core knowledge and skills support threshold competence in the construction and the built environment industry and is assessed through two examinations and the employer set project.

Core exam overview

Exam Paper 1	Exam Paper 2
<ul style="list-style-type: none"> • Health and safety in construction • Construction design principles • Construction and the built environment industry • Construction sustainability principles • Building technology principles 	<ul style="list-style-type: none"> • Construction science principles • Construction measurement principles • Construction information and data principles • Relationship management in construction • Digital technology in construction • Construction commercial/business principles

Onsite Construction Employer Set Project (ESP)

The Employer Set Project (ESP) assesses core knowledge and skills and four essential skills.

- Core Skill A – Applying a logical approach to solving problems, identifying issues and proposing solutions
- Core Skill B – Primary research
- Core Skill C – Communication
- Core Skill D – Work collaboratively with other team members and stakeholders

The ESP is completed in April-May and there are six tasks to the assessment. Students are permitted 17 hours to complete the ESP.

- Task 1.1 – Carry out research
- Task 1.2 – Produce a report
- Task 1.3 – Produce a programme of work plan
- Task 1.4 – Oral presentation of findings
- Task 2.1 – Work in small groups to work through a problem
- Task 2.2 – Review how well the project has gone

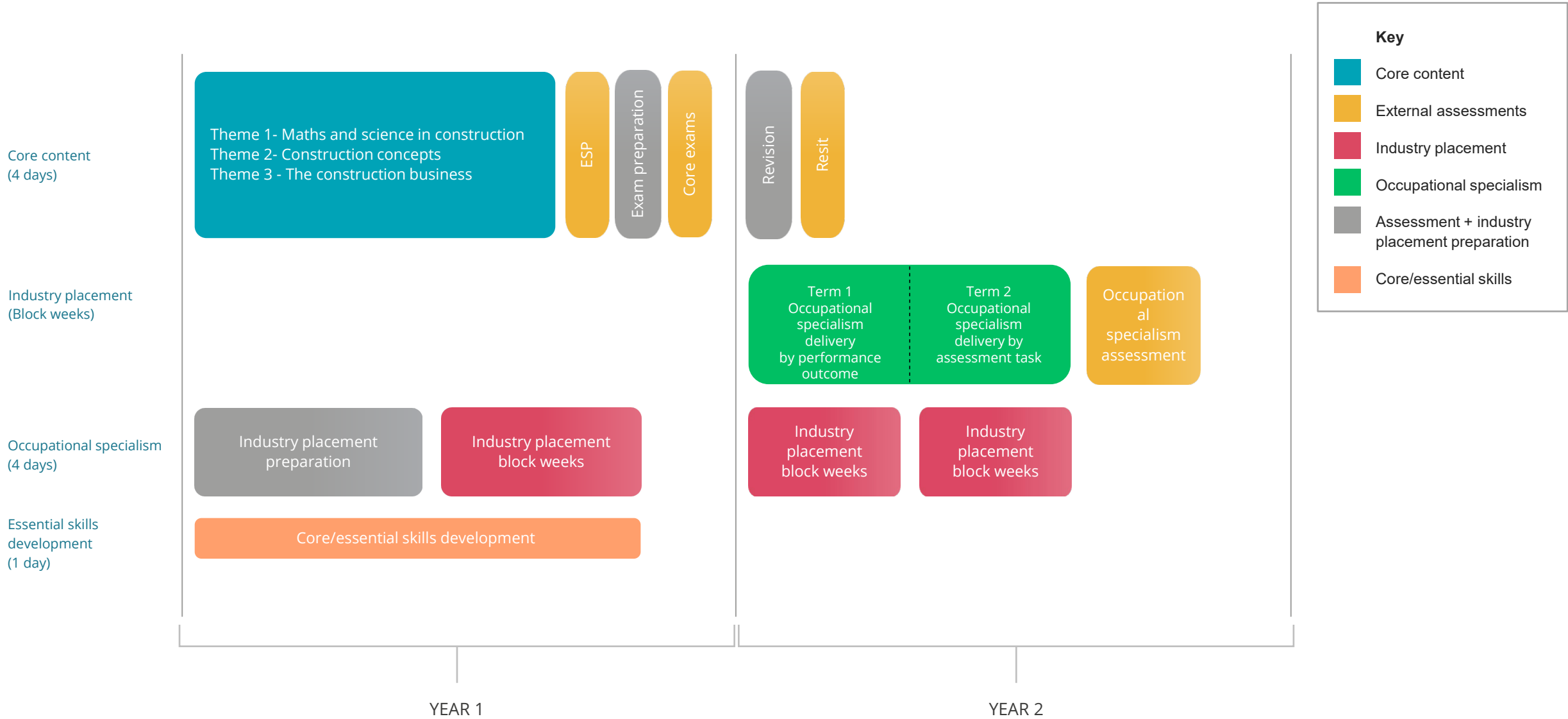
What is macro-sequencing?

Macro-sequencing is a structured and logical progression of the curriculum programme informed by pedagogical decisions.

The following models summarise provider feedback on their sequencing of the T-level curriculum, including the core, occupational specialism and industry placement.

The following slides and assessment elements provide three suggested curriculum models for the macro-sequencing of T-level pathways in design, surveying and planning, building services engineering and onsite construction.

T Level Design, Surveying and Planning (DSP)



Feedback on sequencing DSP core content

Pedagogical considerations and employer engagement

Delivery of core content used a range of approaches including employer projects to contextualise learning. Employers also delivered masterclasses or presentations, supporting students to engage with employers and curriculum staff to broaden their understanding of industry practice.

An organisational approach drawing on staff expertise

Specific areas of the core were allocated to members of staff depending on their expertise and industry experiences and staff from other departments within providers (e.g., science, maths, engineering and business) were also brought in to support delivery. Delivery teams were then given autonomy on how content was organised, and those with more than one core content area tended to deliver sequentially.

Curriculum sequencing

In core delivery, content was organised into three strands: maths and science in construction (core content areas 2 and 7), construction concepts (core content areas 1, 3, 4, 5, 8 and 9) and the construction business (core content areas 6, 10, 11, 12, 13 and 14). Providers spent approximately 3 days per week covering the core component.

Feedback on embedding DSP skills in the curriculum

Computer aided design (CAD) skills

Specific time had been allocated in Year 1 for students to develop their CAD skills in IT rooms. Providers indicated the importance of time to develop these skills, which supported students with their ESP assessment in particular.

Core/essential skills

All providers embedded the development of core/essential skills into their core content delivery with industry contextualisation. Students carried out research tasks, worked in teams and presented their findings to support development of these skills. Those adopting a project-based approach stated that embedding the skills was integral to delivery, e.g. students presenting project outcomes to employers.

Essential skills in industry placement (IP) preparation

Providers spent time with students preparing for their IP through the development of additional essential skills, especially the development of CVs, interview skills, time management, building confidence for travel to external placements as well as the completion of self-reflection logs. Some providers utilised their IP support teams to work with students on this, generally equivalent to one day per week.

Feedback on sequencing DSP occupational specialism (OS) content

Introduction to OS content

Providers planned to deliver OS content mainly in the second year but could introduce some in the first year to build a foundation for Year 2. They highlighted the benefit of using time in the first year to develop CAD skills, allowing students to build on this in Year 2 tackling more complex and challenging tasks.

Use of equipment

All providers indicated that the second year was more practical, with most involving students on site visits using surveying equipment. The importance of having specialist staff was highlighted, with most providers interviewed only having a member of staff with surveying expertise in the department.

Mirroring of the sample assessment structure

Most providers used a project-based approach to assessment (designed initially by performance outcomes) then progressed to by assessment outcome that mirrored the sample external assessment structure. Some students worked on more than one project at a time, replicating industry practice, and to incorporate stretch and challenge into delivery.

Case studies

Using industry specific case studies for projects was highlighted as being beneficial for students' learning. It was considered valuable for students to engage in live projects with employers (where possible) and not just those that have already been completed and outputs already determined.

Feedback on implementing DSP industry placements

Preparation for industry placements

Engage with employers early in the planning stages to ensure the scheduling of industry placements meets both the employer and provider's needs and expectations by sharing delivery plans around pre-placement and in-placement learning. The vast majority of employers interviewed preferred the block placement model for industry placements.

Timings of industry placements

Ensure students are suitably prepared to start industry placements and not too early in the programme, in order to support provider/employer relationships. This allows students to develop appropriate attitudes and behaviours to enter the workplace. It is important to adopt a flexible approach to when a placement could take place, for example offering multiple opportunities throughout the programme for block placement weeks.

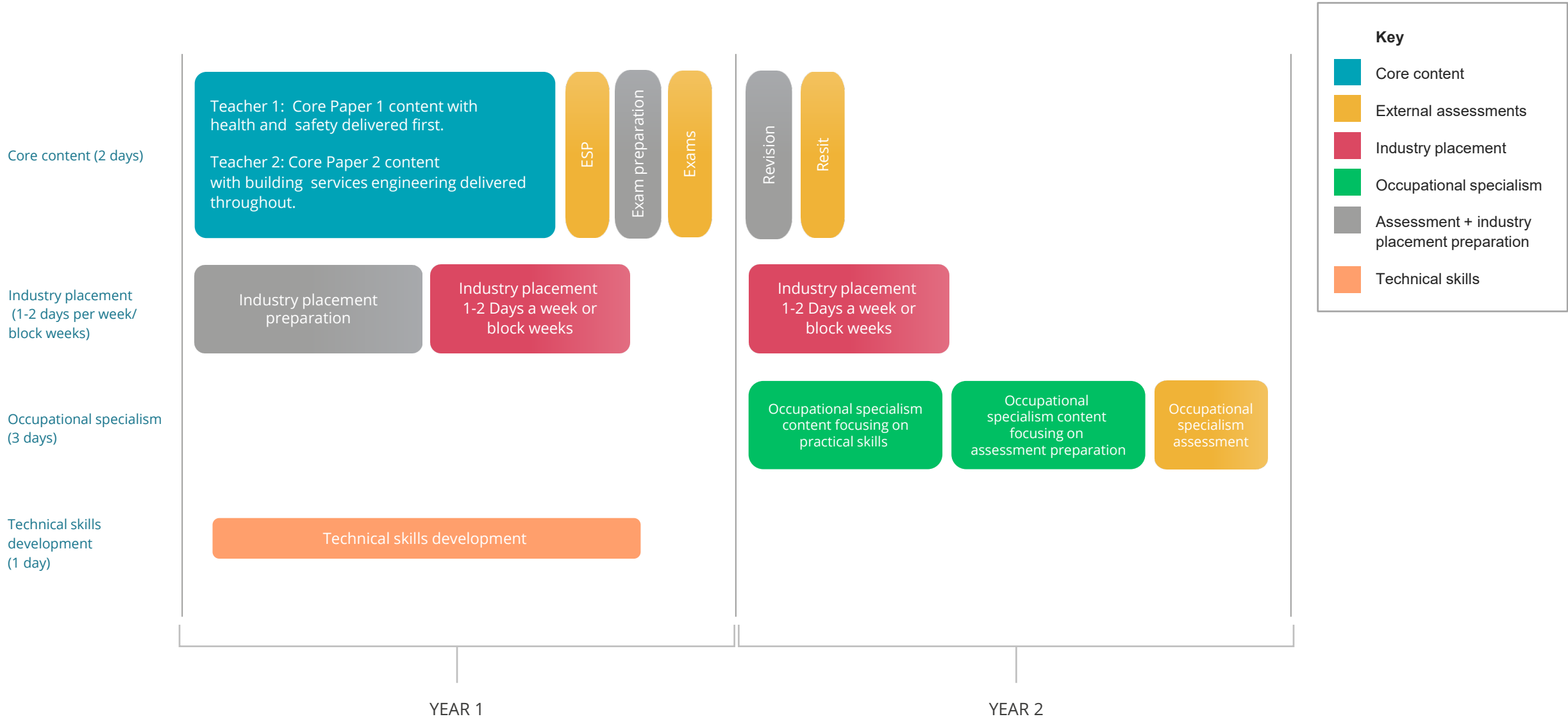
Benefits to student learning

The industry placement brought to life theoretical core content and was perceived as a benefit to student learning. Whilst the first year was deemed as the optimum time for this, other factors may impact this including the amount of content to be delivered and placement opportunities increasing in the second year after students obtain a driving license and can travel more freely.

CSCS cards

A number of providers had arranged for students to acquire the T-level CSCS card to allow them access to construction sites. This required some time for learning and preparation for the assessment, in addition to the T-level content and timetabled hours and was usually planned in Year 1 of delivery.

T Level Building Services Engineering (BSE)



Feedback on sequencing BSE core content

Curriculum sequencing

Core content tends to be delivered in the first year and aligned to content on each exam paper with health and safety delivered first and building service engineering content throughout Year 1. Core content was delivered sequentially as presented in the specification even when staff were allocated multiple underpinning knowledge outcomes. Other sequencing choices may support opportunities to bring more practical skills development into the first year.

Employer engagement

Engage with employers to support the delivery of core content e.g. the delivery of masterclasses to demonstrate the use of tools for the underpinning knowledge outcomes/ employers delivering content through guest lectures/external events. This supported contextualisation of learning and improved knowledge and application of key concepts in the core.

Importance of formative assessment

Upon completion of core content areas, consider revisiting each using formative assessment through topic tests to support learning and external assessment preparation.

Feedback on embedding BSE skills in the curriculum

Technical skills

Time was arranged for workshops to develop foundation hand skills and this was deemed to be highly engaging and valuable for students. The second-year delivery could then focus on the supporting occupational specialism knowledge as students had basic skills in using tools and equipment from the first year, and could also apply their underpinning core knowledge.

Computer aided design (CAD) skills

Time had been allocated in Year 1 for students to specifically develop their CAD skills and this supported preparation for the ESP assessment in particular.

Core/essential skills

All providers included the development of core/essential skills into their underpinning knowledge outcomes delivery that were contextualised within industry. Some examples to develop these skills included students working in teams to complete challenges, carrying out research to find solutions to problems and presenting these to employers.

Industry placement (IP) preparation

All providers spent time with students preparing them for their IP putting emphasis on the development of CVs, expressions of interest and interview skills. Employers welcomed the opportunity to engage with students in advance through a mock recruitment process. All providers had processes to prepare students for placement that were delivered by a separate IP team.

Feedback on sequencing BSE occupational specialism (OS) content

Introduction to OS content

Providers planned to deliver OS content mainly in the second year but could introduce some in the first year to build a foundation for Year 2 and bring practical skills alongside some theoretical concepts.

Project work for OS delivery

Employ project work as the primary method for delivering OS content. Align projects to the structure of the external assessments, potentially breaking down into individual tasks that can be delivered concurrently. Projects could start small and scale up in size/complexity for OS assessments.

Navigating the assessment schedule

Understand how the OS external assessment schedule impacts the macro-sequencing in Year 2. Balance the delivery of OS content with the scheduling of the industry placement(s).

Feedback on implementing BSE industry placements

Timings of industry placements

Ensure students are suitably prepared to start industry placements and not too early in the programme, in order to support provider/employer relationships. This allows students to develop appropriate attitudes and behaviours to enter the workplace. It is important to adopt a flexible approach to when a placement could take place, for example offering multiple opportunities throughout the programme for block placement weeks.

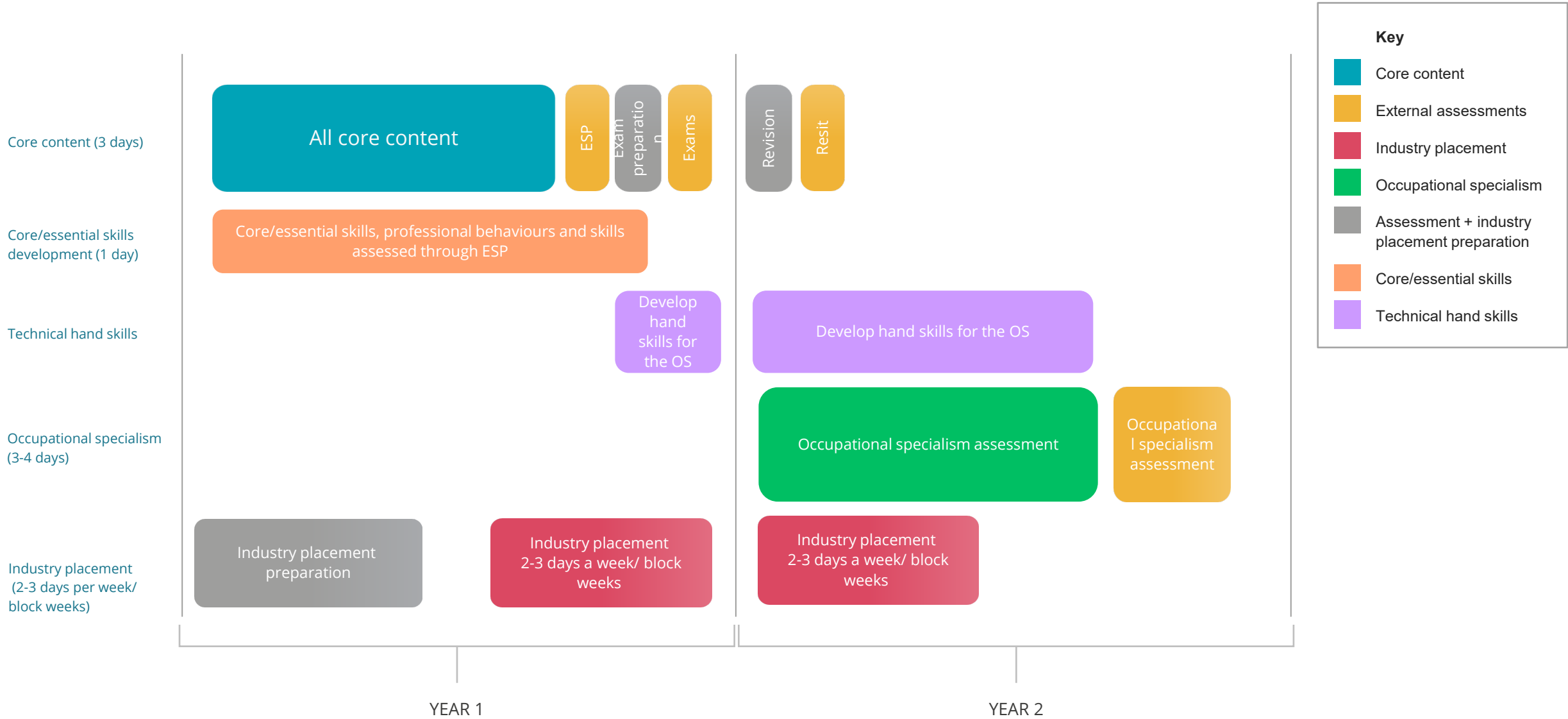
Preparation for industry placements

Engage with employers early in the planning stages to ensure the scheduling of industry placements meets both the employer and provider's needs and expectations by sharing delivery plans around pre-placement and in-placement learning. The vast majority of employers interviewed preferred the block placement model for industry placements.

Individual learning objectives

Set employability-based objectives initially and once achieved progress onto more technical objectives related to students' roles within the construction sector. These could be to develop both essential and technical skills.

T Level Onsite Construction (OnS)



Feedback on sequencing OnS core content

Pedagogical considerations

Delivery teams usually equated to circa three staff with a holistic approach to core delivery adopted. Content supporting health and safety, measurement, information and data was usually delivered before students started their industry placements and was supplemented by practical sessions in workshops. Sustainability was also deemed useful to deliver in the context of the design underpinning knowledge outcome rather than in isolation.

Staff expertise

Specific underpinning knowledge outcomes in the core were allocated to members of staff depending on their expertise, industry experiences and when the industry placements took place. This provided accountability and responsibility for sequencing and scaffolding of delivery where needed.

Construction and the built environment industry

This underpinning knowledge content worked particularly well when delivered in conjunction with the industry placement so students could see and discuss industry context with more confidence.

Employer engagement

Engage with employers to support the delivery of core content e.g. the delivery of masterclasses to present employer briefs and site visits. This helped contextualise learning and improved knowledge and application of key concepts in the core and also supported providers well who had smaller delivery teams.

Feedback on embedding skills in the curriculum

Core/essential skills

All providers included the development of core/essential skills into their underpinning knowledge outcomes delivery that were contextualised in industry, focusing on effective communication, problem solving, primary research and working collaboratively. This was particularly important to support students preparations for their Employer Set Project (ESP) assessments.

Hand skills

Time had been allocated for practical lessons in workshops, usually at least half a day a week in Year 1 then increasing in Year 2 to further develop hand skills. Where groups were all moving onto the same occupational specialism these were contextualised appropriately e.g. preparing for the production of timber building products in carpentry and joinery and provided a foundation for skill development when the occupational specialism was delivered.

Industry placement preparation

All providers spent time with students preparing them for their IP putting emphasis on the development of CVs, expressions of interest and interview skills. Employers welcomed the opportunity to engage with students in advance through a mock recruitment process.

Feedback on sequencing occupational specialism (OS) content

Introduce OS content in Year 1

Plan to deliver occupational specialism content mainly in the second year but introduce some knowledge and skills from the OS in the first year to build a foundation for Year 2, especially when considering how hand skills can be developed in practical workshop sessions.

Increase practical workshop time in Year 2

There were fewer theory lessons when delivering the occupational specialism knowledge and skills and more time spent in practical workshop sessions. This allowed more opportunities for practical application of the knowledge and skills developed from the core.

Project work for OS delivery

Employ project work as the primary method for delivering occupational specialism content. Align projects to the structure of the external assessments, potentially breaking down into individual tasks that can be delivered concurrently.

Navigating the assessment schedule

Understand how the OS external assessment schedule impacts the macro-sequencing in Year 2 in particular. Balance the introduction of delivery of OS content in Year 1 with the scheduling of the ESP and core exam assessment windows.

Feedback on implementing OnS industry placements

Preparation for industry placement

Engage with employers early in the planning stages to ensure the scheduling of industry placements meets both the employer and provider's needs and expectations by sharing delivery plans around pre-placement and in-placement learning.

Timings of industry placements

Ensure students are suitably prepared to start industry placements and not too early in the programme, in order to support provider/employer relationships. This allows students to develop appropriate attitudes and behaviours to enter the workplace. It is important to adopt a flexible approach to when a placement could take place, for example offering multiple opportunities throughout the programme for block placement weeks.

Individual learning objectives

Set employability-based objectives initially and once achieved progress onto more technical objectives related to students' roles within the construction sector. These could be to develop both essential and technical skills.

Further information on T-levels

- [Specification: T Level Technical Qualification In Design, Surveying and Planning for Construction \(pearson.com\)](#)
- [8710 Technical Qualification in BSE for Construction Specification \(cityandguilds.com\)](#)
- [Level 3 Construction T Level: On-Site Construction \(8710-30\) \(cityandguilds.com\)](#)
- [Guidance on effective practice in curriculum planning \(January 2023\)](#)
- [Guidance on T Level Industry Placement Delivery \(June 2023\)](#)