MOVING LECTURES ONLINE:
INTRODUCTION

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In a typical lecture, instructors model modes of inquiry and explain concepts while students engage with the material and begin to process it. The question many lecturers will currently have is how to do this effectively in a distance-learning context?

With so much advice currently being published on remote teaching, the prospect of shifting to distance education by Easter Term can feel overwhelming. The purpose of this guide is to help you make the transition to online lecturing efficiently and effectively, and with a strong emphasis on your students’ learning experience. It is not necessary to transform your lecturing into a fully developed online course in this short amount of time. Right now your energy will be best spent focusing on your students’ experience:

• How can you continue to facilitate your students’ learning as the collegiate University transitions to digital education?
• And, how can you do so in a way that’s inclusive of all students?

To help you in this effort, this guide addresses the essentials you will need to know to quickly move your lecturing online:

• The basics of asynchronous lecturing (pre-recorded lectures)
• The basics of synchronous lecturing (live lectures with students connected)
• Suggestions for how to blend these two approaches.

This guide also explores techniques and strategies for enhancing your remote teaching should you have time to experiment with the many possibilities of digital education.

We’ve also included:

• An overview of teaching formats, remote teaching platforms and tools, and accessibility for students with disabilities: Selecting which tool
• How-to guides, including using Panopto to record lectures; collaborative whiteboards; recording with Powerpoints.

We’ve had some offers from colleagues to create further ‘How-to videos’, which we will add to this document. If you would like to contribute, please contact enquiries@ctl.cam.ac.uk.
If you choose to deliver your lectures live, be prepared for your preferred system not to work, or to stop working at some point.

If you choose to teach synchronously, you will need to decide on the accommodations you will provide for students who are unable to follow the lecture at the designated time. Students may be living in spaces which are shared with others, for example, family members, and illness or caring for others may restrict time available. Some students may be living in different time zones from you as well. In the exceptional circumstances of the pandemic, we recommend that synchronous lectures should therefore be recorded and subsequently made available to students. Most digital platforms are equipped with simple recording mechanisms, which make lecture capture easy. Note that copyright and intellectual property rights remain with the lecturer; recordings may be used by students only for their own study and must not be shared on social media.

Note: for disabled students including those with neurodiverse profiles, we’ve provided some more detailed information, and some suggestions for good practice in ‘Guidelines for creating accessible recorded online lectures’. In some subjects and colleges, Directors of Studies may already have information about the technologies available to students and be able to share this with lecturers, so as to minimise the numbers of enquiries that students need to respond to.
Before exploring the many options for remote teaching as well as the useful and creative tools at your disposal, it is worth considering some general differences between face-to-face and remote teaching. In an online environment, social cues as well as verbal and nonverbal feedback are absent or greatly altered. Whether you’re pre-recording a lecture or delivering it live to muted (and faceless) students, it can feel as though you’re speaking into a void.

A common consequence of this uni-directional communication is that it can take much longer to explain something than it does in person. The knowing nods, the engaged (or confused) faces you see when teaching in front of your students are gone in a virtual context and suddenly so are the cues you rely on to proceed with your lecture or to gauge your students’ understanding of the material.

This lack of verbal and nonverbal interaction with students can be disorientating and can affect your timing. This guide will explore different ways to deal with this common issue.

**KEY POINTS**

- How online teaching environments differ from in person settings
- How remote teaching can alter your usual timing and pace
There are several ways to deliver an online lecture: synchronously (live with students logged on at the same time); asynchronously (pre-recorded lectures which students can access at any time or within a given window of time that you establish); and, a blended version of these two modalities (mixing pre-recorded elements with some live segments). There are pros and cons to each of these methods.

In the present circumstances, recorded lectures are preferable to live virtual lecture delivery for a number of reasons. Pre-recording lectures gives lecturers who are new to this mode of lecturing the flexibility to practise and edit. Pre-recorded lectures also give flexibility both to students and to lecturers who may be affected by illness or the need to care for others. Note that copyright and intellectual property rights remain with the lecturer; recordings may be used by students only for their own study and must not be shared on social media.

Beyond these considerations, which are particular to the current situation, there are a range of further questions which are always relevant when deciding whether to lecture live or to pre-record:

- Is it necessary for students to engage with the material simultaneously with each other and with you?
- If you normally include interactive elements on your lectures: what are the strengths and limitations of the live and asynchronous teaching tools that are available to you?

Your answers to these questions should help you determine which approach – pre-recorded or live – best suits your needs and those of your students. In response to the pandemic, your Department or Faculty may have developed guidelines concerning lecturing live or asynchronously: if you aren’t already aware of these, please check with your Department or Faculty.

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**KEY POINTS**

- Synchronous and asynchronous lectures
- How to decide whether to pre-record or to deliver your lectures live

**OPTIONS FOR LECTURING ONLINE:**

- How to choose
For some of you, though not all, the practice of pre-recording lectures will be a completely new endeavour with seemingly no likeness to the standard face-to-face teaching with which you’re familiar. Reciting your lecture into a laptop or a mobile device while seated in your home office or dining room is indeed vastly different from presenting it in person to students and even somewhat different from presenting it live online.

Recording lectures for students to listen to at a future date has a podcast feel to it—while recording you will be speaking to an imagined audience and presenting ideas or uncovering problems/questions without the benefit of any kind of immediate feedback or even the opportunity to make eye contact with someone. This method can initially feel awkward or stilted, but it has a lot of creative potential.

To get started, you will want a clear narrative to your lecture in order to save time. Because verbal and nonverbal feedback from students will be absent while you’re recording your lecture, you might find yourself prone to wordiness or over explaining a concept or idea. It helps to be succinct in this setting and that might require some rehearsing before recording or the jotting down of some precise language to sharpen the points you hope to make. Once you have tightened up your lecture narrative aim for a conversational style of speaking, which is more engaging to follow. Again, it can be helpful to imagine yourself actually speaking to your audience.

Aligning your lecture with your slides usually does not require advanced technological knowledge, as most platforms automatically synchronize the voice and visual recordings. There is further guidance in the ‘Selecting which tool’ section of this guide. For sound clarity, you might want to use headphones or a microphone if you have one. It is a good idea to test these devices before recording, as some microphones or headsets can produce an unpleasant tinny sound, which can be distracting.

Note: for disabled students including those with neurodiverse profiles, we’ve provided some more detailed information, and some suggestions for good practice in ‘Guidelines for creating accessible recorded online lectures’.

KEY POINTS

• The difference between lecturing into a recording device and in front of students
• The need for a clear narrative when recording lectures
• Aligning voice and slide recordings and sound clarity
• Creating accessible online lectures
Attention spans are shorter in online learning contexts, lasting usually around fifteen minutes before a student begins to drop off or become distracted. Splitting your lecture into discrete ten or fifteen minute sections, inserting pauses at logical stopping points or constructing distinct learning segments, will make it easier for students to follow and remain engaged.

Wherever you plan to upload your lecture, whether on Moodle or another platform, you can title each section or present it with a brief description or an overarching question, adding further direction and clarity to the lecture’s aims and content. In organising the chunked segments, you may find it necessary to reduce your teaching goals and identify a few specific things you want your students to learn or engage with. In a remote-learning environment, where students are compelled to learn from a distance, sometimes the most effective teaching choice is to be succinct and to abridge the content you would have taught in a face-to-face setting.

If you decide to frame lecture segments around a question, you could conclude a segment by encouraging your students to pause and think about their responses before starting the next one. Depending on subject, you could end sections with a short quiz or a one-minute paper, where students take one minute to write an answer to a question or to write a description of the concept or material you’ve just presented. When you begin the next segment, you could briefly refer back to the important terms, concepts or ideas of the previous segment. Bookending the chunked segments of your lecture in these ways will hold students’ attention in a virtual setting and help them progress in the processing or sense-making of the material you’re discussing. Doing this may take some practice, and it may feel awkward or over-structured initially, but it will likely enhance your students’ learning experience. Disseminating key questions or points prior to the lecture can be a valuable way to give further focus to these activities.
OPTIONS FOR LECTURING ONLINE: iv. Enhancing your asynchronous lecturing

KEY POINTS

• Making a recorded lecture dynamic
• Using didactic exercises in an asynchronous lecture
• Experimenting with short films

If you have more time to plan and develop your online lectures, there are several things you can do to help your students learn more effectively from them.

For example, you might want to consider the dynamic elements you could add to the recording. Students generally prefer to see their lecturers so enabling your webcam for all or parts of your lecture is helpful, though this might take some practice if you also intend to use a whiteboard during remote lectures.

Designing didactic exercises, such as the ones described in the previous section—brief quizzes, one-minute papers, short questions to consider—will also encourage your students to engage in active listening. You could follow up each chunked segment with a quiz or brief writing exercise, which you can then refer to or review briefly in the next recorded section. There is a lot of potential for experimentation with asynchronous lecturing and using didactic exercises can be a particularly creative way to interweave the theoretical and applied elements of the material you’re covering and to encourage students to engage actively in their learning.

If you have time to further develop your remote teaching, you may be interested in experimenting with short films to succinctly or imaginatively cover a topic, idea or concept. White board animation software or PowerPoint video editing have tools for making brief animations and films. Links to examples of these can be found on this Moodle site. These tools can be used in a variety of creative ways—explaining key concepts in your discipline, modelling modes of thinking or enquiry in your field, or using an analogy to illustrate a difficult concept. There are numerous possibilities. To add interactivity to short films (or to any pre-recorded elements of a lecture), you could prompt students with a question before they view the videos.
In some ways, synchronous lecturing may seem like the most straightforward way to move lectures online as it replicates to some degree the elements of an in-person lecture: lecturer and students are together in a live meeting and interaction with and among students can take place in real time. As the lecturer, you activate the session and simply begin broadcasting your lecture live. You can make yourself visible to students via webcam and share your screen or whiteboard throughout the lecture, adding to the dynamism of the experience. You can also decide whether you want students to enable their webcams (if available), a choice which will depend on the number of students attending the lecture.

If you choose to teach synchronously, you will need to make accommodations for students who are unable to follow the lecture at the designated time. All synchronous lectures should be recorded and subsequently made available to students. Most digital platforms are equipped with simple recording mechanisms, which make lecture capture easy.

You will find an overview of the different functionalities and considerations relating to students with disabilities in ‘Selecting which tool’.

Note: for disabled students including those with neurodiverse profiles, we’ve provided some more detailed information, and some suggestions for good practice in ‘Guidelines for creating accessible recorded online lectures’.

**KEY POINTS**

- The basics of live lecturing
- Recording live lectures and making them available to students
- Creating accessible online lectures

OPTIONS FOR LECTURING ONLINE: v. Synchronous lecturing
If you have more time to plan and develop your online lectures, there are several things you can do to maximise the student experience of synchronous lecturing. As we discussed above (‘Enhancing your asynchronous lecturing’), you might consider dividing your lecture into smaller segments (sometimes called ‘chunking’). Attention spans are shorter in online learning contexts, and so splitting your lecture into discrete ten or fifteen minute sections, inserting pauses at logical stopping points or constructing distinct learning segments, will make it easier for students to follow and remain engaged.

As we described above (‘Chunking your asynchronous lecture’), you could use questions at the beginning and / or end of each lecture segment to ‘bookend’ them in ways which will hold students’ attention in a virtual setting and help them progress in the processing or sense-making of the material you’re discussing.

It is also possible to make creative use of the chat box during a live lecture by encouraging students to make comments, solve problems, pose questions, or answer your questions. This interactivity can be enhanced by providing students with a lecture outline, a set of questions or a few problems to think about ahead of time. Keep in mind, however, that it can be challenging and time-consuming to follow chat box activity during your lecture. You may decide to check it only at designated times and then to limit yourself to only one or two minutes of reading or responding live to students’ activity in the chat box.

Other helpful practices you might want to consider include sharing your lecture notes with students or, if you use the chat box, copying its content post-lecture into a Word document and posting it alongside the recording of the lecture. It’s helpful for students to see their peers’ questions, comments or attempts at problem solving.
It is possible to combine these two modes of remote teaching. You could post short, recorded lecture segments that students watch on their own and then follow that up with live sessions in which you further explore the lecture material, facilitate interaction with students or guide them through an activity.

This is a particularly good strategy if there are fundamental concepts you need to explain and that students might want to refer back to for clarification. By pre-recording certain segments, you can design clear, succinct explanations, a video library of your discipline’s threshold concepts. You might also consider using these videos even after the University returns to the standard in-person lectures since pre-recording fundamental definitions or ideas can free you up to cover material in more depth in a live lecture.

Splitting up the elements of your teaching into recorded and live elements takes time and planning. This may be an approach you work towards and develop after you have had a chance to grow more familiar with remote teaching and learning.
For many lecturers and students, virtual education is a new experience, and figuring out what works can take time. Exchanging and testing out ideas or questions with others will no doubt be helpful.

• Try to share questions, ideas and maybe resources with fellow lecturers: doing so could help identify and address problems, could save time, and could even lead to innovation. You might also be able to set up an informal network of colleagues in your Colleges, Departments or Faculties.

• Try to collaborate with your students: talk with them about what you’re trying to do, ask them what’s working for them, what do they think could help to iron out difficulties or enrich their learning?
  o the ‘chat’ function within Teams, or Forums within Moodle, or collaborative editing documents could be a way for students to develop their ideas and share them with you and each other.

LEARNING FROM EXPERIENCE

COMMEND AND RECOMMEND

Basic format: at the start of a teaching session, explain to the students that at the end of the session you will ask them for two brief comments on what they have found helpful and one thing that they think could be changed and why they think this would help. The balance of ‘commendations: recommendations’ (2:1) encourages constructive feedback.

You can decide whether you want to do this ‘live’, during a conference call, or whether you will post the questions below and ask students to respond in their own time.

Be ready to collect your students responses, think about their ideas and then explain at or before the beginning of the next supervision what you’ve decided to do, and why.

Q1: Please tell me about two aspects of today’s lecture that you found helpful and briefly explain why.

Q2: Please tell me about one aspect of today’s lecture that you think could be done differently and briefly explain why you think this would make a positive difference.
There are a range of options at your disposal, and a non-exhaustive overview with links to more information is provided below. Please note as indicated in the table that not all options are supported by UIS.

AbilityNet have created a useful seminar ‘How to Run Accessible Online Meetings for disabled people working and studying from home’.

### SELECTING WHICH TOOL

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<th>Teaching method</th>
<th>Suggested alternative for remote teaching</th>
<th>Software</th>
<th>UIS Support</th>
<th>Accessibility considerations</th>
<th>Requirements</th>
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| Lectures        | Record a video with audio / slideshow / screenshare / webcam / visualiser (document camera) as appropriate and share it with students to watch in their own time. | Creating videos:  
- [Panopto desktop recorder](https://www.panopto.com) (any combination of audio, webcam, slides, screenshare and visualiser (document camera))  
- [Powerpoint recorder](https://www.powerpoint.com)  
- [OBS Studio](https://obsproject.com)  
- [macOS or Quicktime](https://www.apple.com/mac) | ✔️ | Videos uploaded to Panopto can be enhanced with captions, chapters and bookmarks.  
PowerPoint now has a [live captions/subtitles feature](https://support.office.com) that can be used to create captions and transcripts | Staff: High-speed internet connection, mic and audio playback required. Webcam and visualiser (document camera) optional. Students: High-speed internet connection and audio playback required. |
|                 | Publishing videos:  
- Publish to a particular Moodle course by [uploading video to Panopto](https://www.panopto.com). Only students enrolled on the relevant Moodle course can access the video. (Not limited to videos created with Panopto desktop recorder. Videos published from Panopto are covered by our terms and conditions.)  
- Upload videos to online storage and share the link with students:  
  - [Google Drive](https://drive.google.com) ✔️  
  - [OneDrive](https://www.onedrive.com) ✔️  
  - [iCloud](https://www.icloud.com) ✖  
  - [Dropbox](https://www.dropbox.com) ✖ | | | |

Please do not send videos as email attachments or upload videos directly to Moodle.
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| Lectures        | Live stream audio / slideshow / screenshare / webcam / visualiser (document camera) and record the session for later reference (including students in different time zones, with caring responsibilities or incapacitated due to illness). | Live streaming and recording:  
- Panopto desktop recorder  
- Google Meet  
- Zoom  
Note: Microsoft Teams is not recommended for live streaming as the University’s license is restricted to 15 concurrent live stream events, meaning people cannot rely on it being available when they want it.  
Publishing videos – as above. | ✓ | Panopto does not support captions during live streaming, but these can be added to a recording after it has been created, or by using the captions feature in PowerPoint.  
Teams & Google Meet includes support for live automatic captions.  
Zoom does not support automatic live captions but captions can be added manually using the keyboard or by using the captions/subtitles feature in PowerPoint. | Staff: High-speed internet connection, mic and audio playback required. Webcam and visualiser (document camera) optional.  
Students: High-speed internet connection and audio playback required. |
| Distribution of lecture materials | Files can be shared from the VLE or made available to download from online storage.  
Materials shared via the VLE are only available to students enrolled on the relevant course.  
When using online storage, you can use the sharing settings to control who has access to the materials.  
For sharing multiple files using online storage, you may want to set up a shared drive. | • Moodle – materials are shared with all students enrolled on your course.  
• Google Drive  
• Microsoft OneDrive  
• iCloud  
• Dropbox  
Please avoid sending large files by email. | ✓ | Guidance from DRC on making documents and slides accessible. | Standard internet connection |
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| Supervisions and seminars | Where synchronous sessions are possible, use video conferencing tools. Video conferences can include a screenshare to show slides or other applications. Combine with virtual whiteboards for collaborative sessions. Sessions may be recorded if required for particular students or to make it available to participants that could not attend. Where synchronous sessions are not practical (e.g. due to time zone constraints or bandwidth issues) consider sharing a pre-recorded video and/or setting video assignments. For further advice on remote supervisions, refer to the CCTL guidance. | Video conferencing:  
- **Microsoft Teams** – add **Microsoft Whiteboard** to the channel if needed.  
- **Google Meet** – include a link to shared web **Jamboard** (virtual whiteboard) if needed.  
- **Zoom** | ✔️ | Microsoft Teams currently provides more benefits to disabled users than other video conferencing/collaboration platforms, specifically the ability to have live captions in any session (and a time-stamped transcript available afterwards). For a comparison of the accessibility functions provided, see the DRC's comparative assessment. Captioning as above. | High-speed internet connection, mic and audio playback required. Webcam and visualiser (document camera) optional. |
|                      | Virtual whiteboards:  
- **Microsoft Whiteboard**  
- **Google Jamboard**  
- **AWW App**  
- **Whiteboard Fox** (boards are public)  
- **Miro** (note that boards are public when using the free version)  
- **Mural** (additional cost) | ✔️ | ✔️ | ✔️ | ✔️ | Freedom Scientific have released a FREE training course and some excellent cheat-sheets for those that want to use Teams with JAWS. |
### Teaching method

<table>
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<tr>
<th>Essays and other assessments (excluding examinations)</th>
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<tr>
<td>Work completed on paper can be submitted to you online for marking and feedback. Handwritten work can be scanned to a single PDF file. The recommended apps address lighting and distortion issues for better legibility, and allow students to submit their work as a single PDF file which you can annotate.</td>
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<tr>
<td>Work submitted as a Word or Pages file can be opened and annotated using comments in Word or Pages, or exported to PDF for annotation.</td>
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### Suggested alternative for remote teaching

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<td>Scanning handwritten work to PDF:</td>
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<td>- Adobe Scan (Android and iOS)</td>
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<td>- Microsoft Office Lens (Android and iOS)</td>
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<td>- vFlat (Android)</td>
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<td>- Evernote Scannable (iOS)</td>
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<td>- Scanbot (iOS)</td>
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<td>Submitting work:</td>
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<td>- Moodle assignments</td>
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<td>- Google assignments</td>
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<td>- Microsoft Teams</td>
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<td>- Microsoft OneDrive</td>
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<td>- Microsoft Lens</td>
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<td>Providing feedback:</td>
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<td>- Microsoft Teams with OneNote plugin for collaborative editing</td>
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<td>- Microsoft Word</td>
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<td>- Google Drive</td>
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<tr>
<td>- Adobe Acrobat Reader (all platforms – free)</td>
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<td>- Preview (for Mac – free)</td>
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<tr>
<td>- Journal (for Linux – free)</td>
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<tr>
<td>- Drawboard (for Windows – additional cost)</td>
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<tr>
<td>- PDF Expert (for Mac or iOS – additional cost)</td>
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<td>UIS Support</td>
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<td>Requirements</td>
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<td>Standard internet connection.</td>
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<td>Screenshare requires high-speed internet connection.</td>
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HOW-TO GUIDES

We have curated some guides produced by academic and professional services colleagues, as well as drawing on some external resources. We’ve had some offers from colleagues to create further ‘How-to videos’, which we will add to this document. If you would like to contribute, please contact enquiries@cctl.cam.ac.uk

PANOPTO

UIS have created a Panopto Educational Video Support Moodle course where you can find further information, including instructions on downloading and using the software.

A guide to using the Panopto Desktop Recorder created by Dr Dee Scadden from the Department of Biochemistry.

COLLABORATIVE WHITEBOARDS

A guide to screen sharing and collaborative whiteboard created by Andrew Rice from the Department of Computer Science.
Microsoft have some clear instructions relating to recording your screen in PowerPoint on their support hub.
This introduction to moving lectures online was developed by the Cambridge Centre for Teaching and Learning. We are grateful to colleagues who gave feedback and shared ideas, including Prof. Alastair Beresford (Computer Lab, Queens’). Our colleagues in University Information Services and the Disability Resource Centre were generous with their advice and time. The ourcambridge team provided invaluable design help.

We welcome comments and suggestions. If you would like to get in touch, please contact enquiries@cctl.cam.ac.uk.