

## *Exploring a flipped approach to Construction Technology teaching, for inclusive learning and assessment*

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**Hector Archila**



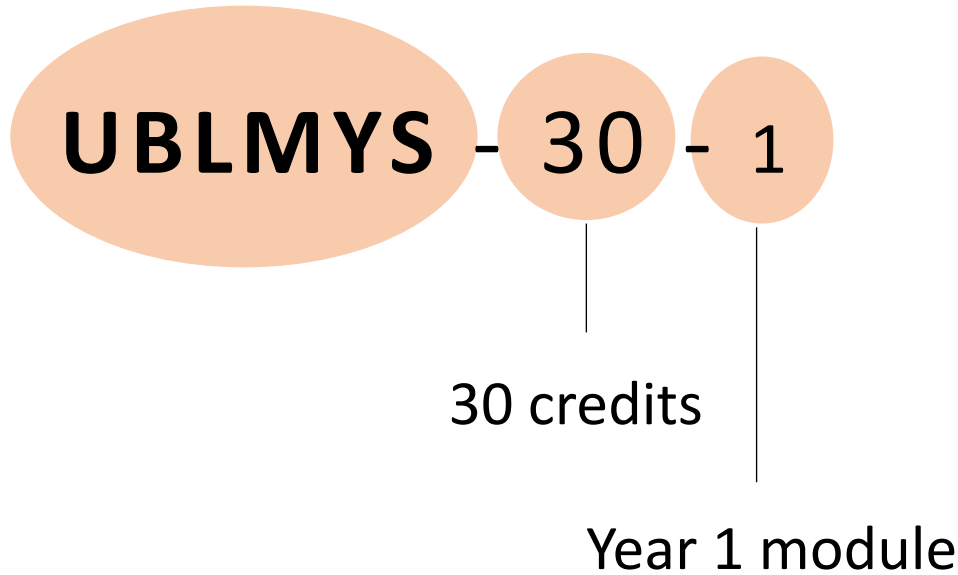
Hector.Archila@uwe.ac.uk

# The plan for today's session

- 1 INTRODUCTION** Us!  
The Module (A)  10 mins  
The 3 P's  
Attainment/ Awarding Gap
- 2 PREPARE** Xerte (in groups)  10 mins
- 3 PARTICIPATE** 'Lectorial'  20 mins  
Discuss A B C D
- A. Module Structure
  - B. Methods of Delivery – Pre/ During /Post COVID
  - C. Assessment Strategy
  - D. Teaching Tools and Technologies
- 4 PRACTICE** Attainment  
Feedback from students – Is it working?  
Feedback from you  5 mins

# 1. INTRODUCTION

# Construction Technology and Services 1



## Taken by:

- BSc Building Surveying
  - BSc Quantity Surveying and Commercial Management
  - BSc Architectural Technology and Design
  - BEng Building Services Engineering
  - BSc Construction Project Management
- 
- 2022/23 Approx. 185 students
  - Full time / Part time (apprenticeship) students

**Taught by:** Architects, Engineers (BSE, Civil), QS (AL) + PALs

College of Arts, Technology and Built Environment (CATE)  
School of Architecture and Environment (SAE)



# UWE's 3P's learning framework

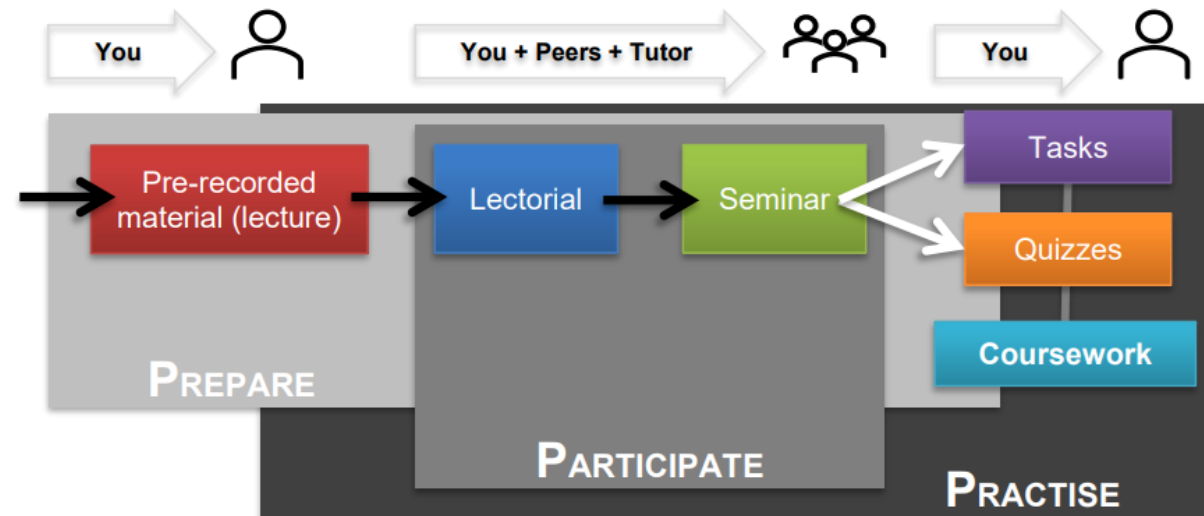
- Designed to give clarity to students about what their learning involves
- Helps staff create engaging and authentic learning experiences

**P**REPARE = Pre-recorded Lecture

**P**ARTICIPATE = 'Lectorials' *Lecture + Tutorial*

**P**RACTISE = Seminars & Assessment

 **Flipped Classroom Approach**



# Flipped Approach

- **'Flipping'** uses the more valuable 'face-to-face' time for interactive teaching.
- It prevents passive learning.
- Students have already taken notes on the topic and can develop a better understanding, through more interactive sessions.

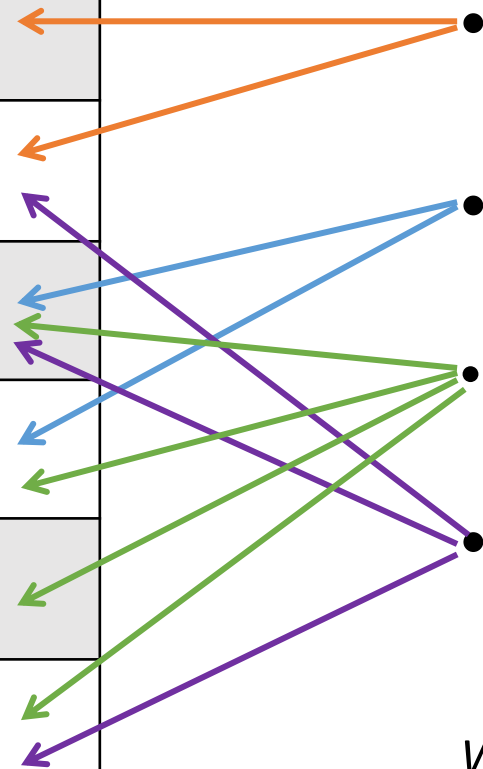
*"The consensus is that **dynamic, interactive** learning in which students are presented with opportunities to **solve problems** is more effective than students functioning as receivers of didactic transmission. **Interacting** might be with the '**lecturer**' or **between peers**." [\(Lancaster, 2013\)](#)*

*"In a [meta-analysis](#) of about 300 of these studies, scholars at Hope College found that flipped learning substantially **increases students' academic performance and engagement**." [\(Berman, 2023\)](#)*

# Change/Adapt teaching & assessment...

## D. Laurillard's 'Six Learning Types' Active/Student-centred & Constructivist learning [\(Laurillard et al., 2018\)](#)

1	ACQUISITION
2	INVESTIGATION
3	PRACTICE
4	DISCUSSION
5	COLLABORATION
6	PRODUCTION



• **Lectures** = Recorded

Prepare/Research/Test/Question/ [Individual]

• **Lectorials** = Lectures + Tutorials

Reinforce/Question/Discuss/**Participate** [ALL during 'Lecture' time]

• Tutorials = **Seminars** / Tasks

Practice/Apply/Experience/Reinforce [Group]

• **Assessments:** Regular Quizzes, Tasks,  
Cwk case scenario / role-playing [Individual/Group]

*Working together, co-creating and sharing leadership  
with my modules' teams...!*

# Attainment/Awarding gap

All figures below are first sit only. To sort by largest gap please select one year then click on the 'Average Mark Gap' header.

Module Name	Module Code	Year	White Students	BAME Students	% BAME	White Average Mark	BAME Average Mark	Average Mark Gap	White Pass Rate	BAME Pass Rate	Pass Rate Gap (pp)	x more White	x more BAME
CONSTRUCTION TECHNOLOGY AND SERVICES	UBLMYS-30-1	17/18	77	10	11.5%	54	48	6 !	79.2%	50.0%	29 ✘		3
		18/19	93	10	9.7%	59	51	8 !	86.0%	60.0%	26 ✘		3



# 2. PREPARE

## 2. PREPARE: 'Breakout groups'

(10 mins)

*A method used during COVID, when all teaching was online*

Please review this session's Xerte and discuss one of the following in your groups...

Module Structure

**Group A: Methods of Delivery**

**Group B: Assessment Strategy**

**Group C: Teaching tools & Technology**

Link to Xerte: [https://xerte.uwe.ac.uk/play\\_6969](https://xerte.uwe.ac.uk/play_6969)

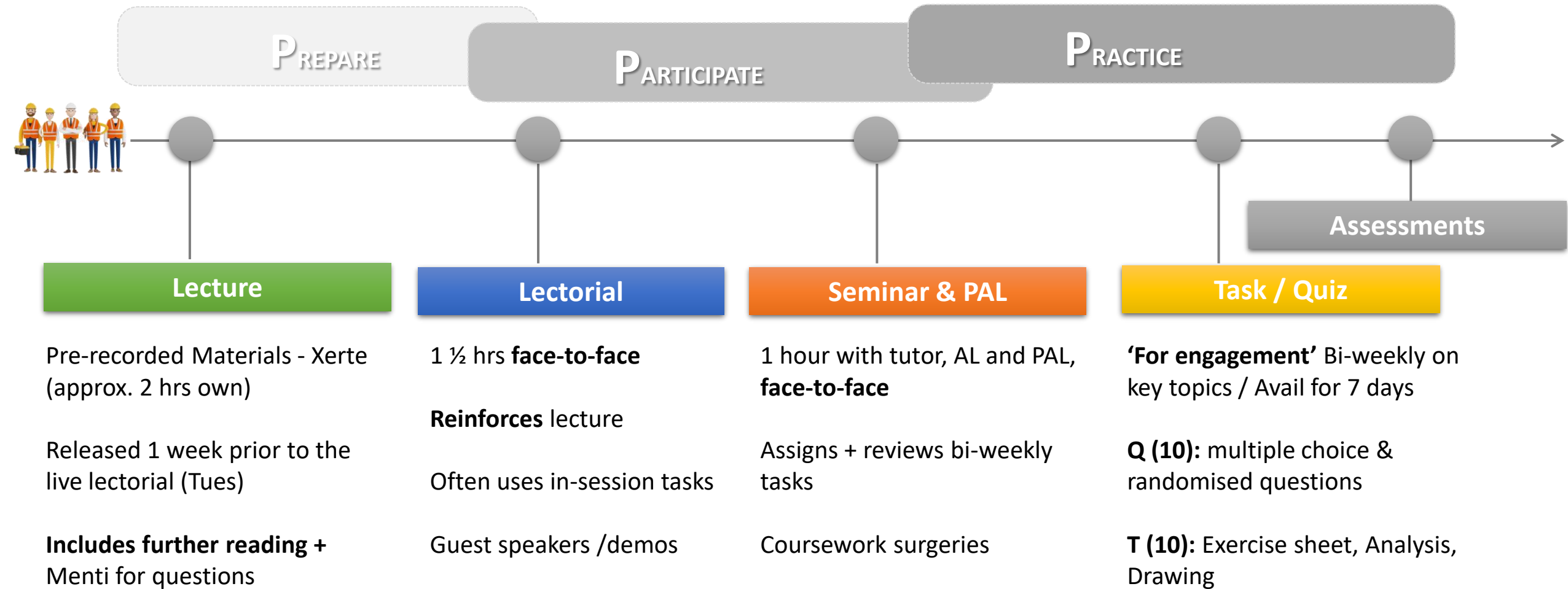


# 3. PARTICIPATE

# A. Methods of Delivery

Hector

# Module Delivery – 'Multi-modal' teaching & learning



# Weekly Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9-10am							
10-11am							
11-12pm		Lectorial					
12-1pm							
1-2pm		Seminar & PAL					
2-3pm		Seminar & PAL					
3-4pm		Seminar & PAL					
4-5pm							Task Deadline
5-6pm							Quiz Released
6-7pm							
7-8pm		Lecture Released					

# Task Booklets

**UBLMYS-30-1**  
Construction Technology and Services 1

**Module Handbook**  
2022 / 2023 Academic Year

Module Leaders:

Dr Hector Archila PhD, FHEA, PGCert, PGPM, BArch Senior Lecturer	Clare Davidson AFHEA, PGCert, ARB, BArch Senior Lecturer
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Dept. of Architecture and the Built Environment  
Faculty of Environment and Technology



**UBLMYS-30-1**  
Construction Technology and Services 1

**Task Booklet A**

2022 / 2023 Academic Year  
Autumn Term | Weeks 11 – 22 | 26<sup>th</sup> Sept – 16<sup>th</sup> Dec 2022

Module Leaders: Dr Hector Archila  
FHEA, PhD, PGPM, BArch  
Senior Lecturer

Clare Davidson  
FHEA, PGCert, ARB, BArch  
Senior Lecturer

**UBLMYS-30-1**  
Construction Technology and Services 1

**Task Booklet B**

2022 / 2023 Academic Year  
Spring Term | Weeks 29 – 43 | 30<sup>th</sup> Jan – 8<sup>th</sup> May 2023

Module Leaders: Dr Hector Archila  
FHEA, PhD, PGPM, BArch  
Senior Lecturer

Clare Davidson  
FHEA, PGCert, ARB, BArch  
Senior Lecturer

© Block Housing, Malings, Newmarket

**UBLMYS-30-1**  
Construction Technology and Services 1  
Component A

**Portfolio of Engagement**  
*Portfolio of Revised Tasks – Brief (A3)*  
Due Tuesday 25<sup>th</sup> April 2023 by 2pm

Module Leaders:

Dr Hector Archila AFHEA, PhD, PGPM, BArch Senior Lecturer	Clare Davidson AFHEA, PGCert, ARB, BArch Senior Lecturer
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College of Arts, Technology and Environment (CATE)  
School of Architecture and Environment

vs. 07/02/2023 13:02



**UBLMYS-30-1**  
Construction Technology and Services 1

**Component B Assignment Brief**  
**Technical Building Proposal**  
*Due Tuesday 13<sup>th</sup> December 2022 by 2:00 pm*

Module Leaders:

Dr Hector Archila, FHEA, PhD, PGPM, BArch Senior Lecturer	Clare Davidson FHEA, PGCert, ARB, BArch Senior Lecturer
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Faculty of Environment and Technology

vs. 12/11/2022 11:42



# B. Assessment Strategy

Clare



# Assessment briefs

**UBLMYS-30-1**  
Construction Technology and Services 1

Component B Assignment Brief

**Technical Building Proposal**

*Due Tuesday 13th December 2022 by 2:00 pm*

Module Leaders:

Dr Hector Archila, FHEA, PhD, PGPM, BArch, Senior Lecturer	Clare Davidson FHEA, PGCert, ARB, BArch Senior Lecturer
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vs. 12/11/2022 11:42



**Component B**  
**'Technical Building Proposal'**  
**40%**

**UBLMYS-30-1**  
Construction Technology and Services 1

Component A

**Portfolio of Engagement**

*Portfolio of Revised Tasks – Brief (A3)*

*Due Tuesday 25th April 2023 by 2pm*

Module Leaders:

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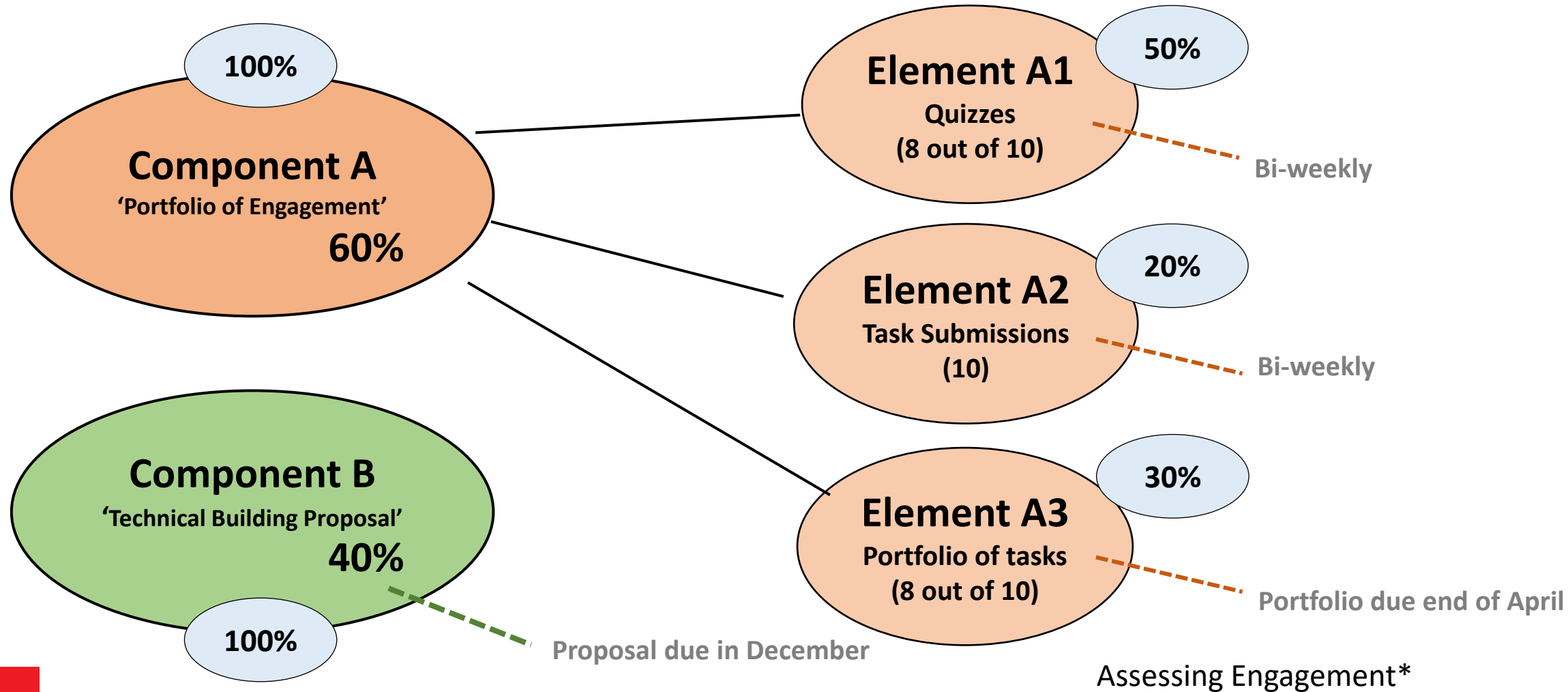
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School of Architecture and Environment

vs. 07/02/2023 13:02



**Component A**  
**'Portfolio of Engagement'**  
**60%**

# Module Components and Weighting %



# C. Teaching Tools & Technology

Hector

# Software / TEL – tools

## Blackboard®

Blackboard Collaborate  
My Attendance



Word/ Adobe/ Chrome/ Panopto

'Adobe Scan' app – UWE log in

Xerte Lecture platform

Menti – 'I don't get it board'

[appsanywhere.uwe.ac.uk](https://appsanywhere.uwe.ac.uk)

Microsoft Teams

## Mentimeter



## AppsAnywhere

# The Module Blackboard Page

UBLMYS-30-1 - Construction technology and services 22sep\_1    Announcements    Edit Mode is: OFF

Institution    Course

## Announcements

### 3 P's Weekly Announcement - Week 34

Posted on: Friday, 24 February 2023 17:32:06 o'clock GMT

Hi all,

This is your usual 3P's announcement for this module. Remember to always check the module schedule to be ahead of the game and:

#### 1 - Prepare

- The pre-recorded materials for the session on **Electrical Services** led by Dr Murat Mustafa have been released prior to the session on 7th March.
- Please use the Menti '**I don't get it board**' for any questions you have about the session.

#### 2 - Participate

- As usual, participate in the lectorial on **Tuesday 7th March at 10.30 am** and the subsequent Seminar sessions!
- Have a look at Task #8 and get ready to ask any questions; Murat and the Module Team will aim to provide guidance.

#### 3 - Practice

- **Quiz #07: Domestic Mechanical Services** will be released this Sunday 26th and will be available for 1 week until **Sunday 5th March at 5pm**.
- Read the Cwk 2 brief during enhancement week and start preparing - from 21st March you will have an opportunity to show us your progress! Make the most of the break, try to get ahead.

Enjoy your Enhancement Week!

Hector and Clare

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Posted by: Clare Davidson  
Posted to: UBLMYS-30-1 - Construction technology and services 22sep\_1

PREPARE  
PARTICIPATE  
PRACTICE

Central to all communication

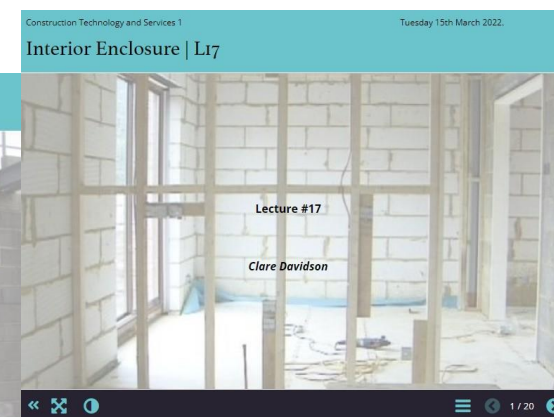
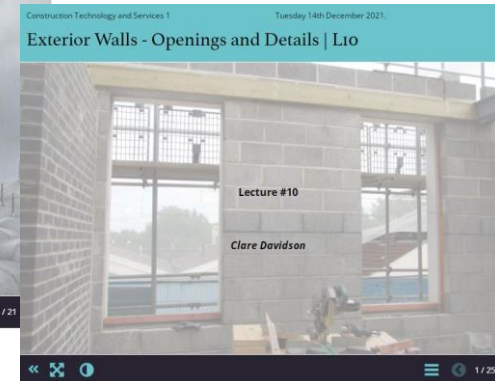
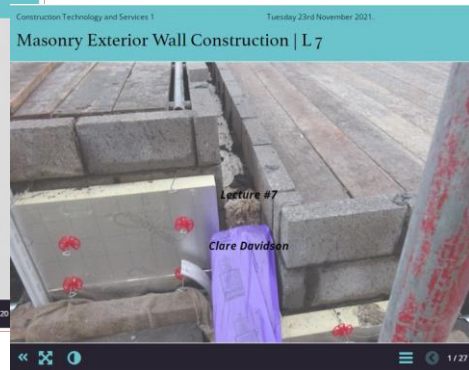
# Xerte for Pre-recorded lectures

- A range of learning styles – videos, images, text, interactivity, narration
- Using an accessible template – good quality, clear and well-designed resources

Festival of Learning 2022

Friday 17th June 2022.

A more inclusive approach to module delivery and assessment.





# Xerte for Pre-recorded lectures

- Embedded content/ PDFs
- You Tube videos
- Interactive Text/ Gap fill
- Drag and Drop Labelling
- Multiple-choice questions
- Sortable grid
- Matching
- Hotspot questions
- Image viewer
- Narration

Festival of Learning 2022

Friday 17th June 2022.

A more inclusive approach to module delivery and assessment.



son & Hector Archila



Construction Technology and Services 1 Tuesday 14th December 2021

### Q: Wall Details - New terminology

What is a.....?

A small opening b can be opened to

- Cavity Closer
- Cavity Tray
- Vertical dpc
- Drip
- Trickle vent

23 / 25

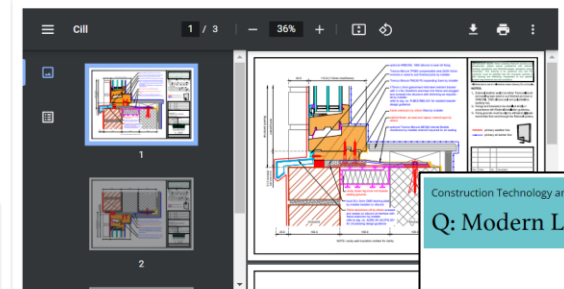
Construction Technology and Services 1 Tuesday 14th December 2021

### Technical Details

The document on the right contains three pages of standard manufacturers details for 'Rationale' windows, suitable for houses up to and including Passivhaus standards. The document contains a typical head, cill and jamb detail.

Take a look at the details and seek to identify some of the elements introduced in this lecture; lintels, cills, fixing plates, cavity closers, dpc, airtightness membrane

Open PDF



00:00

Construction Technology and Services 1 Tuesday 14th December 2021

### Q: Modern Lintel Provision

Pressed steel lintels are usually \_\_\_\_\_ from the inside to the outside face and because steel is \_\_\_\_\_ to water, the lintel effectively already incorporates a dpc, but it is advisable to still use a shaped \_\_\_\_\_ above them. \_\_\_\_\_ must be installed in the masonry joints above the lintel, to allow the water to drain out.

The hollow centre of these lintels is generally filled with a material which has a high \_\_\_\_\_ in an attempt to eliminate any \_\_\_\_\_ at the head of the opening.

Weep holes steel lintels impervious loadbearing cavity tray

heavier cold bridge blockwork conduct heat thermal insulation value

substrate precast concrete lintels sloped

Check

16 / 25

# Menti for questioning or quizzes



Try it!

Go to Menti.com

Enter the code: 000 0000



The 'I don't get it' board

Menti - 'I don't get it' Board - Construction Technology and Services 1  
Tuesday 14th December 2021. - Google Chrome  
xerte.uwe.ac.uk/preview\_2781#page4

Construction Technology and Services 1  
Tuesday 14th December 2021.

## Menti - 'I don't get it' Board

Please let us know if there is anything that you don't understand and would like us to go over in the Lectorials. Equally, please add any questions that you think of, whilst completing this lecture.

This will be anonymous.  
We will answer as many as we can.

**UWE Bristol** University of the West of England

### Don't get it?! Have Questions? Ask me anything!

Click the button to participate!

Open Q&A

Finish

Powered by Mentimeter Terms

« 🔍 🕒 ⋮ ⏪ 4 / 25 ⏩ »





# 360 Images

*Navigate the 360 photos of the NSBRC centre in Swindon*

## **LEFT**

*Roof Construction – exterior*



## **CENTRE**

*Attic Roof Construction*



## **RIGHT**

*Roof Construction – exterior*



# Guest Speakers



# Qualtrics for student feedback

Construction Technology and Services 1 (UBLMYS-30-1)

## Your feedback

Qualtrics Survey

We are constantly improving the Learning and teaching Materials of this module: Construction Technology & Services 1 (UBLMYS-30-1)

Please feedback to us your experience with this lecture!

It only takes 30 secs.

---

Please rate the following aspects of this 'pre-recorded' lecture?

Content's Quality & Organisation

Engaging

Navigation icons: back, close, refresh, menu, 27 / 27, forward

# Strengths and Weaknesses

Hector

# Attainment/Awarding gap

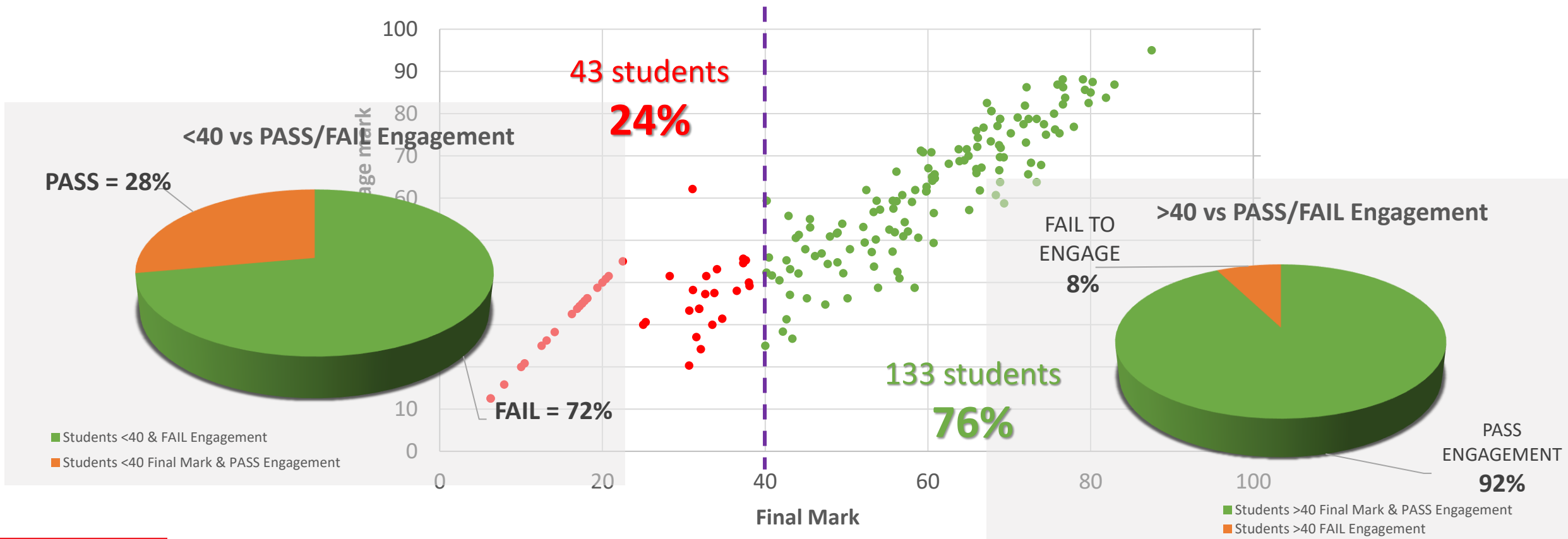
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		19/20	132	22	14.3%	61	58	3 ✓	87.1%	72.7%	14 !		3
		20/21	107	18	14.4%	62	46	16 ✗	81.3%	61.1%	20 ✗		4
		21/22	121	18	12.9%	51	32	19 ✗	72.7%	33.3%	39 ✗		7

- PAL Sessions to identify struggling students
- Identifying lack of Engagement through regular assessment
- Mid-year e-mail communication

# So, is it working...?

## PASS mark (>40%) vs Engagement mark (176 stud)



*...students that engage have a higher chance to pass!*



# Student Feedback - Strengths



**'Pre-recorded lectures are good because you can watch them when it suits you, and everybody has different needs, personal timetables and engagements. You can also pause, rewind and write comprehensive notes. You can't do this in a lecture theatre.'** (2021)

**'The Quizzes are well laid out and easy to follow.** There is an easy-to-follow lecture schedule. Materials are well organised and easy to find on blackboard (very accessible). The coursework is better than having an assessment.'

 (2022)

**'The tasks work well - they are enjoyable,** and I feel like I learn a lot from doing them.'

 (2022)

**'The pre-recorded lectures are well organised,** slightly long, but organised.'

 (2021)

**'The flipped learning does work'** (2022)

**'I like the 1-on-1 feel that I get within the seminars,** the small groups allow for more personal learning. Easier to ask questions etc.'

 (2022)

# Student Feedback - Weaknesses



'We have received no **guidance or help on referencing** and the university guide is not helpful for beginners. It should give more examples and precedents. It is difficult to understand which type of document I am trying to reference.' (2021)

'I think the lecturers sometimes assume that students have **access to software or printers/scanners** that they do not, I think it would be beneficial to introduce all the useful software and apps required for tasks during an earlier session.' (2021) *This was included in the induction in 2022.*

'The lectorials might be more effective if there was more interaction from the students or more activities.' (2023)

'Often **recorded lectures would take significantly longer than the 2 hours** that a lecture should take to complete.' (2021)

'Tasks to be categorised and given **marks awarded according to their difficulty/time** required to complete. As some take may take minutes and others several hours yet all have an equal weighting.' (2022)



# Continuous Improvement...



## Learning outputs...

- ✓ **Building together and allowing diversity of teaching styles**
- ✓ **Engaging different learning styles/types**
- ✓ **Breaking the Lecture Allowing more time for students during Lectorials & Seminars**
- ✓ **Sharing practice: Template adoption & funding**
- ✓ **Breaking the one-way lecture model *'1000 years old'***

## Challenges...

- ✓ **Students should attend (participate) - better engagement from apprentices**
- ✓ **Getting students involved in Lectorials (space?)**
- ✓ **More preparation for us! (e.g. more Lectorial Exercises and case studies)**
- ✓ **More guest speakers**
- ✓ **Better Building Services integration**

# 4. PRACTICE

Feedback...

# Your Feedback on Qualtrics

<https://bit.ly/40W5vm3>



# References



- Julien Berman (2023) Are Lectures Obsolete? - Toward a Higher Higher Education *The Harvard Crimson* [online] 111 (23). Available from: <https://www.thecrimson.com/column/toward-a-higher-higher-education/article/2023/1/24/julien-are-lectures-obsolete/doi:10.1073/PNAS.1319030111> [Accessed 2 April 2023].
- Laurillard, D., Kennedy, E., Charlton, P., Wild, J. and Dimakopoulos, D. (2018) Using technology to develop teachers as designers of TEL: Evaluating the learning designer. *British Journal of Educational Technology* [online]. 49 (6), pp. 1044–1058. Available from: <http://doi.wiley.com/10.1111/bjet.12697doi:10.1111/bjet.12697> [Accessed 9 July 2020].
- Lancaster, S.J. (2013) The flipped lecture. *New Directions in the Teaching of Natural Sciences* [online]. 0 (9), pp. 28–32. Available from: <https://journals.le.ac.uk/ojs1/index.php/new-directions/article/view/484doi:10.11120/ndir.2013.00010> [Accessed 2 April 2023].

# Q&A

# Thanks!

**Clare**



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**Hector**



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