TutorStack2021

LAYER 1 — Learning Materials

Tutors LIVE TIME

LAYER 2 — Communications & Community

slack zoom

LAYER 3 — Assessment & Feedback

moodle socrative

LAYER 4 — Media

Media Management ⟷ YouTube zoom

OBS ScreenBrush

INSIGHTS

TutorsLIVE

TutorsTIME

slack Anlaytics

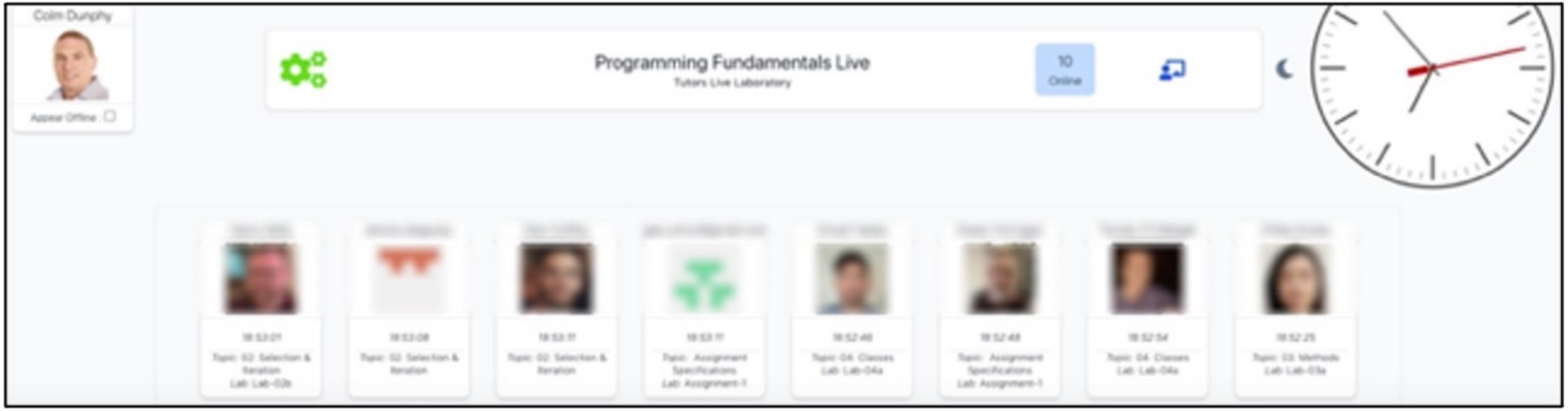
moodle Gradebook

socrative Reports

YouTube Anlaytics

Learning Analytics

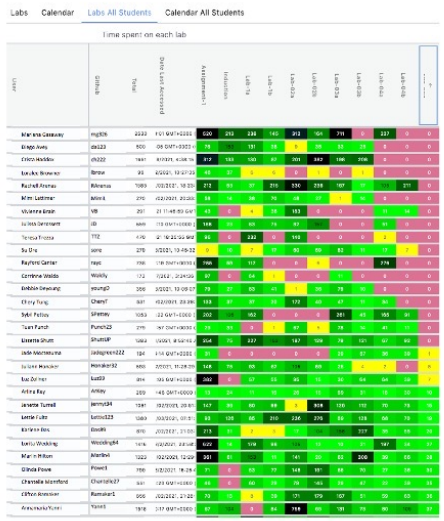
tutors**LIVE**

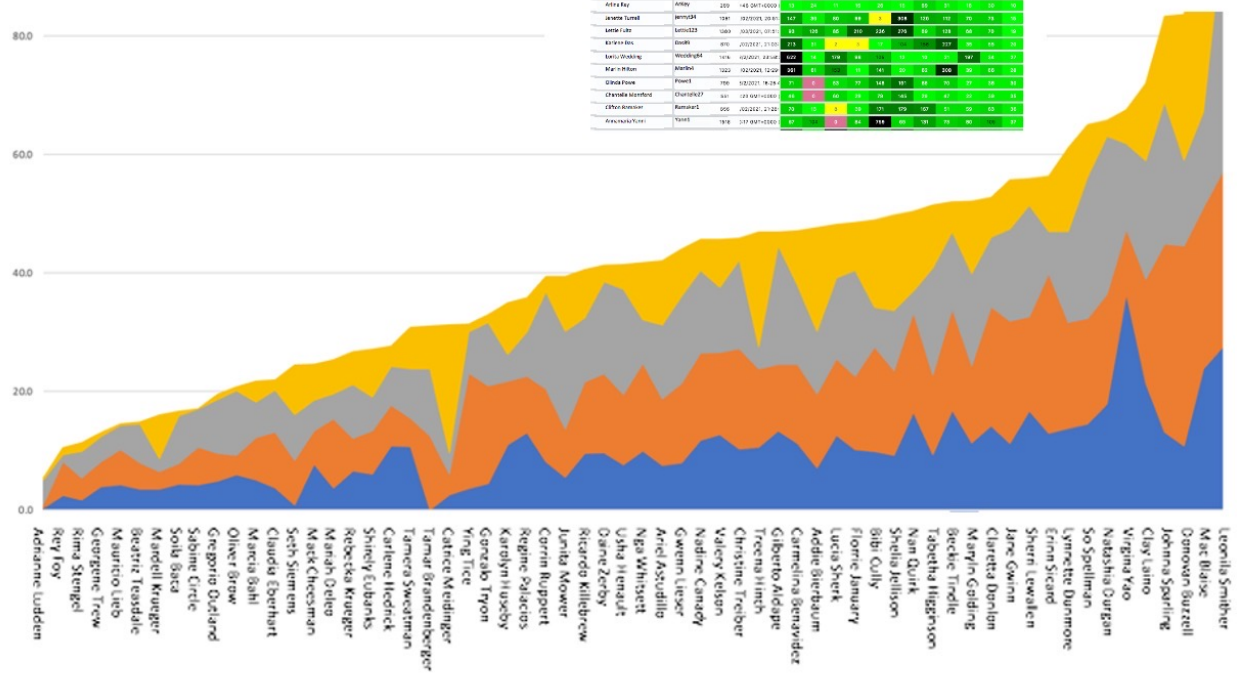


http://bit.ly/TutorsLIVEdemo

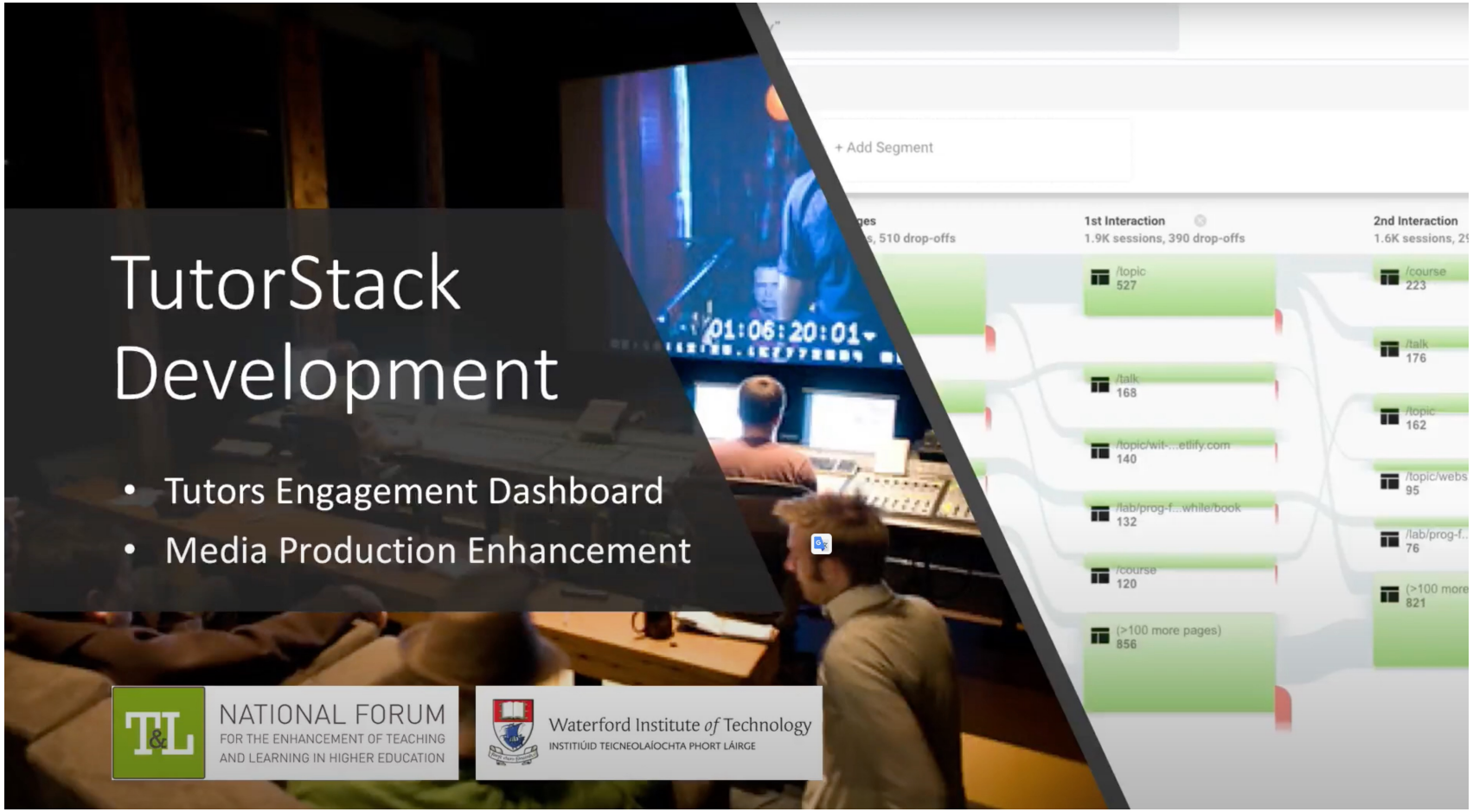
tutorsTIME

bit.ly/tutorsTIME





National Forum funding 2020



Application

bit.ly/NFETL2020

Interim Report

https://youtu.be/-hOG1u8WDFE

WIT Higher Diploma in Computer Science

- WIT's first fully online programme
- Home of TutorStack Development
- http://bit.ly/hdip-cs-promo
- http://bit.ly/HDipCS-ProjectShowcase2020

WIT Hdip in Computer Science Student Surveys

- https://www.slideshare.net/ColmDunphy1/hdip-survey2022
- https://www.slideshare.net/ColmDunphy1/wit-hdip-survey-2021
- https://www.slideshare.net/ColmDunphy1/wit-hdip-student-survey-2000
- https://www.slideshare.net/ColmDunphy1/h-dip-student-survey-results-2019
- https://www.slideshare.net/ColmDunphy1/h-dip-student-survey-results-2018

TutorStack

A multi-layer technology stack providing a modular, free and/or open solution for **BOLD** without product or vendor lock-in

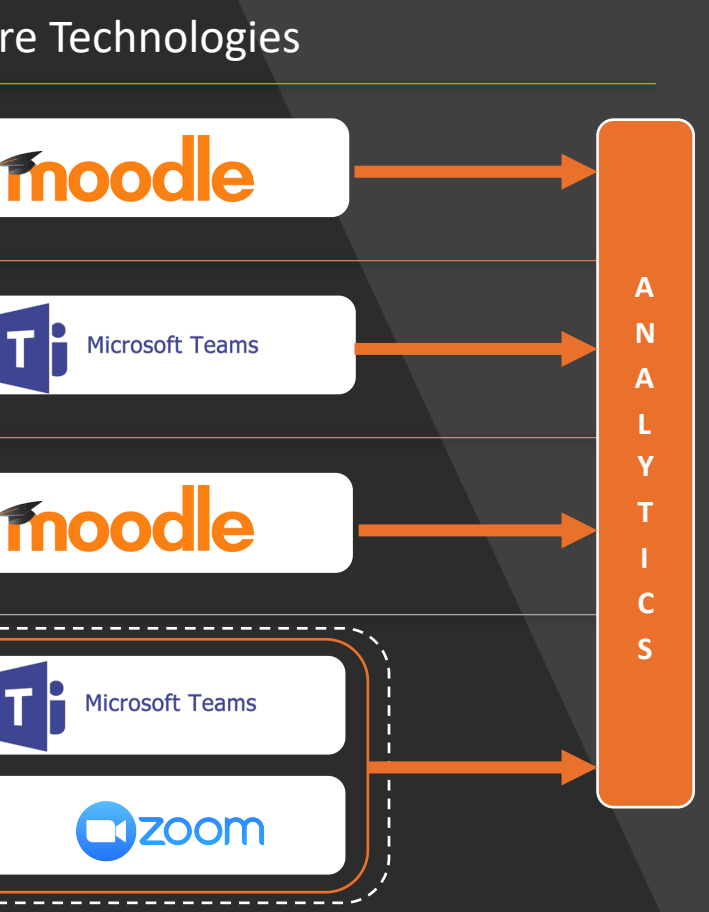
BOLD : Blended and/or **O**n**l**ine **D**igital

TutorStack 2020-21

WIT TutorStack MoodleTeams

Proposed WIT TutorStack - simplified, scaled & adapted for all staff 2020-21

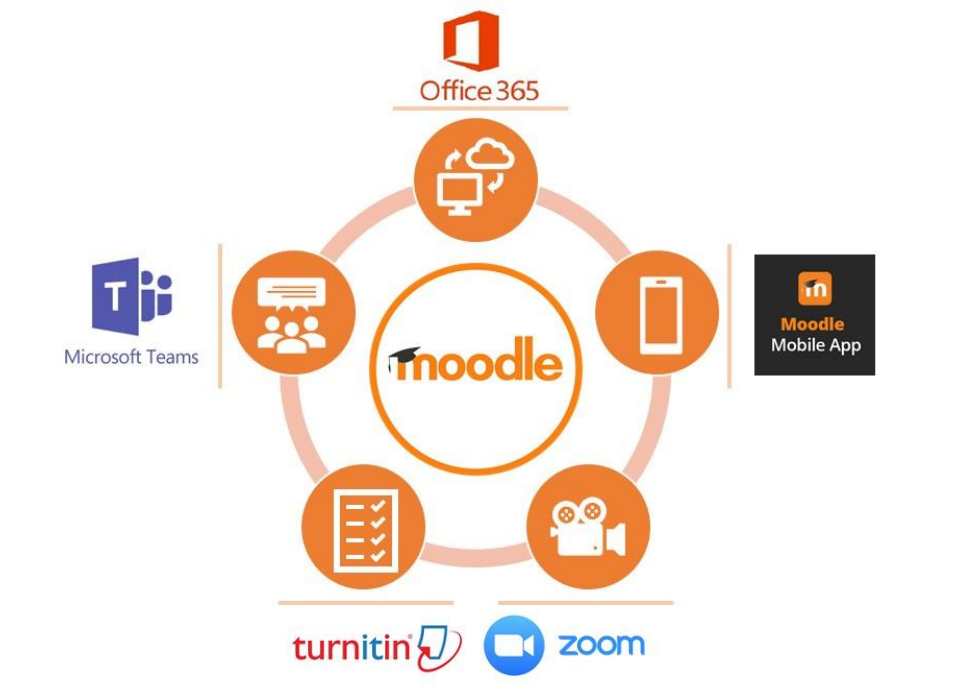
WIT TutorStack 20/21



Proposed WIT TutorStack - simplified, scaled & adapted for all staff 2020-21

MOODLE AT THE CORE OF DIGITAL LEARNING

Moodle remains at the core of digital learning in WIT.
Third Party integrations like **Microsoft Teams**, **Office 365**, **Turnitin** and **Zoom** will supplement Moodle's extensive functionality.



WIT'S TUTORSTACK

Guided by WIT's award winning TutorStack Framework for educational technologies, CTEL recommends lecturers use these platforms for online/blended delivery in September 2020.

1. **Instructional Material** — moodle
2. **Community & Communication** — Microsoft Teams
3. **Assessment & Feedback** — moodle
4. **Media** (Live Classes & Recordings) — zoom

TECHNOLOGY FOR
ONLINE AND BLENDED LEARNING
IN SEPTEMBER 2020

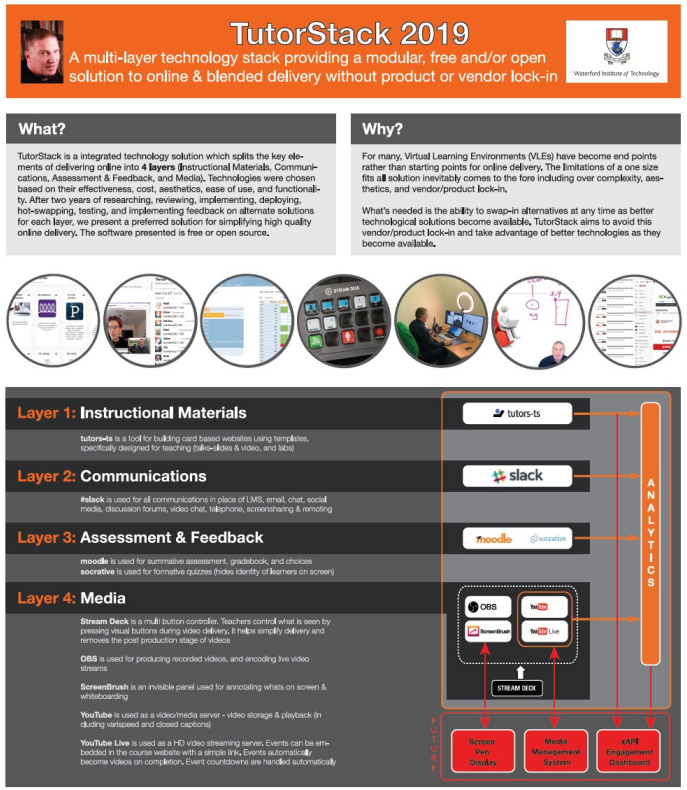
Centre for
Technology-Enhanced Learning

LEARN MORE AT CTEL.WIT.IE

Posters outside FTG 08

Watch video

[Annotated Video](#)
(Sample Output)



TutorStack 2019

A multi-layer technology stack providing a modular, free and/or open solution to online & blended delivery without product or vendor lock-in

Waterford Institute of Technology

What?

TutorStack is a integrated technology solution which splits the key elements of delivering online into **4 layers** (Instructional Materials, Communications, Assessment & Feedback, and Media). Technologies were chosen based on their effectiveness, cost, aesthetics, ease of use, and functionality. After two years of researching, reviewing, implementing, deploying, hot-swapping, testing, and implementing feedback on alternate solutions for each layer, we present a preferred solution for simplifying high quality online delivery. The software presented is free or open source.

Why?

For many, Virtual Learning Environments (VLEs) have become end points rather than starting points for online delivery. The limitations of a one size fits all solution inevitably comes to the fore including over complexity, aesthetics, and vendor/product lock-in.

What's needed is the ability to swap-in alternatives at any time as better technological solutions become available. TutorStack aims to avoid this vendor/product lock-in and take advantage of better technologies as they become available.

Layer 1: Instructional Materials

tutors-ts is a tool for building card based websites using templates, specifically designed for teaching (talks-slides & video, and labs)

Layer 2: Communications

#slack is used for all communications in place of LMS, email, chat, social media, discussion forums, video chat, telephone, screensharing & remoting

Layer 3: Assessment & Feedback

moodle is used for summative assessment, gradebook, and choices
socrative is used for formative quizzes (hides identity of learners on screen)

Layer 4: Media

Stream Deck is a multi button controller. Teachers control what is seen by pressing visual buttons during video delivery. It helps simplify delivery and removes the post production stage of videos

OBS is used for producing recorded videos, and encoding live video streams

ScreenBrush is an invisible panel used for annotating whats on screen & whiteboarding

YouTube is used as a video/media server - video storage & playback (including varispeed and closed captions)

YouTube Live is used as a HD video streaming server. Events can be embedded in the course website with a simple link. Events automatically become videos on completion. Event countdowns are handled automatically

tutors-ts
slack
moodle
socrative
OBS
YouTube
YouTube Live
ScreenBrush
STREAM DECK
ANALYTICS
Screen Pen Display
Media Management System
xAPI Engagement Dashboard

Results

For staff, technology has been made transparent, accessible, with a similar workflow for sync & async delivery. Increased online adoption from staff to 50 resulting in 3 addtional studios being built to support the activity. Higher quality media & production times significantly reduced using the simpler UX of TutorStack

Feedback from students highlights excellent #SX, increased demand for live online classes with preferred engagement activities utilised by TutorStack

Watch video

Future Development

1. Use of **screen pen displays** to provide operating system independent natural pen annotation

2. Alternative cloud based **media management system** to simplify reuse of media.

3. Utilize **xAPI** to bring analytics & engagement data from each layer together in an **engagement dashboard**. This will provide easier, better and more complete learner views to aid in early intervention systems for learner engagement and retention.

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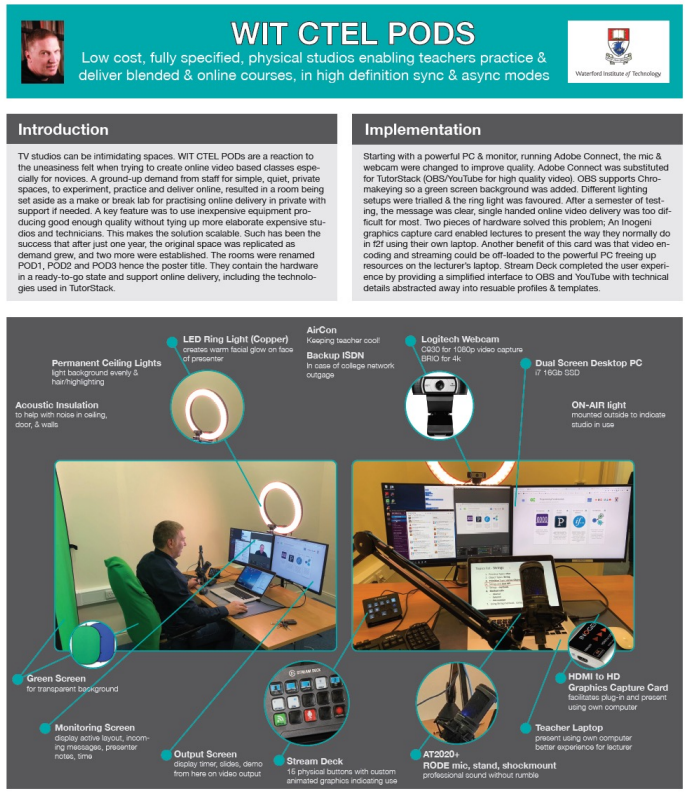

WIT CTEL PODS

Low cost, fully specified, physical studios enabling teachers practice & deliver blended & online courses, in high definition sync & async modes

Waterford Institute of Technology

Introduction

TV studios can be intimidating spaces. WIT CTEL PODs are a reaction to the uneasiness felt when trying to create online video based classes especially for novices. A ground-up demand from staff for simple, quiet, private spaces, to experiment, practice and deliver online, resulted in a room being set aside as a make or break lab for practising online delivery in private with support if needed. A key feature was to use inexpensive equipment producing good enough quality without tying up more elaborate expensive studios and technicians. This makes the solution scalable. Such has been the success that after just one year, the original space was replicated as demand grew, and two more were established. The rooms were renamed POD1, POD2 and POD3 hence the poster title. They contain the hardware in a ready-to-go state and support online delivery, including the technologies used in TutorStack.

Implementation

Starting with a powerful PC & monitor, running Adobe Connect, the mic & webcam were changed to improve quality. Adobe Connect was substituted for TutorStack (OBS/YouTube for high quality video). OBS supports Chromakeying so a green screen background was added. Different lighting setups were trialled & the ring light was favoured. After a semester of testing, the message was clear, single handed online video delivery was too difficult for most. Two pieces of hardware solved this problem; An Inogeni graphics capture card enabled lectures to present the way they normally do in f2f using their own laptop. Another benefit of this card was that video encoding and streaming could be off-loaded to the powerful PC freeing up resources on the lecturer's laptop. Stream Deck completed the user experience by providing a simplified interface to OBS and YouTube with technical details abstracted away into resuable profiles & templates.

LED Ring Light (Copper) creates warm facial glow on face of presenter
AirCon Keeping teacher cool!
Logitech Webcam C930 for 1080p video capture BRIO for 4k
Permanent Ceiling Lights light background evenly & hair/highlighting
Backup ISDN In case of college network outage
Dual Screen Desktop PC i7 16Gb SSD
Acoustic Insulation to help with noise in ceiling, door, & walls
ON-AIR light mounted outside to indicate studio in use
Green Screen for transparent background
HDMI to HD Graphics Capture Card facilitates plug-in and present using own computer
Monitoring Screen display active layout, incoming messages, presenter notes, time
Output Screen display timer, slides, demo from here on video output
Stream Deck 16 physical buttons with custom animated graphics indicating use
Teacher Laptop present using own computer better experience for lecturer
AT2020+ RODE mic, stand, shockmount professional sound without rumble

Results

The PODs now provide a ready-to-go hardware setup to accompany the free/open TutorStack modular software solution with it's simpler user experience UX, which has made the technology transparent, accessible, less mysterious, and with a lower cognitive load. Online video teaching is now seen as feasible with increased online adoption by teaching staff utilising the PODS now numbering 50, and a growing community of practice (COP). Higher quantities of higher quality media artefacts are now being produced regularly, and production & publishing times have been significantly reduced. Setup times for new practitioners have been reduced. Workflows for sync & async delivery are now very similar.

Future Development

1. Installation of **screen pen displays** to provide operating system independent natural pen annotation

2. Completion of **hardware upgrades** and replacements including cameras and permanent green screens.

3. Completion of **acoustic treatments** to the walls and doors.

4. Installation of a **lightboard** in one of the pods.

View gallery

Colm Dunphy, Dept. of Computing & Mathematics, WIT - cdunphy@wit.ie

View gallery

[VR 360 Image](#)

National Forum Funding – Application Videos

bit.ly/NFETL2020

https://youtu.be/-hOG1u8WDFE

online / remote / home video studio setup
bit.ly/onlinevideosetup

As part of the TutorStack layer2 Communications/Community we've integrated Zoom with Slack. In Aug 2019, Slack ended development of remote screen sharing instead leaving it to the leading experts ZOOM.
Zoom is particularly good for latency free live introductions, Q&A, and very natural discussion (unlike MS-Teams). Breakouts enable Group Discussion. Zoom also integrates with the rest of the TutorStack e.g. our pre-existing media layer technologies can be seen as a virtual webcam within Zoom. If using Slack for communications then disable Zoom chat. The following guides were produced to help people utilize Zoom's features quickly:

Zoom QuickStart
https://www.youtube.com/watch?v=QlyM7h1paPk

Zoom Chat Settings
https://youtu.be/Q7KVIva3xqQ

Zoom Breakout Rooms
https://www.youtube.com/watch?v=w8Uwy-9YXkY

Zoom 5.2 has great features for teachers - suppress fan noise, lighting, resizable and movable green screened video over presentations to name a few.
https://gadgets.ndtv.com/apps/news/zoom-update-version-5-2-filters-appearance-lightning-controls-reactions-noise-suppression-features-2274677

TutorStack Poster
https://www.slideshare.net/mobile/ColmDunphy1/tutorstack2019

Pods Poster
https://www.slideshare.net/mobile/ColmDunphy1/wit-ctel-pods

Pods VR 360
VR 360 Image

WIT Online Video Class Sample Output
Annotated Video

StreamDeck demo
https://youtu.be/22-VmGDLqbA

EdTech’19 Gasta Slides
https://www.slideshare.net/mobile/ColmDunphy1/edtech19colmdunphydataprojectorgasta

EdTech’19 OnlineVideo Talk
https://www.slideshare.net/mobile/ColmDunphy1/edtechie-2019-colm-dunphy-onlinevideo-what-why-how

Slack
https://www.slideshare.net/ColmDunphy1/learning-from-industry-a-lesson-in-slack-for-educators

Tutors-next
https://aurelia.io/learn#books

Jennifer Burke Entry
https://youtu.be/wgy0hudxuN4

WIT Seminar - if you can use a data projector you're ready for online
https://www.youtube.com/watch?v=8L6kZ9ZYGKM&t=395s

HDip in CS Surveys – TutorStack in Action
https://www.slideshare.net/ColmDunphy1/h-dip-student-survey-results-2019

https://www.slideshare.net/ColmDunphy1/h-dip-student-survey-results-2018

TutorStack Presentation to WIT Computing & Maths Department - Meeting Sept 2019
https://www.slideshare.net/ColmDunphy1/tutorstack19-dept-meeting

National Forum for the enhancement of Teaching & Learning - TutorStack funded project
http://bit.ly/NFETL2020

National Education Awards 2020:
Best use of ICT

EdTech ’18: Async v sync? who wins? students decide
https://youtu.be/dvi0PLU-xdw

EdTech ’18: Learning from industry a lesson in #Slack for educators
https://youtu.be/fQU63NwrQ6c

EdTech ’18: Having great #SX online. An evolution of online course delivery
https://youtu.be/QnWPtHE9lgA