

EDU500014

Teaching with Fusion 360 During the Pandemic

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Learning Objectives

- Learn about online teaching and delivery of engineering using Fusion 360 about the basics of setting up a simulation in Fusion 360
- Learn about utilizing Fusion 360 collaboration tools
- Learn how to apply Fusion 360 for real-world engineering applications
- Learn about designing course content for university-level teaching

Description

When COVID-19 hit the United Kingdom in March 2020, university teaching was significantly disrupted with many courses moving to online-only teaching. Fusion 360 software empowered us to smoothly transition to fully online courses with only a few months' notice. This talk will discuss how Fusion 360 became an essential tool for teaching online, and how it enabled the University of Warwick School of Engineering faculty to continue to deliver high-quality teaching. We will discuss our approach to signing up and delivering the first learning experiences with Fusion 360 to a cohort of nearly 400 first-year general engineering students. We will show how students were able to continue working on both individual and group projects across all four years of the degree course remotely. And, of course, we'll show some of the amazing and innovative work they did. With remote design teams undoubtedly being an important aspect of the future of work, it's essential to see what students can do with design software today.

Speaker(s)



Elizabeth Bishop is a Postgraduate Researcher at the University of Warwick researching Large-Scale Additive Manufacturing (3D Printing). She has been interested in 3D printing for several years now, following a successful project surrounding designing and making a humanitarian rescue UAV. Elizabeth also volunteers as a Maker in Residence in the Engineering Build Space at Warwick University where she explores making, CAD and CAM alongside 3D printing.

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Introduction

This session covers our experiences at the University of Warwick, teaching an Engineering Design course including CAD using Fusion 360 during the pandemic.

The University of Warwick

The University of Warwick has one of the leading unifying engineering schools in the UK. All of our engineering disciplines are under the same roof – The School of Engineering, bringing an integrated teaching approach balancing the key branches of engineering. All our students have a common first year and specialize halfway through their 2nd year.

The Engineering Build Space

The Engineering Build Space at The University of Warwick is our student teaching workshop come makerspace. The idea behind the space is to provide an inform teaching space that students can use not just for academic projects but also for personal projects. The space has an open-door policy, open every day during term time, encouraging students to use the space and equipment. The build space enables the students at Warwick to put their design and CAD skills from using Fusion 360 into practice and to get hand on experience with manufacturing processes to help inform their design choices in later designs.

Teaching Fusion 360 During the Pandemic

When the COVID-19 pandemic hit the UK, Universities across the country were forced to close and move their teaching online. Warwick was not alone in being largely unprepared for this big leap away from traditional face-to-face lectures and laboratories. The build space team at Warwick teach, among other modules, the first year Engineering Design module to a cohort of over 350 students, including a comprehensive 5-week crash course in everything to do with Fusion 360. With the University announcing that the academic year would be entirely online, we had to prepare to teach Fusion completely remotely. Fusions' cloud capabilities have made our job easier. Using a combination of recorded tutorial videos, our online course using Moodle, and face-to-face drop-in sessions over platforms like Teams we have managed to deliver our Engineering Design course efficiently and effectively over the past year. The ups and downs are summarized below.

The Good Stuff	The Not So Good Stuff
<ul style="list-style-type: none">▪ Fusion 360 Teams has allowed us to collaborate well as educators▪ Fusion is available on personal devices – Windows and Mac▪ Easy platform to get the hang of▪ We can be added into student projects where required▪ Loads of additional content available for those students who want it	<ul style="list-style-type: none">▪ Difficult to monitor student progress when not physically present▪ Did not (at the start of the year) run on ALL devices – had some students using Chromebooks▪ Troubleshooting difficult when not physically present in front of the same screen

Conclusions

The past year has been a challenge, teaching what is usually a very much practical and in person course, completely online and providing remote support. Without Fusions unique cloud capabilities and the use of Fusion Team the year would have been very different.