

# Engineering

## JCt4 Newsletter

### Junior Cycle for Teachers

Junior Cycle for Teachers exists to **inspire**, **support** and **empower** teachers in the transformation of Junior Cycle education in Ireland.

### Engineering Webinar

The title of this year's webinar is goal-orientated problem solving in Engineering. This will be on March 30<sup>th</sup> at 6:15pm. This webinar will investigate goal-orientated problem solving in the real world through the lens of a design related video. This video resource was developed by CombiLift, in partnership with JCt4. The webinar will highlight an approach to develop goal-orientated problem solving skills in the Engineering classroom. To register, click on this link: <https://attendee.gotowebinar.com/register/5094447893592042508>



### ETTA Conference

JCt4 were delighted to attend and meet colleagues at the Engineering and Technology Teachers' Association (ETTA) Conference in November. The Dobot, 3D printer, 3D scanner and an array of prototyping models were all on display to demonstrate the potential learning opportunities for students of the Engineering Specification.

## Welcome

Welcome to the fourth issue of the JCt4 Engineering Newsletter. 2019/2020 clusters have been happening across the country for the past three months and as of now JCt4 have engaged with 412 teachers of Engineering across 68 Continuing Professional Development (CPD) workshops throughout the country. This year's CPD workshop focuses on student achievement in Junior Cycle Engineering, approaches to support student learning, and planning with the Engineering specification.



## Updates

The JCt4 Engineering associates recently met with the Engineering Advisors in Navan Education Centre to discuss the design and development of resources that demonstrate potential student learning experiences. These resources will aim to build on the previous material developed by associates in the 2019/2020 CPD workshops. Some of this work will be incorporated into the 2020 webinar, detailed opposite, and also in the 2020/2021 CPD workshops.



JCt4 have also teamed up with [L-Form, a Research Centre for Advanced Manufacturing](#). A meeting was recently held in [3DWIT, a dedicated center for 3D printing and training](#) in Waterford

Institute of Technology. The purpose was to explore how teachers and students may develop their design, problem solving and manufacturing skills through 3D printing and how to enhance a student's awareness of the benefits of 3D printing. Keep an eye on our [News and Events](#) section of the [www.ict.ie](http://www.ict.ie) website, our twitter page @JCt4ed for further details to come.

## Website resources

There has been a very positive response to the resources in the Technologies section of the [www.ict.ie](http://www.ict.ie) website from Engineering teachers in the 2019/2020 clusters to date. These resources include the: [Digital Planning Tool](#), [Exploring Learning Outcomes document](#) and [A3](#)

## Electives

The full details of the 'Introduction to Control Software in Mechatronics' elective can be viewed [here](#).

**Introduction to Control Software in Mechatronics**



**Course Overview**  
This workshop is designed to support teachers who wish to gain a basic understanding of control software through Micro:bit. Teachers will develop an understanding of the basics of Mechatronics, and how the term came to be, while gaining hands-on experience of using new technology to teach a new strand. Teachers will have an opportunity to collaborate on and develop a shared understanding of how to weave problem-solving and critical-thinking skills throughout the strand of Mechatronics.

Date	Venue	Time
05.02.2020	Wexford Teachers Centre	7-9pm
05.02.2020	Cork City Suburban, Wicklow Organised by Blackrock Education Centre	7-9pm
10.02.2020	Donegal Education Centre	7-9pm
10.02.2020	Galway Education Centre	7-9pm
10.02.2020	Slater's Community College, Organised by Chumara Education Centre	7-9pm
11.02.2020	Athlone Education Centre	7-9pm
11.02.2020	Scoll Phobail Stábh Luachra, Rathmore, Organised by Tralee Education Centre	7-9pm

Attendees are advised to please bring a fully charged, Wi-Fi enabled laptop, ideally with an external mouse to aid with Micro:bit programming.  
To register please contact one of the Education Centres listed above or click on the relevant Education Centre link.

The full details of the 'Problem solving through Coding, Applied Control and Mechatronics' elective can be viewed [here](#).

**Problem Solving through Coding, Applied Control and Mechatronics**



**Course Overview**  
This workshop is designed to support teachers who have a basic understanding of problem solving using micro:bit. Teachers will problem solve using a range of tools and develop skills in analysis, design, review and light engineering design (LED). Teachers will also explore the use of some mechatronics boards that could be used in project work.

Date	Venue	Time
25.02.2020	Donmolinna Education Centre	6-8pm
25.02.2020	Athlone Education Centre	6-8pm
26.02.2020	Cork Education Support Centre	6-8pm
02.03.2020	Dublin West Education Centre	7-9pm
02.03.2020	Kilbenny Education Centre	6-8pm
03.03.2020	Sligo Education Centre	6-8pm

Attendees are advised to please bring a fully charged, Wi-Fi enabled laptop, ideally with an external mouse to aid with micro:bit programming.  
To register please contact one of the education centres listed above or click on the education centre link.

## Communication



[Engineering Webinar 2019](#), [2019/2020 CPD presentations and resources](#), and all [Newsletters](#). Clicking on the document titles above will bring you directly to that particular resource.

## STE(A)M

The JCT4 Engineering team continue to be involved in the JCT STE(A)M initiative. These workshops investigate how real-life problems could be solved by taking an interdisciplinary approach. These elective CPD workshops have been developed in conjunction with 17 [partners](#). These workshops are a good opportunity to explore cross curricular links with other teachers. The full workshop details are available [here](#). For further details contact: [steam@jct.ie](mailto:steam@jct.ie)



## Mechatronics

Control software is now an integral part of Engineering with prominence given in the strand of 'Mechatronics'. Our conversations and feedback from teachers have identified the BBC micro:bit as being one such applicable technology which teachers wish to further explore. 'The BBC



micro:bit is a handheld, programmable micro-computer that can be used for all sorts of cool creations, from robots to musical instruments – the possibilities are endless' ([Microbit.org, 2019](#)). This technology may help students to learn skills through learning outcome 3.6.

These skills include being able to configure and program, however, planning across the three strands will encourage the development of a diverse range of Engineering skills.

## News and Events

Recently JCT4 launched its series of elective workshops on Mechatronics and Control. There are two workshops in the series, titled: *Introduction to Control Software and Mechatronics* and *Problem Solving through Coding, Applied Control and Mechatronics*. These workshops aim to explore pedagogical approaches to teaching Mechatronics and Applied Control in Engineering and Applied Technology classrooms. All registration, dates and venue details are on the associated advertising posters in the elective section on the left hand side of this newsletter. Each teacher on our mailing list received links, to book the course, direct to their email. If you have not yet signed up to our mailing list please see the news and events [tab](#) within the Technologies section of [www.jct.ie](http://www.jct.ie) or our twitter page [@Jct4ed](#) for more details on venues and dates.



Kind regards,

The JCT4 Engineering Team