

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.



2021/2022 CPD

We have just started our delivery of Engineering CPD for 2021/2022. We look forward to meeting you this year as we go through aspects of assessment, the CBAs, and mechatronics.

Our colleagues on the Graphics and Applied Technology teams are about to start the roll out of their CPD in March. We would encourage you to register for these subjects too.



Hands-On Podcast Channel

Just a reminder that we have our own podcast channel on Soundcloud, which is available [here](#). In our most recent podcast we spoke to Bruno Donetti and Ronan Murray from Athlone Training Centre and they talked about Engineering and the courses they offer in this space.

Our next Engineering podcast will be released on the 28th of February where we spoke to the 3d W.I.T and I-Form team about 3D printing and its use in the classroom.

Welcome

On behalf of the Engineering team, we would like to welcome you to the 10th edition of the JCt4 Engineering Newsletter, 'Spring Edition 2022'. We want to remind all teachers that our dedicated Engineering advisors can be contacted from the [Meet the Team](#) tab on [jct.ie](#). Please do not hesitate to contact us should you have any queries or require further assistance in relation to the Junior Cycle Engineering Specification.



Mechatronics – Supplementary Components 2022



As part of the online CPD cluster day delivered to Engineering teachers during the spring term 2021, the JCT team delivered a "Mechatronics Teaching and Learning Resource" kit to each teacher registered for the workshop. This kit is to supplement and extend the previous kit sent to schools in 2021. The learning log is full of coding instructions and support videos. The Learning Log for the day can be accessed [here](#).

The PowerPoint presentation from the day can be accessed [here](#).

CBA 1 – Engineering in Action

The window for completing CBA 1 has been open from November 1st 2021, until 13th May 2022. Full information can be found [here](#), in the 'Revised Arrangements for the completion of Classroom-Based Assessments'. Our [Important considerations](#) document, which outlines some information and steps that can be taken when engaging with Classroom-Based Assessments may be of use as you engage with the process. This document, and other supports for the Classroom-Based Assessments, are available [here](#).

Design in Engineering

With the development of SEC Engineering Project Coursework, and the requirement to bring student design skills into sharp focus, there is a greater requirement to engage with design in Engineering. The JCt4 Engineering team has created a resource that takes you through a potentially helpful strategy to help the foster design skills in students.

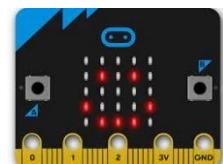
Our most recent webinar looked at design and where to start with the whole process. We used a strategy, in partnership with our associates, called 'See, Think, Wonder'. The strategy aimed to further develop student research skills in a different way than may have traditionally been done. The webinar contains associate interviews and student work. The recording is available [here](#).



Design in Engineering, Where to Start...?
SEE THINK WONDER

Week of Webinars

Our next webinar is going to be happening in April. During the webinar, we will be engaging with computer software with a focus again on micro:bit. It will take place on the 5th of April from 6:30 - 7:30pm. We look forward to seeing you on the night and keep a look out on Twitter and the mailing list for registration details.



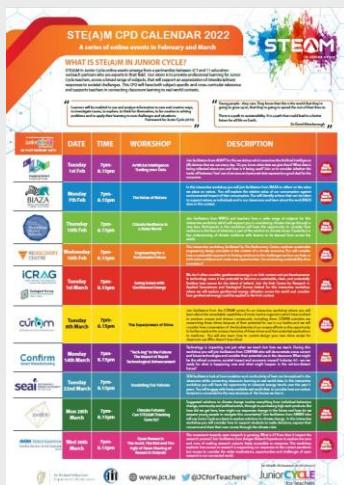
Engineering Technology Teachers' Association Conference

The Jct4 team were delighted to be at the ETTA national conference in the TUS centre in Athlone. Many thanks to those who came to visit our stand and congratulations to all the winners of the National Awards. We are already looking forward to the next one in Limerick.



STE(A)M

Our STE(A)M team are about to start delivering their elective CPD in the coming weeks. To find out more and to register, click on the image of the poster below.



Communication



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An tSraith Shóiseach do Mhúinteoirí
JuniorCYCLE
for teachers
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I-Form and 3D Printing

In November 2021 we announced a competition that was run by our 3D printing partners, 3D W.I.T and I-Form. Students could have submitted entries in either of two formats, sketched responses, or CAD responses. The responses were based around the brief of designing 'a new device or system that will improve health for teenagers in your community'. I-Form and 3D W.I.T were delighted with the volume of entries that were received. The competition was split into two categories, Junior and Senior. I-Form and 3D W.I.T chose a deserving winner and runner up in both categories. The first prize was a 3D printer for both categories and the runners up received vouchers for 'Cogs'. The winners are:



Junior	1 st Place	Archbishop McHale College	Galway	Mo Chroi
Junior	2 nd Place	Ériu Community College	Dublin	D Box
Senior	1 st Place	Scoil Chríost Rí Portlaoise	Laois	Vibrating Pillow Alarm
Senior	2 nd Place	St. Patrick's Secondary School	Kerry	Carbon Dioxide and Temperature Detector

Engineering in the world around us

Steelmaking yields between seven and nine percent of the world's carbon emissions, mostly due to the use of the coke in the process. At temperatures as high as 1,650°C, the coke reacts with the oxygen in iron ore. This in turn purifies the ore into molten steel but belches out carbon dioxide in the process. To reduce this carbon footprint, a Swedish industrial consortium developed 'Hybrit', a steel whose production uses hydrogen, rather than carbon, to transform the iron ore. The hydrogen, freed from water, reacts with the oxygen in the iron ore. Instead of the traditional blast furnace, a shaft furnace heated to 800°C with fossil-free wind energy and hydropower, is used. This process releases hydrogen and water, instead of carbon dioxide. The resulting "sponge iron" is now used in an electric arc furnace, with a small amount of carbon, to create steel. Hybrit says the process has carbon dioxide emissions that are less than 2 percent of those from the standard coke-fuelled regimen. For more on this, click [here](#).

Some Potential learning outcomes that relate to this story: 1.4, 1.5



News and Events

Continue to encourage your colleagues to sign up to the Jct4 Engineering newsletter via the mailing list opposite. Watch our [news and events](#) tab within the Technologies' section of jct.ie and follow us on our Twitter page [@Jct4ed](#). Please feel free to contact any member of the team with your queries via email. The email addresses can be found in the [Meet the Team](#) tab on the jct.ie homepage. Finally, we wish you every success in the year ahead and we look forward to meeting you again this academic year.



Kind regards,
The Jct4 Engineering Team