

Leaving Certificate Computer Science

Bulletin 1, December 2020

LEAVING CERTIFICATE
COMPUTER SCIENCE

Leaving Certificate Computer Science Framework

LCCS FRAMEWORK

The Framework was put in place to support the national rollout of the new subject Computer Science to post-primary schools. The framework brings together a unique collaboration of representatives from all of the key stakeholders with the intention of developing and implementing a range of measures designed to allow the subject to develop and prosper. To facilitate the work of the Framework, an Action Plan detailing schedules and responsibilities for the implementation of the various measures has also been developed.

PHASED INTRODUCTION

Phase 1 of the introduction of Computer Science into Irish classrooms began in September 2018 involving 40 schools across the country. Students in these schools presented for certification in Computer Science at Leaving Certificate level in June 2020.

The national rollout (**Phase 2**), where Computer Science was made available as a subject option to schools, began in September 2020 resulting in 52 additional schools offering the subject at Leaving Certificate level.

Phase 3 is for schools wishing to introduce LCCS for the first time in September 2021. Expressions of interest will be sought early in the new year with a webinar for school leaders to follow in the spring.

STAKEHOLDER INVOLVEMENT

This framework represents a collaboration between the Department of Education, the Computers in Education Society of Ireland (CESI), the Professional Development Service for Teachers (PDST), the Irish Universities Association (IUA), Higher Education Institutions, IBC, Technological Higher Education Association (THEA) and SOLAS.

AIM OF THE FRAMEWORK

A subgroup of the Leaving Certificate Steering Group, the Leaving Certificate Computer Science Support Framework was put in place to support the work of the Steering Group and to promote and sustain Computer Science as a "subject for all".

"The society in which our children will grow up, will be one that has been fundamentally transformed by new technologies. The global pandemic has highlighted as never before our reliance on and the increasing need for skills in technology. Our education system must prepare our children to thrive in such an environment by equipping them with necessary skills in creativity, adaptability and problem solving."

- Minister Foley, launching the LCCS Framework

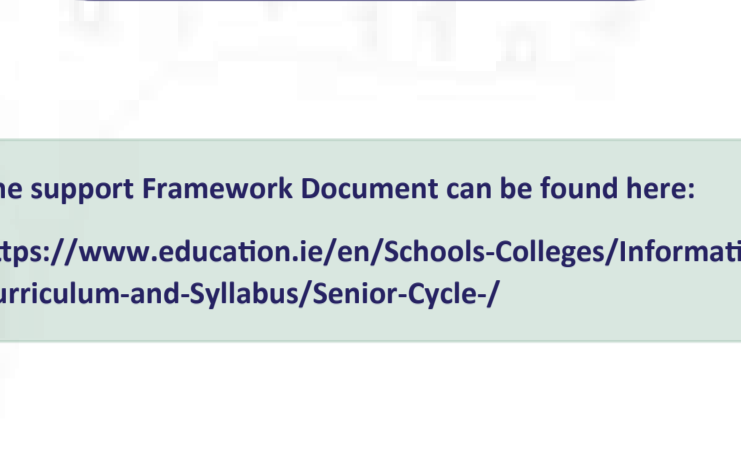
Launch of Support Framework Document by Minister

"Under the framework, there is a great opportunity to broaden the subject's appeal, through creative partnerships with stakeholders to promote visible career paths such as apprenticeships and Level 5, 6 NFQ programmes in further education."

On Monday 16th November Minister for Education Norma Foley TD announced details of a new industry framework to support the implementation of the subject Leaving Certificate Computer Science.

Minister Foley said: "I am delighted with this unique collaboration between my department and industry to support and sustain Leaving Certificate Computer Science into the future. This collaboration forms a strong partnership that I am confident will harness and promote Computer Science as a 'subject for all' in post-primary schools into the future."

She highlighted the fact that there will be a focus on actions to support greater female participation and greater participation amongst students that would not have traditionally considered subjects like Computer Science for the Leaving Certificate.



The support Framework Document can be found here:

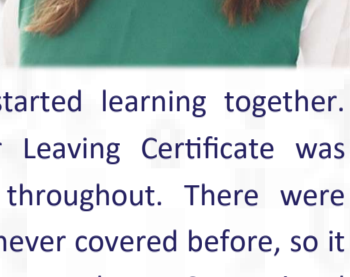
<https://www.education.ie/en/Schools-Colleges/Information/Curriculum-and-Syllabus/Senior-Cycle/>

LEAVING CERTIFICATE COMPUTER SCIENCE NEWS

Teacher Experience of Phase 1 Leaving Certificate Computer Science

My name is Sarah-Jayne Carey and I teach in a large girls' secondary school, **Coláiste Bríde** in Clondalkin, Dublin.

For the past number of years, we have tried to encourage our students to see STEM careers as an option for them. So I was delighted when we were accepted as a Phase 1 school to teach Computer Science.



We had our first National Workshop in May where we met the other Phase 1 teachers and started learning together. Teaching a brand-new subject for Leaving Certificate was daunting at first and challenging throughout. There were aspects of the curriculum that I had never covered before, so it was a steep learning curve. However, the PDST National Workshops, CPD, and support in general, has been excellent. The Computer Science teachers have become a community of practice and we all help each other throughout the year.

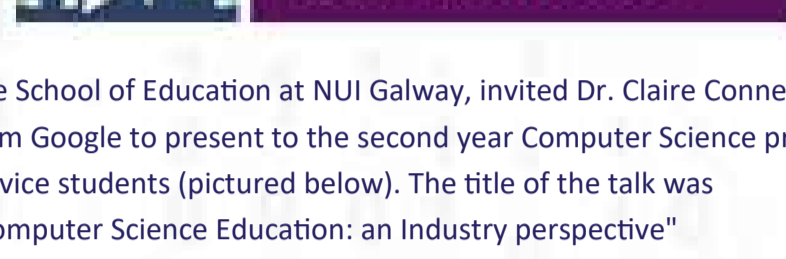
Leaving Certificate Computer Science is not at all what I, or the students expected. To be honest, I presumed that it would be mostly coding, but it is much more. The course is so broad - design thinking, problem solving, artificial intelligence, Computers and Society...to name a few, as well as coding of course. However, it is applicable to everyday life - each week there is something in the news that we can share with the students to make the course content real and relevant. This breadth in the curriculum means that there is something for every student and we can link it to real world examples. Every student has the chance to thrive at some aspect of the course. This makes it really fulfilling to teach.

The students enjoyed the subject - particularly the hands-on aspects. They all commented that it was not at all what they expected - they were surprised by the creativity, and the freedom they had in choosing their designs as well as the amount of collaboration. They were also surprised that it wasn't all coding!

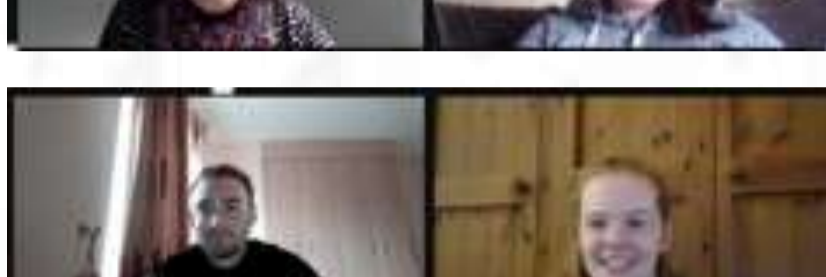
It is a different way of teaching and learning. As teachers we had to get comfortable with not having all the answers and encouraging the students to find the answers for themselves - which sometimes takes longer, but leads to much deeper learning. They got into the habit of asking the whole class if they were stuck with an aspect of their code. This fostered real collaboration and camaraderie; we witnessed students answering each other's queries and helping each other online as well as just shouting across the classroom to help each other out.

This has been a highlight for me - watching the students grow into autonomous, self-directed learners through participating in a brand new Leaving Certificate subject.

Overall, it has been an amazing experience and I am delighted to have been a Phase 1 teacher.



The School of Education at NUI Galway, invited Dr. Claire Connelly from Google to present to the second year Computer Science pre-service students (pictured below). The title of the talk was "Computer Science Education: an Industry perspective"



Lero Publish Evaluation of Computer Science

An evaluation of the CPD designed to support LCCS was conducted by LERO - The Irish Software Research Centre and EPI-STEM.

The Department of Education and PDST welcomed the report. Its findings on the quality of the CPD provided to support the introduction of Computer Science are very positive and reflect very well on the design and delivery of the CPD provided by PDST.

More information can be found here:

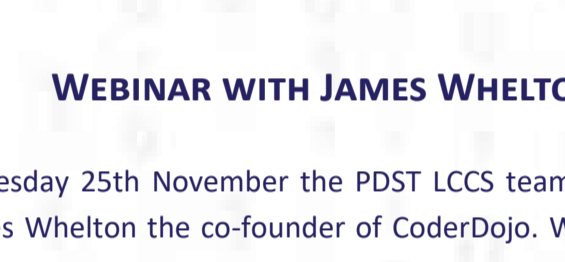
<https://www.lero.ie/epe/schools>

Teaching Council Publish Subject Specification for Computer Science

To assist with teacher supply for the subject of Computer Science, the Minister recently approved the criteria for Registration as a post-primary teacher of the subject by the Teaching Council on 11 November.

Full curricular subject requirements can be found here:

<https://www.teachingcouncil.ie/en/News-Events/Latest-News/Curricular-Subject-Requirements.pdf>



FROM THE PDST

From the LCCS Team

It has been an honour and a privilege for those of us on the PDST LCCS Team to have worked with the cohort of Phase One teachers as they lead the introduction of Computer Science as a Leaving Certificate subject in schools across the country. Over the past three years we have seen our teaching colleagues excellently rise to the many challenges required in delivering world-leading learning experiences in what is to Ireland, a brand new field of second-level study.

Phase One teachers have learned new technologies, new languages and new computer science specific pedagogies in order to provide their students with the best possible experience of computer science in the classroom. As the Phase One teachers near the end of their CPD journey, the Phase Two teachers are in the early stages of theirs. Going forward, through mutual support, these two groups will ensure that this excellence in the computer science classroom continues and evolves.

We never cease to be in awe of the commitment which the Phase One and Two teachers have shown to their students, to their subject and to each other and we are very excited to meet our Phase Three teachers, towards the end of this academic year. The future - and present - of Computer Science in our schools is in great hands.

PARTNERSHIP WITH CESI

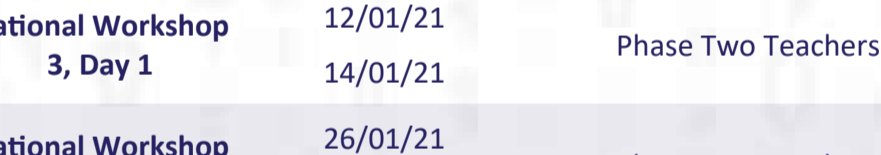
The PDST LCCS team are delighted to be collaborating with the Computers in Education Society of Ireland (CESI). Through our associate model this partnership continues to provide skills workshops and grow the necessary Communities of Practice for Leaving Certificate Computer Science teachers.

SCHOOL LEADERS

The PDST would like to acknowledge the huge and continued support of principals and other school leaders in our Phase One and Two schools and thank them for their part in the success of the LCCS role out to date.

COMPSCI.IE

CompSci continues to be the hub for teacher-created resources around LCCS and the Junior cycle short course in Coding. Huge thanks to our teachers for filling the site with amazing resources. All resources created by the PDST team are also uploaded there for educators continued access.



WEBINAR WITH JAMES WHELTON

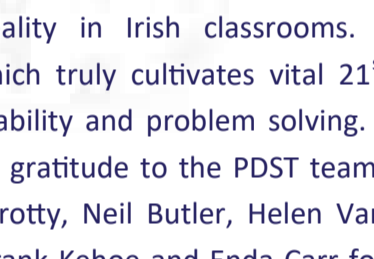
On Wednesday 25th November the PDST LCCS team held a webinar with James Whelton the co-founder of CoderDojo. We got to discuss James' early life and finding his passion for computing (via hacking an iPod Nano), co-founding CoderDojo, his pedagogical ideas and practices, his work as a computer scientist around the world and his perspective on leading and managing the development and design process. James is a true inspiration to us all - computer science teachers and students alike. It was a fascinating evening, the recording of which can be found on our CPD hub on **CompSci.ie**:

<https://www.compsci.ie/cpd/>

A MESSAGE FROM OUR NATIONAL DIRECTOR

A chairde,

As the Department of Education's largest CPD support service, the Professional Development Service for Teachers has been delighted to design and facilitate the professional learning programme for all teachers of Computer Science since 2018. Through a longitudinal and sustained model of CPD, we have been privileged to work with the first adopters of this subject in a variety of settings. These teachers and their schools are shapers of our system and are the ones who have made Computer Science a reality in Irish classrooms. I commend them for blazing a trail which truly cultivates vital 21st century skills such as creativity, adaptability and problem solving. I want to extend my sincere thanks and gratitude to the PDST team: Joe English, Tony McGennis, Sínead Crotty, Neil Butler, Helen Van Esbeck and their former colleagues Frank Kehoe and Enda Carr for their outstanding attention to quality and pedagogical richness in designing every CPD offering and for in no small way contributing to the successful introduction and implementation of Computer Science. The team along with the teachers they work with will remain champions of this leading discipline, as it expands and grows throughout the system.



Gach rath oraibh go léir san obair fúintach agus thábhachtach atá romhaibh,

Ciara O'Donnell

LCCS EXAM

The first ever Leaving Certificate Computer Science examination took place at 17:00 on Monday the 7th of December. We congratulate all students and teachers involved and look forward to getting our hands on the paper and working through it ourselves!

UPCOMING PDST CPD EVENTS (JANUARY—APRIL 2021)

EVENT	DATE	ELIGIBLE ATTENDEES	EVENT CONTENTS
National Workshop 7, Day 1	15/12/20	Phase One Teachers	The Design Process, Looking at the 2021 Coursework Project Brief
National Workshop 3, Day 1	12/01/21 14/01/21	Phase Two Teachers	Applied Learning Task (ALT) 2, Analytics, Curriculum Planning
National Workshop 3, Day 2	26/01/21 28/01/21	Phase Two Teachers	Computational Thinking, Algorithms, Computer Systems
Advanced micro:bit	01/02/21	Phase One Teachers	Advanced features of the micro:bit relevant to ALT2 and ALT4
Regional Cluster Meetings	Weeks of: 22/02/21 01/03/21	Phase One and Two Teachers	Teacher-led discussions on classroom pedagogy, Teacher Show and Tell
National Workshop 7, Day 2	March/April 2021 (TBC)	Phase One Teachers	ALT 3, JavaScript, Learning Outcomes, Curriculum Planning
National Workshop 4, Day 1	13/04/21 14/04/21	Phase Two Teachers	ALT 3 (TBC)
National Workshop 4, Day 2	27/04/21 29/04/21	Phase Two Teachers	Algorithms, Computer Systems, Digital Technologies (TBC)
Leadership Support	Apr/May	School Leaders in Phase Three schools	Advice and information for principals in schools introducing LCCS for the first time.

UPCOMING EVENTS AND COMPETITIONS

EVENT/COMPETITION	ENTRY DATE	URL	ABOUT
ACM SIGCSE	Various dates	https://sigcse.org/sigcse/events/	The SIGCSE organisation provides a forum for educators to discuss issues related to the development, implementation, and/or evaluation of computing programs, curricula, and courses, as well as syllabi, laboratories, and other elements of teaching and pedagogy.
Cooltest Projects	May - June	https://online.cooltestprojects.org/	If you're up to 18 years old and you have made a cool project, you can join in. You can work as an individual or as part of a team of up to five. All projects are welcome, from beginner to advanced, in any programming language and using whatever hardware you have available.
BT Young Scientist	Autumn 2021	https://btyoungscientist.com/	BT Young Scientist is an Irish annual school students' science competition to encourage interest in science in secondary schools.
EU Code Week	9-24 October 2021	https://codeweek.eu/	EU Code Week is a grassroots initiative which aims to bring coding and digital literacy to everybody in a fun and engaging way...
Computer Science Apprenticeships	Ongoing	https://apprenticeship.ie/career-seekers/get-started/learn-more/ict/Software-Developer-Associate-L6 https://www.ecollege.ie/course/	Apprenticeships and college courses in the area of ICT, Computer Programming, and Data Science:
Future Learning - MakeX Online Spark	January 2021	https://www.flireland.com/fl-computer-science-makex/	MakeX is a robotics competition platform that promotes multidisciplinary learning of young people within the field of science and technology in over 60 countries. MakeX Online Spark Competition 2021 is a creative design competition.
Formula Females	All year round	https://www.formulafemale.org/	The Go Girls Karting initiative is designed to give young females an insight into the world of Motorsport, whether it's competing as a driver or undertaking a career through STEM.
Teen Turn	Programmes available various dates throughout the year	https://teen-turn.com/	Using Motorsports as a platform to teach STEM education provides a new way of thinking for students who need something different in order to learn.
Science on Stage	Event opens 2021	http://www.scienceonstage.ie/	Science on Stage (SoS) Europe is a European initiative to encourage science teachers to share best practice in science teaching. A key focus of SoS is the hosting of biennial teacher festivals to showcase innovative teaching ideas. Follow up activities focus on sharing, developing and sustaining the inspiration gained at the festival.
I WISH	4 March 2021	https://www.iwish.ie/register/	Supporting transition year girls to be agents of change that our world so badly needs right now. I WISH is committed to showcasing the power of Science, Technology, Engineering, and Maths to female secondary school students.
Microsoft - Imagine Cup Junior 2021 AI for Good Challenge	Registration closes 21 May 2021	https://imaginecup.microsoft.com/en-us/junior	Imagine Cup Junior 2021 provides students aged 13 to 18 the opportunity to learn about technology and how it can be used to positively change the world.

UPCOMING CONFERENCES

CONFERENCE	DATE	URL	ABOUT
CESI	27 February 2021	http://www.cesi.ie/conferences/adapting-digitally-to-a-changing-reality/	CESI stands for the Computers in Education Society of Ireland. CESI is aimed at anyone with an interest in the potential of technology to enhance the teaching and learning experience for all involved in education. It is the Computer Science teacher subject association and therefore the conference is key for CS teachers and the subject longevity in Ireland.
SIGCSE TS - ACM Computer Science Education Technical Symposium	17-20 March 2021 online (normally USA or Canada)	https://sigcse.org/sigcse/events/symposia/index.html	The SIGCSE Technical Symposium addresses problems common among educators working to develop, implement and/or evaluate computing programs, curricula, and courses. The symposium provides a forum for sharing new ideas for syllabi, laboratories, and other elements of teaching and pedagogy, at all levels of instruction. Approximate attendance 1,500.
ICER - ACM International Computing Education Research Conference	August 2021 Charleston, South Carolina	https://sigcse.org/sigcse/events/icer.html	The International Computing Education Research (ICER) conference aims at gathering high-quality contributions to the computing education research discipline. It attracts over 100 computing education researchers.
ISLS	7-11 June 2021 Bochum, Germany	https://www.isls.org/	The International Society of the Learning Sciences (ISLS) is a leading professional society for academics, professionals and students seeking to advance the sciences and practices of learning. ISLS brings together those interested in learning experiences across schools, homes, workplaces and communities, and who seek to understand how collaboration and learning is enabled by knowledge, tools, networks, and social structures.

