



# cesi

Computers in Education Society of Ireland  
Cumann Ríomh-Oideachais na hÉireann

### **Background information on the event**

In February 2017 CESI, the Computers in Education Society of Ireland (CESI), welcomed the announcement of the intended introduction of Computer Science as a Leaving Certificate subject, and we support Minister Richard Bruton's aim to have Computer Science as an option for Leaving Certificate students by 2018.

CESI accepted an invitation from the National Council for Curriculum and Assessment (NCCA) to have a representative on the Computer Science Development Group to participate in the development of the curriculum.

When the curriculum reached the consultation stage, CESI hosted a symposium on the proposed new course on Saturday September 16th in Maynooth University. There was no fee to attend and the event was open to all. 167 registered to attend and 117 actually attended.

The target audience for this event included:

- Teachers who want to explore the possibility of getting involved in teaching Computer Science in their schools. (97 registered, of which 90 said they are interested in teaching LC CS)
- Principals and other school leaders who want to make the subject available in their schools. (13 senior managers registered)
- Anyone interested in facilitating and fostering the development of Computer Science at 2nd level. (18 third level, 13 public sector and 8 from commercial organisations registered)



### Format of the event

The symposium was structured to allow for presentations in specific areas followed by discussion sessions. Feedback from these sessions was recorded using the website [padlet.com](https://padlet.com) The timetable for the day was as follows:

10:00	Pat Seaver, CESI - <b>welcome</b> from the chair for the event
10:10	Elizabeth Oldham, TCD & CESI - <b>Setting the scene</b>
10:30	Anna Walshe, NCCA - the draft <b>curriculum</b> in depth
11:15	1st <b>discussion</b> - the draft curriculum
11:45	Jake Byrne, TCD & NCCA - approaches & experiences teaching CS
12:30	<b>Lunch</b> Declarations - <b>dialogue</b> around posters
13:15	2nd <b>discussion</b> - how it might work in <b>the classroom</b>
13:45	3rd <b>discussion</b> - rolling it out in <b>schools</b>
14:15	Richard Millwood - a Computer Science <b>Community of Practice</b>
14:30	Close - informal <b>dialogue</b> with refreshments

By structuring the discussion groups to consist of varying sectors of the educational community we aimed to give attendees an opportunity to engage with as many viewpoints as we could so they could better appreciate how we need to work together to make the hopes and aspirations we have for this curriculum a reality.

We asked that attendees, while engaging in the discussion sessions, would also take the time to feedback their views to us using Padlet. The full responses given to us via Padlet are at the end of this report.

For many attendees this was their first opportunity to discuss the new Leaving Certificate subject and they were enthusiastic in their support for its introduction. Given they were giving up their free time to attend such an event perhaps this is not too surprising but it was nonetheless an encouraging and energising experience to engage with teachers, school leaders, 3rd level lecturers and people from support agencies and commercial companies who have high hopes for Leaving Certificate Computer Science.

### **Feedback on the draft curriculum**

Attendees were well disposed to the draft curriculum. Among other comments it was described as being innovative in ways that could lead change in other subjects. They liked that it is not prescriptive in relation to technology use, that problem based learning and project management are included, that computational thinking is core, that CS is seen as more than programming, that it has practical content and is skills based. The interdisciplinary artefact was singled out as a good idea.

Some questions arose on the assessment which is one of the significant challenges to be worked out. The balance of marks between the exam and project was questioned with some believing the project should have a heavier weighting while others were concerned about students getting “help” on their project that might harm the integrity of the process. There was a suggestion that a “one day” project might be another means of assessment.

Some concern was expressed that the course might be aiming to do too much and is too aspirational in the timeframe allowed. While others described it as comprehensive, some felt the completion of 5 projects as well as the assessed project might be too challenging. It may be that this quantity of content would impede the building of confidence and enjoyment.

There was a suggestion that mobile app development should be emphasised.

### **Feedback on how it might work in practice**

Following on a presentation by Jake Byrne on his experience of team projects in his work with Bridge21 we devoted a discussion session to attendees opinions of how it might work in the classroom.

Among the comments in the feedback was an appreciation of the “learning by doing”, “action based” nature of the course. It was suggested that there was similarity to some of the work being done in DCG that might be drawn on for experience.

It was suggested there might be an advantage to team teaching as well as team learning with the skills/strengths of different teachers being an advantage.

Concern was expressed that students with or without CoderDojo and/or Junior Cert. short course in Coding experience may result in students with a wide variety of skill levels at the start of 5th year.

**Concerns regarding funding, infrastructure, training, resources etc.**

Many concerns were raised about resources, training, funding etc. All legitimate and important concerns that will contribute to the making or breaking of the rollout of LC CS. We won't list those here as they aren't pertinent to the curriculum itself but they can be seen as a recurring theme running through the padlet discussions at the end of this report.

**Three Padlet Discussions in Full.**

# CESI CS - Discussion 1 - NCCA Draft Curriculum

Please add your comments to the columns below and/or add your own posts for others to consider and comment on

## I like that...

Agreed! — ANONYMOUS

I like that, as required, it is not prescriptive in relation to technology used. — CONOR POWER

A really innovative curriculum model that will help students to really develop higher order skills. Well done. — CYRIL DRURY

The key skills and competencies of problem based learning and project management will help students in other curricular areas. — ANONYMOUS

Computational thinking and problem solving skills are core — ANONYMOUS

Digital portfolios is the way to go for continuous assessment — PETER STEWART DOLAN

The over all structure especially Algorithms and foundations of IT — PETER STEWART DOLAN

The idea of an interdisciplinary artefact is great — ANONYMOUS

Adhering to deadlines is a very important skills for students to acquire Geraldine — ANONYMOUS

Generally good. — ANONYMOUS

Comprehensive urriculum — ANONYMOUS

Very good base to go into 3rd level CS — ANONYMOUS

Could lead change, easier to set in a new subject without existing expectations. — DAVID\_MALONE

(answering for group) — DAVID\_MALONE

Curriculum model is great - looks innovative. — DAVID\_MALONE

The curriculum recognises that computer science is not programming — ANONYMOUS

The idea of the paperless approach and the practical nature of assessment structure. — ANONYMOUS

It is not only Programming but incorporates broader aspects of CS such as problem solving — ANONYMOUS

There is a focus on practical content — ANONYMOUS

Neil O'Sullivan - I like the idea of online assessment — JOHN HEGARTY

Highly innovative skills-based curriculum — PETER HAMILTON

## I Wonder if...

Resources can be reused from countries that have already successfully implemented this curriculum — ANONYMOUS

I wonder if very basic parallelism/concurrency should be on the curriculum. The most simple microbit doorbell program, for example, consists of one program that is executed by two devices at the same time. This execution model/concept is not intuitive to most, and it introduces issues that 'normal' sequential programming (one program->one device) does not. — BRETT BECKER

It is clear that the resources needed to deliver the curriculum need not involve huge IT infrastructure and can be delivered with low cost tech. E.g 50 euro Raspberry PI — STEVEN DALY

Will there be an open-book component to the final assessment? — ANONYMOUS

The tech industry could be involved with visits, tours, etc. — MRODONNELL

Will everyone answer the same question online - i.e. will the short questions be randomly assigned or will everyone get the same question? — ANONYMOUS

if sufficient time will be allocated to cover the full course given the content — ANONYMOUS

I'm looked forward to true cooperative learning in the project based tasks — ANONYMOUS

there is a preferred group size for implementing CS? — DOMINIC\_MCEVOY24

The course is too aspirational given the timespan? — ANONYMOUS

You could have the assessments finished at the same date in every school.- 5 assessments 5 deadlines? — ANONYMOUS

It is too much content for level 5 — ANONYMOUS

## I'm concerned that...

concerned that the subject may become prone to a Gender Balance Problem with a low uptake by girls.. is there a strategy to prevent this happening? — ANONYMOUS

Agent-based modelling? This seems parachuted in. — ANONYMOUS

There is huge potential for projects but facilities and money available to each school will dictate viability. Size of groups should be 20 or less per class as with some JC science classes. — PETER STEWART DOLAN

Concern: The over subscription of teachers wanting to upskill with a limited background of computer science.. It appears that current upskill course at UCD is quite theoretical — PETER STEWART DOLAN

a lot of project based activity that students don't get credits for would be better to include all projects for continuous assessment and raise the CBA to up to 50% — PETER STEWART DOLAN

timetabling also a concern here — DAVID\_MALONE

Good parallel with engineering technology LC subject — PETER HAMILTON

Who is the target and how broad is the appeal - seems like quite broad from vocational journey/crafts people web developers and designers through to high level engineering candidates — PETER HAMILTON

Is final project your own or team and how will that be fairly marked ? — ANONYMOUS

The assessment tasks and exemplars need to be really well laid out- this will be what teachers will turn to and use - so big selection needed — ANONYMOUS

I find it strange that there's no Junior Cert. for it. Between 6th class and LC students might not have access to technology coding and then there's a gap in skills and ability when they reach leaving cert. — ANONYMOUS

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We are missing loads of people in CS as they don't realise that CS is solving problems — ANONYMOUS

Need to follow countries who have done this properly- Israel- — ANONYMOUS

Students may initially struggle with a new form of testing (online) that they are not familiar with. Any technical issues may unsettle students. — ANONYMOUS

The "not good at Maths thing"- need to try to attract all. — ANONYMOUS

Transition from teamwork projects to individual assessment may be very challenging for some. — ANONYMOUS

The name- Computer Science- not computer science — ANONYMOUS

Also important to try and attract more boys- do not just focus on girls in tech- plenty of boys would be into it but think that if you are not a coding whiz you would not be good enough. — ANONYMOUS

schools will have sufficient infrastructure to support the content. — ANONYMOUS

Quantity of resources / examples available. And when? — ANONYMOUS

Gender split- if you focus on programming only you put the girls off- logic and problem solving keep girls interested- see research based on Israel's experiences- split is 50/50 — ANONYMOUS

Pilot schools should be a mix of schools who do the coding short course and those who don't- needs to be accessible to students who start in 5th year. Not just those who did coding at JC level. — ANONYMOUS

students who have had no exposure to CS (example Short Course) will not be aware of exactly what's involved. — ANONYMOUS

Split between practical and theory backwards? — MRODONNELL

Broad. Is it too broad? — ANONYMOUS

Class size 24 students in a classroom is not practical for raspberry pi/arduino and microbit activities. — MAEVE CORMICAN

The teachers who take on the delivery of CS may be teachers who have an interest in 'Computers' but do not have the SCIENCE background and training. There has been so much thought given to the design of the specification that makes the course look very exciting but we need adequately trained teachers to deliver it. Principal of an ETB school. — KEVIN COOLEY

Need to ensure that we don't focus too much on coding- jobs of future will be on user experience, coding jobs will all be gone. If we are going to attract a cross section of students we need to focus on the creativity. — ANONYMOUS

Will all-Irish schools be included in the pilot programme? What about teaching resources & human resources? Maybe link with Acadamh.ie/ NUI Galway (Computer Science section). — ANONYMOUS

Projects in Groups - will this work ? — ANONYMOUS

What about students who wish to take the course and their respective school does not offer the course? How will the team element of the projects happen? — ANONYMOUS

Important to be equitable - diversity, socio economic.... — MRODONNELL

How are projects to be timetabled? Fitting in around other subject requirements like Orals, etc. Especially in 6th year. — ANONYMOUS

how to cope with those students who are very individualistic and do not want to work in groups — ANONYMOUS

Why the lack of focus on databases, loads on microprocessors  
— ANONYMOUS

Will there be enough time per subject- is it going to get more  
time allocations as it's a new subject- similar to when they  
were promoting physics — ANONYMOUS

Also the assessor? Do they have the ability to assess?  
— ANONYMOUS

where do the teachers come from? Is it realistic to assume we  
can train non-CS specialists to teach CS? — ANONYMOUS

teachers will not be supported to keep up to date in such a  
constantly evolving area — ANONYMOUS

Sample projects are not yet available — ANONYMOUS

Lack of IT Technician- It co-ordinator- who will set up the  
computers- will there be support- will there be allocation to  
allow teachers/IT Co-ordinators to set up the labs etc.  
— ANONYMOUS

Networking is included alright. TVP/IP and VOIP for  
example. — ANONYMOUS

Is it possible for certain elements of the course to be differed  
until both students and teachers are more up skilled.  
— ANONYMOUS

? networking is missing — ANONYMOUS

5 projects - is very ambitious — ANONYMOUS

That it turns into an elite subject or only taught in boys'  
schools — ANONYMOUS

Concern in the group in relation to the scope of the number of  
lesrning outcomes — ANONYMOUS

How to qualify for TC to teach CS — ANONYMOUS

Numbers I third level may drop if students don't take it  
— ANONYMOUS

Group work- roles should change- so that they all learn  
— ANONYMOUS

How will physical computing be accommodated and marked  
— MRODONNELL

teachers will not be given enough support to enable them to  
teach it. — ANONYMOUS

Time Management, Funding, IT infrastructure within schools,  
lack of qualified teachers, TC recognition???

Two distinct skillsets- programming and logic- projects must  
target both- not be all programming — ANONYMOUS

Timetabling is n issue — ANONYMOUS

Project work- can everyone do the projects- course is for all  
experienced and non experienced. — ANONYMOUS

Concerned about the sheer quantity of knowledge and skills  
that need to be learned at the expense of building confidence  
and enjoyment. This opportunity was missed with project  
maths. — ANONYMOUS

It's very wide and some content is degree standard  
— ANONYMOUS

Time Management- will we complete the assessments on time  
— ANONYMOUS

Level is not well defined whats a H1, a H2, etc. — ANONYMOUS

Requires that we approach teaching differently this is good  
but requires skill and openness to change — ANONYMOUS

Who will be economically motivated to produce curriculum  
materials for what will likely begin as less than 1000 students  
— PETER HAMILTON

About how main curriculum resources and materials and  
who will produce them - digital curriculum or conventional  
text — PETER HAMILTON

## I don't like...

Teachers are not trained to deliver this curriculum  
— ANONYMOUS

Computer science is not mobile app development  
— ANONYMOUS

No mobile/app development on the curriculum?  
— ANONYMOUS

Totally agree language should not matter. I'd imagine the  
thinking was in the early pilots for assessment you would  
want teachers/examiners working with familiar languages  
until the assessment pice is developed and they would drop  
the requirement. — ANONYMOUS

The programming language used should not matter. The  
underlying problem solving skills are key. — ANONYMOUS

If they are learning how to code and want to write apps they  
can. It is only proposed that the final assessment be done in  
those two as they are the most popular languages for learning  
code and will make initial assessment easier. I image when  
the course is more established there will be no prescribed  
languages. Aslo while most schools can easily teach through  
JS/Python they would need access to expensive Apple  
hardware for all students vs JS Pyhton on a €40 Raspberry Pi.  
— ANONYMOUS

I'm concerned that the 2 languages prescribed for  
examination (JavaScript and Python) in the first few years  
are too narrow and do not reflect the languages that are hot  
for writing Apps. More students would be interested in  
studying this curriculum if they knew that they would learn  
the cool languages for writing their own apps to put on  
AppStore. — ANONYMOUS

% is too high for exam. The practical part of exam questions  
should be incorporated as project work instead and raise the  
CBA to at least 40% or even 50% because CS is very practical  
in it's nature. Use the 5 CBA projects plus 6 for CBA = 50%  
overall grade. — PETER STEWART DOLAN

I second that binary comment Conor. — BRETT BECKER



Bit of a nitpick - really don't understand why being able to convert decimal to binary and vice versa is highlighted as higher level only. From experience this is not complicated for students compared to many other aspects. It is also important for understanding data representation and a good example of algorithm application. — CONOR POWER

The level of training to support teachers who will deliver CS — ANONYMOUS

I've had assessments disappear on secure systems before but they measured literacy and were repeatable. Insuring the exam work would be paramount and I've yet to see a school with that kind of secure system. — ANONYMOUS

Concern about the timeframe?

You can need buffers when mapping courses to school weeks. A single school event can see you missing a double, then a student is out next day etc. — CONOR POWER

I get why you would have a heavy weight on the assessment as projects are open to external assistance. I think a great approach would be to include a one day project where students are given materials to solve a problem and have a day (9-3) to complete under SEC conditions. — CONOR POWER

will full IT support be available for schools?.. — ANONYMOUS

Concern that teachers are not getting the training needed to deliver this syllabus — ANONYMOUS

The weighting in terms of assessment should have a higher percentage apportioned towards project work. Maybe 40-50%? — ANONYMOUS

The academy year is 6-8 weeks shorter in the LC exam year due to orals, practicals, mocks etc — ANONYMOUS

If its got a lot of ongoing work building artifacts etc, the exam weighing at 70% seems high. Could a student leave out all the project work and still pass? — ANONYMOUS

I think the syllabus needs to have a component that is fluid in its nature e.g. social media and data analytics may not be a big focus in 10 years time..But algorithms and fundamentals of hardware will not change much over years. Review syllabus every 5 years or so for New TEchnology part of the syllabus maybe??? At the end of the day we are giving a foundation in Computer Science it is Third level / further education to develop this foundation. — PETER STEWART DOLAN

## NOS

Online assessment and portal is great but school's infrastructure all over the country may need students have issues logging in.

Concerned about the number of projects to be complete over the two years. — ANONYMOUS

You cannot let the tail wag the dog. Curriculum decisions must be made in the best interests of students/subject and the assessment will have to be adapted to suit. — CONOR POWER

Will the curriculum will be fully developed and clear before it is introduced to schools. — ANONYMOUS

Who will supervise exam and will they have the technical knowledge to deal with any issues that may arise. — ANONYMOUS

Would it qualify as a science subject in university — ANONYMOUS

How de we deal with special accomadations on an online platform — ANONYMOUS

Will the curriculum be dynamic and able to keep up with changes in industry — ANONYMOUS

You would think that the teachers should be tech savy so the platform would not need to be overly complicated. Secure FTP etc would do. — CONOR POWER

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how secure will the online test be?

if answers require typing, what if the student is highly proficient?

overall, the online assessment is COOoL

Process of overcoming a design problem being paramount is really good for students

what is the programming language ... Python as a scripting language might give a false sense of security

JS vg for eg sentimental analysis

schools will need to provide the students with keeping a digital portfolio

perhaps edmodo, or school platform like office365 or gooclassroom

how reliable is school equipment .. phase 1 schools will have a role to teach other schools

how to monitor group work ...we think a blog or diary of the process needs to be kept by each learner similar to Art needing a folder with pre sketches and prep work♥

What qualifications will teachers need in order to be qualified to teach the new specifications?

Backup, backup, backup. — CONOR POWER

What happens if a student fails 1 of the 5 projects, — ANONYMOUS

The server room in my last school flooded. Would there back up to outside secure Data storage? I don't think the systems are reliable for enough irreplaceable student work. — ANONYMOUS

There is probably a lack of qualified teacher to Teaching Council standards. I have over 15 years experience working in IT and am a qualified teacher in other subjects but not in IT as only have IT to level 7 but have very good working knowledge. Courses that exist to convert are already oversubscribed!! — PETER STEWART DOLAN

Formal links with local IT . Resourced. Build industry links and get them invested. — ANONYMOUS

Is the weighting right? Should there be more emphasis on project/coursework? Maybe a 50/50 split? — ANONYMOUS

Could we have a course without any coding- or a year or just one optional assessment- use pseudocode, creativity, problem solving — ANONYMOUS

The jump from scratch may me too vast — ANONYMOUS

Could it get extra points like maths to make it more attractive — ANONYMOUS

could this apply to any student/parent? — ANONYMOUS

Are 3rd level institutions, TC and other entities buying in or is it the cart before the horse? Impact for roll-out? — ANONYMOUS

Wonder about whether girls will opt for it in a high stakes exam / points environment — ANONYMOUS

Will computer qualified teachers be enticed or is the pay greater in industry — ANONYMOUS

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# CESI CS - Discussion 2 - How it might work in the classroom

Please add your comments to the posts and/or add your own posts for others to consider and comment on

## I like that .....

An organic collaborative classroom layout for group work will be really suitable for this course — PETER HAMILTON

Project based work. The only way you learn to code is by doing actual tasks. — PETER STEWART DOLAN

Students will find it modern and interesting - it will be easier to attract them towards a subject that is action-based — ANONYMOUS

How the project will reinforce the theory aspect. The project will motivate the student and highlight the relevance of the learning outcomes to the student. — ANONYMOUS

5 projects are formative assessment so don't have to be perfect — PETER HAMILTON

learning can start with the project on day 1. It doesn't need to be 'learn this then do a project on it'. It should be 'we are going to do a project on x and learn as we go' — BRETT BECKER

That there is project based work and it involves team work and collaboration — ANONYMOUS

Project work is similar in spirit to Design Communication and Graphics course. Might be a useful framework to draw on. — DAVID\_MALONE

Multivarious computer skills that equip student — ANONYMOUS

Different aspects tested- coding, logical thinking — ANONYMOUS

The subject has a strong practical focus — ANONYMOUS

Practical applications- structure — ANONYMOUS

## I wonder if ...

If you could have team teaching and each teacher has a different set of skills / specialisation e.g one coding, one hardware background etc — PETER STEWART DOLAN

Checklist / matrix to match success criteria with LO — PETER STEWART DOLAN

Samples of best practice / completed projects. — PETER STEWART DOLAN

group work is a good idea for a LC subject. A students future options depend on their result and it may not be fair that other students can affect this. — ANONYMOUS

All practical classes? — MRODONNELL

Schools can be clusterd to provide oppotunities to students who are in schools that do not offer the course. There will be students who want to self study and may need access to help. — CONOR POWER

Time allocated per week — MRODONNELL

Standarise hardware - e.g. Raspberry Pi — MRODONNELL

To repeat Declan's point. Students should be able to complete one or two of their 5 projects in Transition Year and have it carry forward should they continue in senior cycle. — JMURRAY29

Chris - The students can take their work home and get other people to work on it. ;) — CONOR POWER

Will there be a huge variety of starting levels in an average classroom between students who have been Coder Dojo / Code Club etc members for years, and those that haven't — STEVEN DALY

you could do two people to a computer- one types one directs and you switch each tack/class — ANONYMOUS

Students from no coding backgrounds ( no Junior cycle or coding club experience) will be able to deal with the new subject — ANONYMOUS

Is there any other subject that starts 'cold' in 5th year. Or will this be a first? — STEVEN DALY

Structure will be in place in order to facilitate online assessment process — ANONYMOUS

Who knows who will be deciding what qualifications are needed for teachers to teach CS? — CHRIS REINA

Could each person present their work to an examiner so that they have to justify their own work- like for music — ANONYMOUS

There will be enough teachers available? — ANONYMOUS

Will there be online access to exam conditions/mocks/sample short questions, etc. — ANONYMOUS

you could rotate the roles in groups — ANONYMOUS

Can online learning help as a centralised resource in-class as well as outside — ANONYMOUS

The students can take their work home and work on it. — CHRIS REINA

## I'm concerned that ....

Classes might be too large. Better to keep numbers to around 20 per class or use team teaching if larger numbers. — PETER STEWART DOLAN

If Higher and Ordinary levels are offered how will teachers deal with the different levels. — ANONYMOUS

The 5 projects are group based projects. This is a good idea but the Assessed Task is an individual project. Students should have the opportunity to complete a project individually from beginning to end. — KEVIN COOLEY

have student tech ambassadors because when teaching a big class python (for example) is hectic. these students help everyone else (and you!) alternatively get mentors from local colleges (who get credits for doing a "community" module — ANONYMOUS

The subject could lend itself to team teaching — MARKWALSHE77

of the numbers of potential students they may want to enrol on course but not have enough knowledge of what the CS course entails — PETER STEWART DOLAN

The balance between depth and breadth in the curriculum needs to be considered. Not sure that it I should right. — ANONYMOUS

The question over hardware resources is being overstated. What's needed to deliver this curriculum is basic and cheap. — STEVEN DALY

Will there be exemplars to take them through step by step- all the basic skills. This will ensure buy in from teachers. They will need this as a crutch to gain confidence. — ANONYMOUS

Teacher subject knowledge skills gap on a practical side — PETER STEWART DOLAN

How to grade group work — ANONYMOUS

There will not be sufficient time to cover 6 projects over 2 years. — ANONYMOUS

We should insist on a maximum class size of 20, based on Home Economics having max of 20 — MARKWALSHE77

DEIS schools being left behind — MRODONNELL

Achieving gender balance in entry to this subject all need some active approaches — PETER HAMILTON

Project management and facilitation skills for multiple projects and group project work — PETER HAMILTON

Timewise - how will it work in the time allotted — ANONYMOUS

Concerns over having access to maintained computers and rooms — ANONYMOUS

class size — ANONYMOUS

Will a student want to take on a subject with so many projects involved? — DAVID\_MALONE

The importance of the teaching skills for teachers for group PBL — ANONYMOUS

Support - networking, hardware... — MRODONNELL

Assessment of group work- although if its only 1 project on group work that is graded then might be ok — ANONYMOUS

Collaborative learning is HUGELY important - will need to be taught to teachers as well as CS — CHRIS REINA

Unless the teacher has the requisite expertise, no amount of resources and CPD will help — ANONYMOUS

Students will be pulled by too many other projects during the school year. — CHRIS REINA

Group work- what size groups, will everyone do the same amount of work- carrying people. — ANONYMOUS

## I don't like that ....

30% weighting for project work maybe too little if students have to do 6 projects — ANONYMOUS

The release of the Assessment Task in January is too late in the year. It is a very busy time of the year in schools with mock exams etc. — KEVIN COOLEY

The amount of LO / content — PETER STEWART DOLAN

The amount of projects that have to be completed reduce to maybe 2 or 3 — PETER STEWART DOLAN

There is an imbalance of infrastructure throughout the country and how that could impact student uptake in the subject or results in the long term — ANONYMOUS

Will balance of marks motivate students well? — DAVID\_MALONE

Some schools might not have reliable broadband connectivity — ANONYMOUS

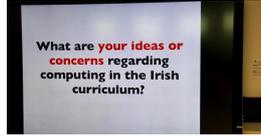
## cesicon 2017 Open Space

Here are the outcomes of our discussion in March

## Computing in the Irish Curriculum - Open Space at Conference 2017

In advance of the CESI symposium at Maynooth on September 16th 2017, this blog post reports some of the issues that came up at CESI conference in March 2017.

CESI



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# CESI CS - Discussion 3 - Rolling it out to schools

Please add your comments to the posts and/or add your own posts for others to consider and comment on

## I like that .....

*After decades of negotiations it looks like we will finally have Computer Science on the senior cycle curriculum!!*  
— PETER STEWART DOLAN

*That the specification can evolve with changing times*  
— ANONYMOUS

*Its not being held up with years of bureaucracy*  
— CONOR POWER

*Equipment requirements are not onerous . Can be done on a basic PC/Raspberry Pi.* — CONOR POWER

*They will begin the roll out with pilot schools* — ANONYMOUS

*DES and Minister are getting serious about provision of CS as school subject.* — ANONYMOUS

*The tech industry (cloud players like Microsoft and Google) could help implement a standard cloud model for us to use*  
— MRODONNELL

*We can be recommended the same code editors etc. across the board* — MRODONNELL

*Time will allow NCCA to deliver on time for 2018/19 academic year* — ANONYMOUS

*Can schools opt in to the pilot, or do they get selected? If not selected, do they just have to wait?* — ANONYMOUS

*Will teachers be able to share ideas/develop a community of practice* — ANONYMOUS

*Kit = 1 X monitor, 1 X computer, 1 X Keyboard, 1 X Mouse, 1X imagination :)* — CONOR POWER

*Will there be enough funding for a proper CS programme?*  
— ANONYMOUS

## I wonder if .....

*There will be incentives for schools to take up the pilot before full roll out for teachers and schools, students*  
— PETER STEWART DOLAN

*Can we have an awards ceremony for the projects that students do similar to scifest, Bt young scientist or Tech project* — DECLANHOLMES

*Third level should have a process for students who might not get the points for computing but they can submit their 5 projects that they studied in Leaving Cert* — DECLANHOLMES

*Can we do one project in transition year so that everyone gets to see what computer science is like and if you go onto take CS for leaving cert then you get points for your TY project*  
— DECLANHOLMES

*There's enough time. With regard to rollout, time is very relevant. There will be time management issues with other subjects which will conflict. Will teachers have enough time to learn the course content and still teach the 5 projects.*  
— CHRIS REINA

*There are resources available that already match the curriculum.* — ANONYMOUS

*Project briefs will be broad - allowing for different expertise, or narrow, requiring specific skills* — ANONYMOUS

*I wonder is it too quick a roll out?* — ANONYMOUS

*People will produce a kit you can buy what has a full set of things that would be needed for the course.* — DAVID\_MALONE

*Will there be a second stream stated in 2019?* — ANONYMOUS

*Looking at the spec no language specified for delivery but the assessments initially base on Javascript and Python*  
— CONOR POWER

*the languages to be covered will be set or will the teacher get to choose from a set range of options.* — ANONYMOUS

*We should already be thinking about creating a 'pipeline' of students at junior and primary levels who will then be more likely and more interested to take CS up at senior cycle.*  
— STEVEN DALY

## I'm concerned that .....

*Will there will be enough support for schools and sample materials including exam type questions / assessments.*  
— PETER STEWART DOLAN

*If there is a huge demand for the computer science program how will schools select students as there is no JC.*  
— PETER STEWART DOLAN

Will teachers/students be supported- its a high stakes LC exam which students will be counting on for points for college- if a school/teacher takes it on- extra pressure. Who will assess- how will rechecks work. — ANONYMOUS

New Junior cycle might have an impact... — ANONYMOUS

When the exam is proposed to occur. Should be at the end of year with a deadline for the project artefact in line with other practical based exams. — SHANE FLEMING

More than 1 teacher in the bigger schools needed? — MRODONNELL

I don't think they are, I think that is only in the initial phase. You couldn't possible madage a langauge in the spec long term. Think of everyone lauging about the Fortran/cobol earlier. — CONOR POWER

JavaScript and python will forever be the examina le languages. We need a schedule of official review of every 2 years — ANONYMOUS

How do you guarantee correct rewards for each student in a group work activity. — ANONYMOUS

the roll out of the exam being a digital system that is untried and untested will put excess pressure on both teacher and student. — SHANE FLEMING

Assessment criteria not specific enough. How much is a limited knowledge? How do they distinguish between 'good' and 'limited'? More precise measures needed — ANONYMOUS

Physical accommodation implications - access to computer rooms or classroom when required. — ANONYMOUS

Very ambitious curriculum. It might be too much — ANONYMOUS

People would try to roll it out without working ICT support in school. — DAVID\_MALONE

How can they guarantee standards? — ANONYMOUS

Cost implications for schools buying equipment. Raspberry Pi's etc are not very expensive but there is still a large initial cost. — ANONYMOUS

Access- students downloading software as usually they are not allowed- so would need to change their access rights — ANONYMOUS

the practicality of the exam - will it be before June or during the LC exams in June? Who will supervise - will they have the ability to deal with technical issues as they arise. — ANONYMOUS

Maternity leave - how would it be covered — ANONYMOUS

Parents will buy into the project/course and support their children to take a new subject in the competitive points system. — ANONYMOUS

Need to have 2 qualified teachers in each school to cover maternity, sick leave. — ANONYMOUS

Standards might not be clear enough that students will know what they need to achieve? — DAVID\_MALONE

Will there be enough teachers or people interested/attracted. Into teaching to deliver it? — ANONYMOUS

will I be qualified to teach it? — ANONYMOUS

Will schools have enough access to expertise? — ANONYMOUS

That it will turn into Applied Maths- niche. That it a pilot school will be selected- and that when it comes to the subject choice- students don't choose it. — ANONYMOUS

Syllabus is too broad — ANONYMOUS

CPD will not be available until the syllabus is already being taught — ANONYMOUS

In order to help them make a more informed decision when it comes to choosing their subjects for Senior Cycle — MARKWALSHE77

teachers will be competent enough in coding — ANONYMOUS

students who have not had any access to coding previously will struggle — ANONYMOUS

Students might not know what they're getting themselves in for in and might want to drop out - to avoid this, students could do some coding in TY — MARKWALSHE77

There will not be enough resources across the board — ANONYMOUS

## Suggestions

Give bonus points for the students who are part of the pilot project. — PETER STEWART DOLAN

Match LO to sample pieces of assessment. Provide teacher handbooks for the course of depth of treatment with samples of assessment. — PETER STEWART DOLAN

Set up of online support groups, CPD for schools and staff similar to roll out of Project Maths — PETER STEWART DOLAN

Cluster schools to facilitate students in schools where CS is not being taught. — CONOR POWER

A strong model with mentoring — MRODONNELL

## I don't like that ....

The fact that I can't see what an exam will look like in terms of questions or sample assessments. — PETER STEWART DOLAN

Students will be entering into an unknown area, with little idea of the demands and difficulties of the subject — ANONYMOUS

A large portion of the work/responsibiity/design will fall upon the teacher. — ANONYMOUS

Draft is too aspirational/onerous — ANONYMOUS