Computing Teachers’ Conference: Inspiring Creativity and Innovation in Learning and Teaching

Target audience
Teachers of Computing, IT and Digital Literacy from primary to sixth form, IT technicians, careers teacher, school governors, plus anyone else interested in the Computer Science curriculum for schools from the region around Coventry and beyond.

Themes for the Conference
- Enhancing learning and teaching of Computing, digital literacy and IT in the classroom
- Future visions of Computing and IT for Teachers and educationalists
- CAS Network of Excellence, industry developments and support for schools
- Higher Education, pedagogy and practice, funding and changes
- Careers in Computing and IT
- Support for teacher CPD
- Teachers engaging in Research and Development about pedagogical practice
- The gender disparity in computing
- Launch of Challenge IT Competition 2015-16

Conference Schedule

09:30 - 09:55 Arrival and Registration: Engineering and Computing Building, Gulson Road, Coventry
10:00 – 10.05 Irene Glendinning: Introduction to conference – ECG 24 Lecture Theatre
10.05 – 10.10 Ray Farmer: Welcome to Coventry University
10:10 – 10:35 Keynote 1: Genevieve Nunes, readysaltedcode.org
10:35 – 11:00 Keynote 2: Bob Bird, Coventry University.
11.05 – 12:00 Choice of Workshops A - please see details, plan and notes
12.05 – 12.25 Networking / research activity EC 1-29
12.25 – 13:00 Buffet, networking, exhibition and trade stands - room EC1-29
13.20 – 14:15 Choice of Workshops B - please see details, plan and notes
14:20 – 15:15 Choice of Workshops C - please see details, plan and notes
15:20 - 15:30 Plenary - ECG 24 Lecture Theatre
15:30 – 16:00 Conference close, Refreshments, Networking EC 1-29
Notes about the keynote presenters

Keynote Address 1: "The Art of Computer Science"
Speaker: Genevieve Nunes

Taking a STEAM approach to understanding and delivering Computer Science education.

A Computer Science Educator in the South East of England. Genevieve values the experience and knowledge gained from working with professionals across all phases of education and industry. She is an advocate for including programming in the curriculum and believes you are never too young to learn about Computer Science. She is on the Department of Educations’ expert group for Initial Teacher Training for Computing. She has volunteered in a number of local primary schools, teaching programming to 6yr olds. Genevieve regularly runs small and large scale hack events. She has also founded a social enterprise readysaltedcode.org in 2013. readysaltedcode was been set up to inspire young people to engage in creative digital making, and supports their ongoing participation through our partner network and community-based education and training. Computer Science should have a creative aspect "STEAM" not just "STEM". Genevieve has since won an International Google RISE Award for Computer Science Education and more recently her second Arts Council England "Grants for the Arts" Award.

Keynote Address 2: “Serendipity?” You may ask yourself – “And how did I get here?”
Speaker: Bob Bird

Reflections on reacting and relating to developments in student learning with the focus on inspirational teaching.

Bob is a Senior Lecturer on a BSc under-graduate degree course in Ethical Hacking and the MSc course: Forensic Computing for which he is the Course Director at Coventry University. He is also the Programme Leader for the MTech programme in collaboration with Infosys (India) and a visiting mentor on the University of Warwick CyberSecurity MSc. Prior to joining Coventry University in September 2007 he was a Superintendent responsible for the Territorial Operations, Coventry for West Midlands Police. Bob served in the police for 30 years, the latter half of that service was predominantly concerned with major crime. He was involved in a wide number of major criminal investigations into offences of murder, primarily in the role of Senior Investigating Officer (SIO). He was for 5 years head of the Child Protection Unit in Coventry. He had extensive experience as a firearms and Public Order Commander. His research interests are pedagogical concerning Activity Led Learning and Digital Forensics in the area of smart vehicles, smart home hubs and medical devices.
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Workshops A: 11:05 – 12:00

1.1 Room ECG-01 Dr Patricia Ashman, Coventry University (Room with laptops)

Generation Z is part of a generation that is global, social, visual and technological. Gen Z is the most technologically saturated generation our world has ever seen. They are digitally transformed – seamlessly integrating technology into their everyday realities (McCrindle 2014). We are currently teaching Generation Z...

As educators we can choose to view the technological saturation of students as a problematic disruption to learning or as the creation of unprecedented opportunities for teaching, engaging and learning as well as positively impacting the student experience. To access Generation Z’s full educational potential we need to evolve, and expand our own educational paradigms and disrupt traditional orthodoxies underpinning teaching and learning practice.

This session examines the experience of engaging with students through their own devices, i.e. BYOD and looks at the potential of embracing the habits and characteristics of these new generation students. The aim is to achieve greater engagement, enhanced learning and transform the student experience by joining them in their borderless ‘virtual reality’.

This session is an interactive session and participants are invited to interact through the Tophat app or directly through the Tophat URI. No account necessary though pre-downloading the app from tophat.com is recommended.

1.2 Room EC2-03: Alethe Bailey: Barefoot computing, resources for primary and lower secondary

1.3 Room E2-12: Robert Leeman – OCR Computing qualifications – OCR (Subject specialist for Computing)

1.4 Room EC1-29: Nicholas Tollervey - Everything you ever wanted to know about Python (but were afraid to ask)

This workshop will contain pointers, ideas, tips, and tricks about Python, its community and the resources that are available to teachers. Bring along Python code you may have written, struggled with or don’t understand for helpful, feedback support and advice (a code clinic - a useful thing to run in your classroom). It’s also a springboard for a Q&A session with the presenter. Nicholas is a freelance Python programmer, Fellow of the Python Software Foundation (that holds the intellectual property of the Python language), organiser of the popular PyCon UK education track, and former senior teacher (he was once a secondary head of music).

Workshops B: 13:20 – 14:15

2.1 Room EC1-01: Diane Burton and Margaret Low – Understanding 3D printing

3D Printing has the potential to engage young people in exciting and creative design work, using one of the many free downloadable 3D Computer Aided Design (CAD) software packages to produce their own designs which can then be 3D printed.

The project "Engaging Young Learners in CAD & 3D Printing" ran a set of workshops with groups of
students from local schools and the project resources are now freely available for others to use. Come along and find out more about 3D printing and these resources.

2.2 Room ECM-01B Alex Beaumont – robotics – Coventry University

The workshop should inspire teachers to use robotics for teaching computer science. There will be a number of robots around the lab with instructions on how to operate them. Delegates can form a small group and gradually rotate around moving from one setup to the next. There are four robot arms each with a diorama. There is an assault course with a radio controlled car. In addition a number of projects will be available that the robot club members have made (aged 12-18?). There will be “insect” toys, TV remote controlled cars, various electronic gadgets including dice and a touch detector.

2.3 Room EC1-02: Meurig Beynon, Chris Hall and team: The Construit! project: resources for teachers

Making construals is a new approach to computing that links developing software to learning in an application domain. It has a wide range of potential applications in education:

- introducing skills and concepts preparatory and complementary to computational thinking,
- integrating computing education with learning in other subjects - such as mathematics, physics or music, and
- enabling teachers and pupils to develop and customise software in unprecedented ways.

Where the concept of 'a computer program' can be traced to Turing's seminal study of a mind following rules, the concept of 'a construal' is oriented towards less constrained states of mind that are associated with creative and innovative practices.

This workshop will give teachers hands-on experience of construals that are being developed for classroom use in connection with the EU Erasmus+ funded CONSTRUIT! project. We aim to recruit UK teachers to work alongside communities of teachers and pupils who are pioneering construals as computing-related educational resources in Finland and Greece.

2.4 Room EC1-03: John Insley, Master Teacher

Workshops C: 14:20 – 15:15

3.1 Room EC1-21: Chris Hall coordinating – Discussion group on curriculum development

This workshop will be of particularly interest to CAS members, teachers, master teachers.

3.2 Room EC2-12: John Palmer – Workshop on Secondary QuickStart to Computing

- The QuickStart CPD toolkit explained
- Getting started – unpacking the 2014 PoS for Computing
- A roadmap for change
- What does a “good” Computing lesson look like?
- What resources are there out there?
3.3 **Room EC1-22: Alastair Railton – Logic and binary workshop** Exploring fun ways to learn Logic and binary

The tried and trusted way of introducing newcomers to logic is also the best and potentially the most fun.

Propositions, logic equations, truth tables and gates are all alternative ways of saying the same thing. Which one we use depends only on what we want to do with the result. There are easy and fun ways to practice all of them.

Logic can be made to link really easily into binary maths if you do it the right way and it also allows students to see the point of doing it!

There are only three operations that anyone ever needs to learn in binary maths and they’re all really easy!

How about some cheap and some free tools to reinforce the topic?

3.4 **Room EC1-20: Mark Childs – Research to create resources for STEM education**

**Catering, WIFI, Car Parking**

Refreshments, networking, exhibition and trade stands will be available all day in room EC1-29.

A WIFI account is available for visitors. Please ask at the Conference Reception Desk.

Free car parking is available all day for delegates in the Coventry University Student Car Park accessed from Gulson Road. Make sure you display the conference car parking notice provided for this purpose, or ask for advice at the Conference Reception Desk.

**Launch of Challenge IT 2016**

BCS Coventry Branch has been operating a competition for local schools and youth groups every second year since 2005. The sixth competition will be formally launched at this conference. This run of the competition is open to teams of students **aged 11-19 supported in schools, youth groups and colleges**. Entries must fit one of the following categories:

- Design of an app for mobile device or the web
- Implementation of an app for mobile device or the web
- Digital animation
- Control or robotic application

There will be many prizes for teams and for schools, provided by a range of sponsors, including BCS, IET, CAS, Coventry University, University of Warwick. The finals exhibition and awards ceremony will take place on 20th March 2014 during British Science Week. Further details of the competition are to be found in your conference pack and on the BCS Coventry Branch web site: [http://coventry.bcs.org/competition.php](http://coventry.bcs.org/competition.php)

**CAS Distributed Research on classroom experiences**

All local teachers are encouraged to join our small distributed research group which is conducting research on topics relating to classroom experience and the new computing curriculum.
Plenary Discussion
Delegates are asked to contribute to the plenary, using the forms provided in your packs. If you are not able to stay until the end of the conference, points will be raised on your behalf and responses will be available after the conference on the BCS Coventry Branch web site. Suggested themes for discussion are

1. Teaching for the future
2. Computing curricula,
3. Issues surrounding the teaching of IT / digital literacy / Computing
4. Personal development – keeping up to date with technological developments
5. Gender
6. Any issues you may have – questions on other IT/Computing or teaching related topics would be most welcome

Please hand your completed forms the reception desk at any time, but no later than 14:20 (the start of the last session).

Stands and Exhibition (please see the plan in your pack)
Stand 1  OCR Robert Leeman
Stand 3  IET Derrick Willer
Stand 4  Computing at School (CAS) Network of Excellence
Stand 5  BCS the Chartered Institute for IT
Stand 6  Coventry University Faculty of Engineering and Computing
Stand 8  University of Warwick Department of Computer Science
Stand 9  Samphire STEM Gaynor Sharp

Sponsorship and support
The BCS Coventry Branch Committee is very grateful to all the speakers and to BCS, CAS, IET, TTS, Coventry University and University of Warwick for providing funding and resources to allow us to offer this event to the delegates and exhibitors with no charge.

We also thank the key-note speakers, workshop presenters and Exhibitors for their excellent contributions to today’s event. We could not have run this conference without significant time and effort from a wide range of people, involved in ideas, planning, organising, management and operations on the day, a very big thank you to all those people. Finally thanks to all the delegates for joining us today. We hope you enjoyed your time with us and that we will see you again at a future event.

Feedback forms
So that we can organise events for schools and teachers that are both valuable and successful, we would be most grateful if you could complete the feedback form in your pack and hand this in to the Conference Reception Desk before you leave today. Please feel free to provide any suggestions and comments about today’s event and also about ideas you have for how we can support you in the future.
Badges

Please return your name badges to the reception desk before you leave so we can recycle them.

Thanks to all sponsors, contributors and participants