

Bringing Programming to Life with Physical Computing

Educational systems that facilitate design and foster creativity

Teacher Professional Learning Workshop (5.5 non-registered hours)

Discover how to bring programming to life with physical computing. Learn how to program a microcontroller in order to make a real-world prototype with electronic circuits. Explore how physical computing can be integrated into the curriculum to engage students in deep learning. Experience learning by “making” through using recyclable materials and electronics. Join colleagues for a day of hard fun and problem solving – where computer science meets electronic circuits and tinkering.

Due to the current shortfall of skilled programmers and engineers to meet the demands of an increasingly digital world, it is critical that we include manufacturing and computer science subjects in schools. Physical computing is a way to engage students in STEM (Science, Technology, Engineering, Maths) learning, and in particular, Computer Science.

Participants will receive a 'Freertronics Experimenter's Kit for Arduino' to keep! This includes all you need to get started including sensors, motors, breadboard, LEDs, project guide and more.

During this hands-on workshop, participants will:

- » explore evidence supporting the integration of physical computing into the syllabus and relevant pedagogical approaches
- » taste test and compare a variety of microcontrollers e.g. the *Raspberry Pi*, *Arduino*, *Intel Galileo*
- » discuss and share ideas for teaching and learning
- » engage in hands-on activities that involve building, programming and working with electronic circuits and their components
- » explore examples and discuss ways physical computing can effectively integrate electronics and coding into meaningful learning
- » access the MacICT resource website as an ongoing resource
- » design and make a real world device for the home using recyclable materials and electronic components to keep!

Course Developer & Facilitator

Dr Sarah Boyd

Sarah is a MacICT facilitator and part-time high school teacher of Computing and Mathematics. She has recently retrained as a teacher having had a long career as a software programmer and Electrical Engineer. She has a PhD in Computer Science, and began facilitating at MacICT in 2014 where she combines her engineering and programming background with her love of teaching.



REGISTER NOW!

Register online through MyPL@EDU
<https://www.det.nsw.edu.au/docprs/welcome.do>

MyPL Course Code: NR08357

NSW DoE teachers: Log into MyPL@Edu with your DoE credentials & search for the course using the above code or course title. Government schools will be charged internally by the NSW Department of Education. This will be reflected on your sundry tax invoice statement.

Non-DoE teachers: You will need to sign up for a username and password to access MyPL. Just click “Don’t have a username” on the MyPL website and follow the instructions. Private schools and other institutions will be invoiced by the NSW Department of Education.

Please note: Any cancellations made within 5 days of the course will be charged to your school.

WHO Aimed at High School teachers but appropriate for some Primary Teachers

WHEN Please see website for dates
www.macict.edu.au

TIME 9am-3:30pm

LOCATION North Ryde, NSW

COST \$330 (incl GST) *Cost includes an Arduino kit for every participant.*

CONTACT macictsupport@det.nsw.edu.au
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