Allen Bower is a TEP Associate and a Senior Lecturer at Nottingham Trent University. This feature revisits the B.A (Hons) in Technology Education at Nottingham Trent University for an overview of how the course is developing and to highlight the features of an IP (integrating project) carried out in their trainees' first year.

Dark Nites - Bright Lites

I was waiting to visit a PGCE trainee on their teaching placement when my mobile rang. It was Nick Baldwin and an always fruitful conversation ensues.
It was one of those chance conversations; amongst all the creativity that was buzzing around we were talking about possible TEP supported projects for the BA cohort. A moment of inspiration came and we thought of the title 'Dark Nites – Bright Lites' as a theme.

The IP is indeed what its title suggests in that it integrates the taught elements as can be seen from the rationale in the table below.

Product Design	Materials Technology	ECT/ Energy
Design methodology and Design route leading to suitability and application along with design strategies to reach the optimum solution. Match current work in CAD and CAM	Broad opportunities for materials processing in the manufacturing of jigs and form tools (press forming) together with modern plastics and innovative use of smart materials. Thermochromic film and paints, resistance wire, polymorph, lenticular sheet. Clamping and fastening mechanisms may need to be explored.	Suitable electronic circuits researched and developed through software modelling, circuit investigations and PIC programming if appropriate. Exploring the suitability of power sources and efficiency (think broadly).

Brief:

You are required to carry out research, development and associated manufacture of a product that is closely related to the theme 'Bright Lights Dark Nights'. By frame-working the assignment so that it relates to the modules covered so far, you have the opportunity to produce a high quality and stimulating school resource. The development process should be communicated in the form of an 'Active Design Journal', which clearly logs all of your thinking from analysis of the 'Brief' through to the 'Evaluation'.

Results:

The students tackled the assignment along differing routes. Initially it was thought many would take the route of bright lights enabling people to be seen in the dark. However, and as is the norm, when creative minds get together a notional narrow field begins to be expanded. As you can see from the images some students took the notional route and looked at apparel.

Wrist band – one student managed to locate the manufacturer of a luminous fabric covered spring steel band which was commercially available. His ideas were to add ultra bright LEDs to this band such that when cycling you would be seen turning left or right. The manufacturer has also offered him the opportunity to present his design to the company and has already offered the internal steel band as a free resource for school use.

Another followed the same theme and resulted in a wristband being produced in fabric and having a miniature printed circuit, encapsulated in clear plastic with ultra bright LED's to follow the same as above

Another student produced a Light Belt which had a PIC circuit operating a range of LED's and likewise a student looked at the school logo as her centre of attention for an illuminated arm band containing the school logo.

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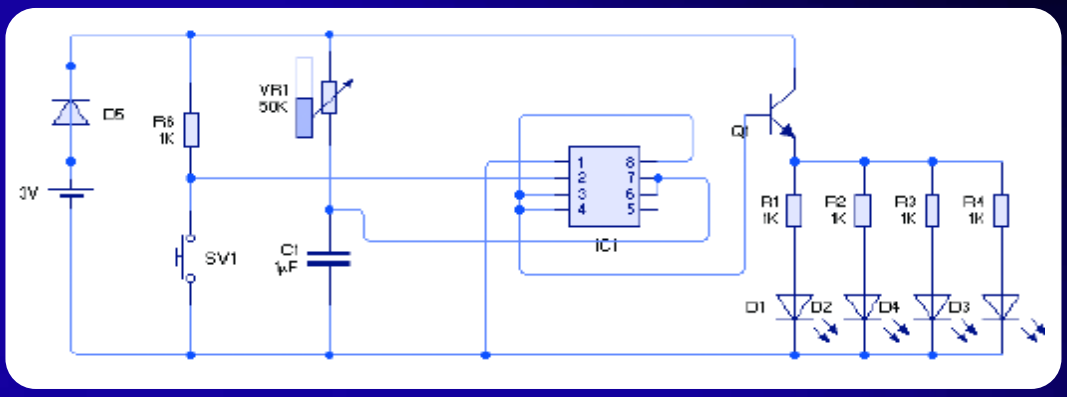
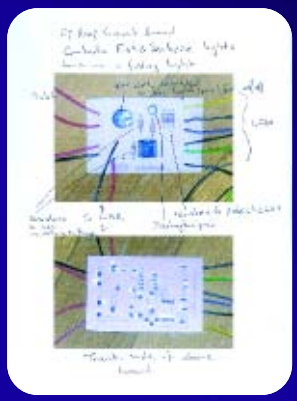
Departing from the apparel solutions, indicators for a bicycle were produced using ultra bright LEDs with sample circuit shown- separate circuits for left and right turn.

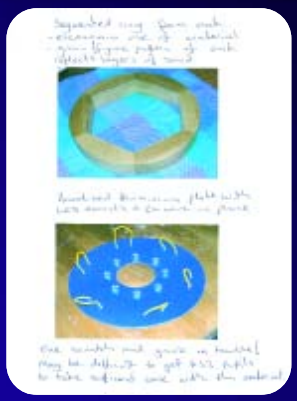
The 'Active Journal'

In looking at how designers operate in the commercial world, it seems rather pointless that students and pupils should be embarking upon retrospective entries to their portfolios. This type of work has been witnessed in many schools where young people go to extreme lengths to produce highly decorative bordering, logo generation and often meaningless retransformations of early relevant freehand sketching into ProDesktop images.



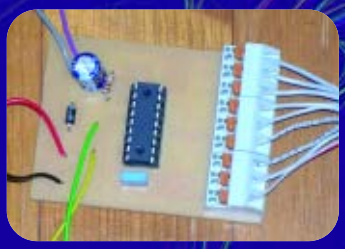
A comfort light for very young children was the solution chosen by another student who was keen on using CAD to aid the design and 3d Modelling to produce the vacuum forming mould.





Clearly this could be the subject of an article alone notwithstanding the merits of e-portfolio. The need to highlight this comes from the success of employing a logging and real time system for the generation of solutions and has been very successful in the route from concept to solution for our students.

A totally different approach was to look at how the theme might bring together the range of progressive learning that a pupil had encountered up to and including year 9. The result you can see uses a PIC Circuit to give a range of lighting effects. Live edge acrylic and bubble rod is employed to give a dramatic effect whilst luminescent wire and blue LEDs complement the effect.



The first of the two electronic systems consists of eight blue ultra bright LEDs

Course development and overview

The new 3-year BA (Hons) in Technology Education has been very successful, not least as both TEP expertise and resources have supported us. The new cohort, who start their study in early October, demonstrate the high take up of this very exciting area of education. Now is an excellent period of time to train as a Design and Technology teacher and the future is definitely bright and in safe hands, but only if we engage and develop a teaching profession who will pioneer the future and not reminisce about what used to be.

If you would like to be part of NTU's growing success in the exciting world of teaching Design and Technology and Engineering you can contact Allen Bower (Senior Lecturer) at: allen.bower@ntu.ac.uk or telephone 0115 848 6161