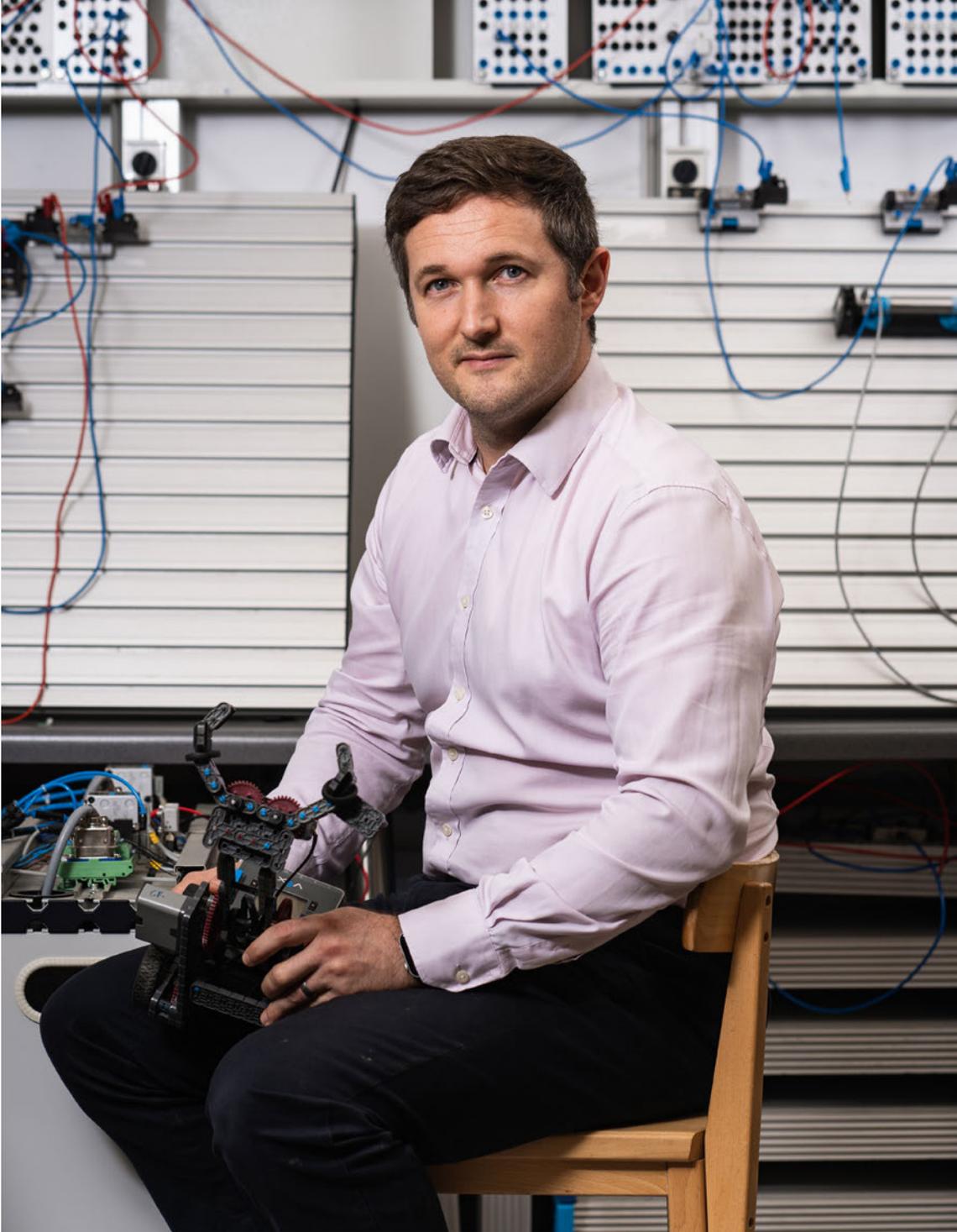


# design.technology



If we venture down to the lower level of the Mills Centre, we can meet the expert team and observe with awe the expanse of top facilities to stretch even the most talented budding designers.

Our DTE workshops are equipped with state-of-the-art equipment which includes but is not limited to a laser cutter, six 3D printers, a milling machine, lathe, PCB mill, sublimation press and FESTO pneumatics workstations. Consequently, students are able to access a varied curriculum with a plethora of projects covering different aspects of DTE during their academic journey, and produce high-quality accurate outcomes for their NEA coursework at GCSE and A level.

#### **Reading, reckoning and wroughting**

Director of DTE, Andy Thomson explains why Highgate has added the suffix 'E' to the end of more commonly recognised subject of DT and how it has

evolved to be a very popular A level choice for children wanting to pursue a career in design engineering: “The strength of this subject is its ability to keep adapting and changing with the world around us. Out of all the subjects in the curriculum, DTE is probably one of the oldest via its wood and metal working roots. It has often been considered the three R’s of education are reading, writing and arithmetic. However, it was originally reading, reckoning and wrougthing (the word used for making). So, making has always been at the heart of education. The name of the subject has changed from woodwork to CDT, DT and the latest iteration, DTE. Around 5 years ago we added Engineering as a suffix to highlight the focus of the department on this academically rigorous discipline that amalgamates the practical application of maths and science. It also reflects the pathway that students follow leading them to the OCR GCSE and A level called ‘Design Engineering’. Whatever the subject is called, the fundamentals are the same: students apply their creativity, problem solving, and knowledge into making something which has a purpose. Highgate prepares students for the participation in tomorrow’s rapidly changing technologies, and invites them to become a creative problem solver, as an individual and a member of a team. It also enables them to combine practical skills with an understanding of aesthetics, environmental issues, industrial practices and entrepreneurial skills. Students learning about Design, Technology & Engineering strengthens their critical thinking and problem-solving skills within a creative environment, enabling them to develop and make prototypes/products that solve real world problems, considering both their own and others’ needs, wants, aspirations and values.”

### Thought leaders in engineering education

Mr Thomson recently wrote an article for OCR, the DT exam board, focusing on the importance of creating the right creative environment for a child to thrive and find their own subject specialisms. He believes this, combined with specialist teachers who can impart their passion and specialist knowledge for a subject, are a winning formula.

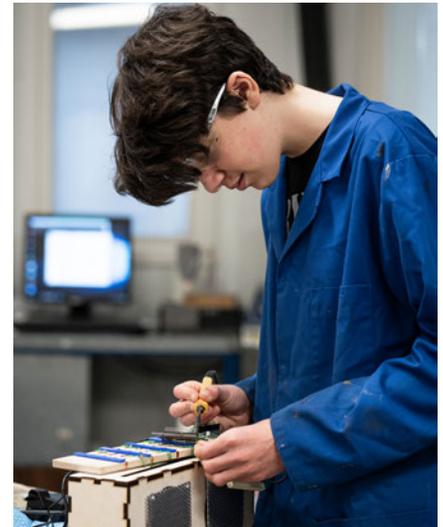
“The staff make the department. We are lucky to have six full-time DTE teachers, one part-time Physics teacher and three technicians from KS2-5. All of us have backgrounds in either Engineering, Product Design, Sport Innovation, Architecture or Graphic Design. This multi-discipline among the staff means that students can get support in a variety of challenges that they may face during their projects in DTE; it is beneficial because problems can be looked at in different perspectives to arrive at a working solution.”

In 2019, the DTE department was awarded the prestigious Design and Technology Mark from the Design and Technology Association (DATA), a quality mark which is intended as an aspirational badge accredited to secondary departments that demonstrates excellence in Design and Technology teaching and learning. In addition to a vast selection of equipment, pupils also have access to a multitude of co-curricular clubs that can help them discover a new element of DT they might not otherwise have got a chance to enjoy. From VEX Robotics through to Automobile Society and Junior DTE, Mr Thomson says “DTE is all about application and through these clubs and many competitions – students can completely unleash their passion and often find their second home. There is such a buzz in the department after school, you can feel the energy and the dynamic changes from teachers leading the curriculum to students taking over and the teachers learning with them. Robotics has been a such a great vehicle for getting students involved with STEM. Some of the most successful students at robotics have now gone on to work for Dyson to help continue to develop their automated robots. Also, via these clubs and competitions students engage with other students and industries outside of the Highgate bubble so are developing their ‘soft skills’ which are so important in the place of work beyond school.”

Highgate DTE also has its very own social media channels where the pupils can often showcase their work in action, and share their passion for the subject which has been especially useful during covid.

### DTE Pathways after Highgate

DTE Students at Highgate School are encouraged to consider various pathways following their A level in Design Engineering. Most students choose the traditional university route with such courses as Mechanical Engineering, Electronic Engineering, Civil Engineering, Mechatronics, and Industrial Design being popular. The degree apprenticeship route is also becoming more popular, with students recently going onto the Dyson School of Design Engineering programme which entails the students working part-time in a paid position at Dyson whilst studying an Engineering degree that is fully sponsored by the company. This pathway ensures that students are guaranteed a job at the end of the programme and are free from any debt. Other more adventurous and business-minded students have gone down the road of entrepreneurship and set up their own design companies.



### The wider community

Pupils can snap up the opportunity (in non-covid times) to enjoy subject excursions ranging from aerospace reclamation upcycling centres and local recycling centres to industry expeditions and Robotics events in Bologna, Munich, Taiwan and America. Mr Thomson says these trips are “a great way of showing students how DTE is connected to the outside world and gives extra context to the content they learn in school.”

Our DTE team work closely in the School’s partnership projects and have connected with over 462 students since 2015 from diverse backgrounds including LAC (children in care) and many local state schools where facilities aren’t available.

### Environmental Impact

Sustainability is embedded through the whole DTE curriculum with topics focusing on renewable energy, wild life sanctuaries, six R’s (reuse, reduce, recycle, refuse, reduce & rethink) built-in-obsolence, upcycling and even waste management. Mr Thomson says “There is a heavy focus on pupils only producing products that are either made from upcycled materials or can later be recycled themselves: The upcycling projects we do in Year 10 and 12 involve taking the students to either a recycling centre in Finchley or an aeroplane scrap yard in Norfolk where they take parts destined for landfill and upcycle them into a product which they can sell. We try to only use recyclable materials in the department and we have 7 separate materials recycling bins for all our waste. This is then either recycled or reused. The dream one day is to have a recycling centre attached to the department where we can recycle all the school wastes and turn them into products which can either be sold or made by the local community.”