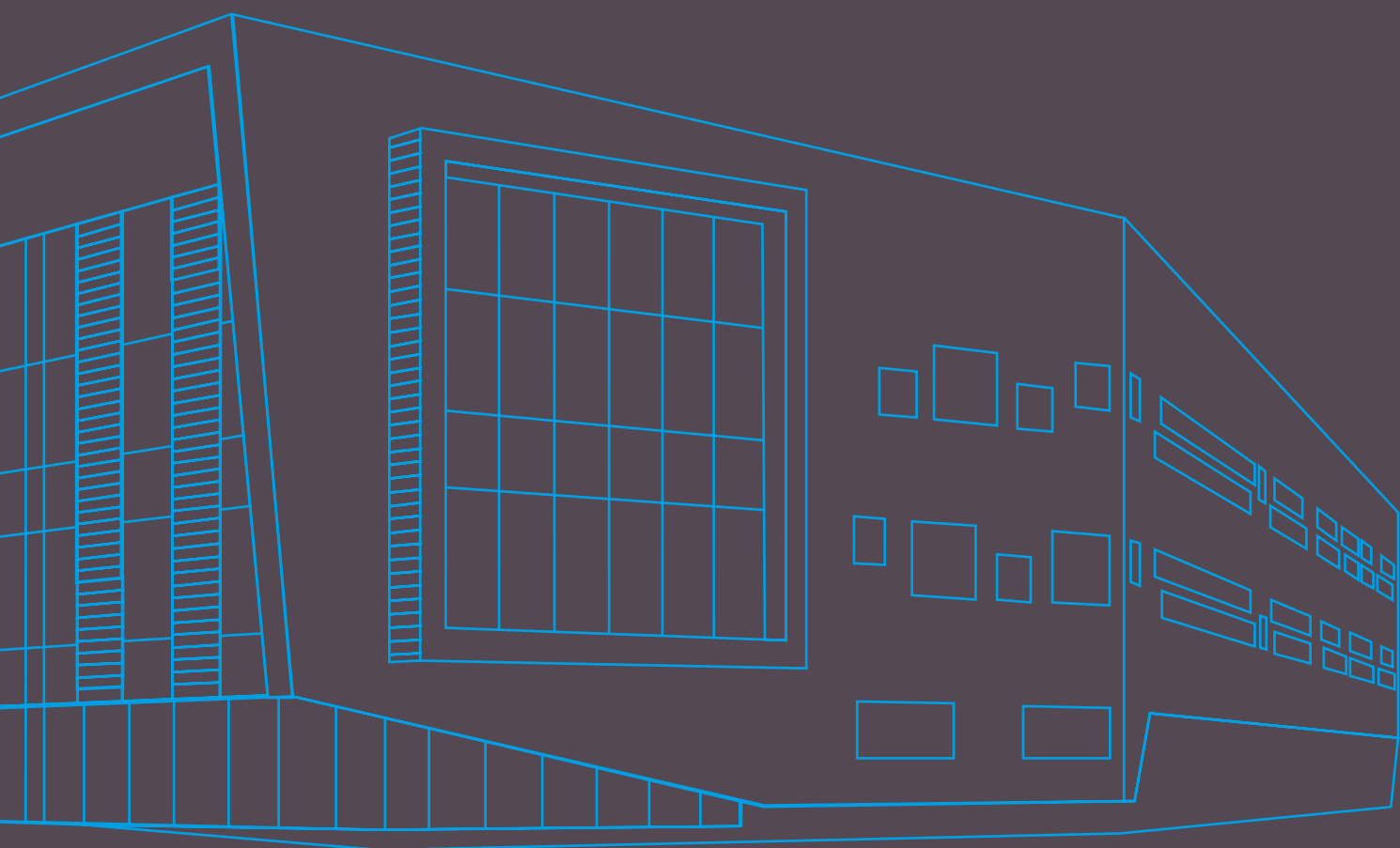


**nuost**

**Nottingham University  
Academy of Science  
and Technology**



**Sixth Form Prospectus**

2016/17

**Outstanding A Level results with students achieving an average of ABB; 100% of students accessing their first choice university or entering employment; the only local sixth form sponsored and supported by The University of Nottingham; unrivalled partnerships and links with local and national business and employers; state-of-the-art facilities.**

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## Introduction to NUAST

Welcome to the Nottingham University Academy of Science and Technology (NUAST).

NUAST opened in September 2014 and is Nottingham's only specialist science, engineering and computing academy.

Our academy offers students aged between 14 and 19 the chance to study the specialist subject they are passionate about in a purpose-built, fully equipped, state-of-the-art facility.

Sponsored by The University of Nottingham and the Djanogly Learning Trust, NUAST has been developed to bring secondary education, business and academia together in a way that gives its students the very best education and preparation for working life.

With unique links to university departments and local and national business partners, NUAST students have access to a range of enrichment and curriculum opportunities that will prepare them for further study at university or application for modern apprenticeships.

Our extended working day starts at 8.30am and finishes at 4.30pm\* providing students with increased staff contact time over more conventional schools and colleges. Built into the working week are opportunities for independent study, supervised study and enrichment activities from 3.00pm to 4.30pm.

Students can join NUAST at the start of Year 10 for GCSE level study or at the start of Year 12 for A Level and BTEC/Cambridge National study. You can find out more about NUAST and our courses in this prospectus, join us at one of our Open Events or visit us during the working day. To book an appointment, call us or visit our website.

\*2.15pm on Fridays





## Welcome

I would like to take this opportunity to welcome you to NUAST.

As Principal I am immensely proud of this institution, its students and the exciting journey we have embarked upon since opening in September 2014. Our results at both A Level and GCSE have shown that our students have performed exceptionally well. All of our Sixth Form students have entered Higher Education, Higher Apprenticeships or employment and GCSE students have joined NUAST in the Sixth Form, moved on to apprenticeships or are following further study.

With highly experienced staff, exceptional facilities and an exciting and unique curriculum, NUAST truly offers the young people of Nottingham a new opportunity to specialise in science, engineering or computing.

These subjects are the lifeblood of Britain's expanding, high-value innovation economy. Future employment prospects in these areas far outstrip any other sector. At NUAST, we are preparing our students to be the globally competitive, innovative and creative employees of tomorrow.

With so many local and national business partners supporting our work, the NUAST curriculum is enhanced and enriched by their contribution to the life of the academy. The advice, guidance and support offered by our partners gives NUAST students an unrivalled, competitive edge whether applying for university places or apprenticeships.

With the generous support of The University of Nottingham complementing the work of local business, NUAST students have access to leading academic facilities and specialist teaching.

At NUAST, every child will succeed.

**Robert White**  
Principal





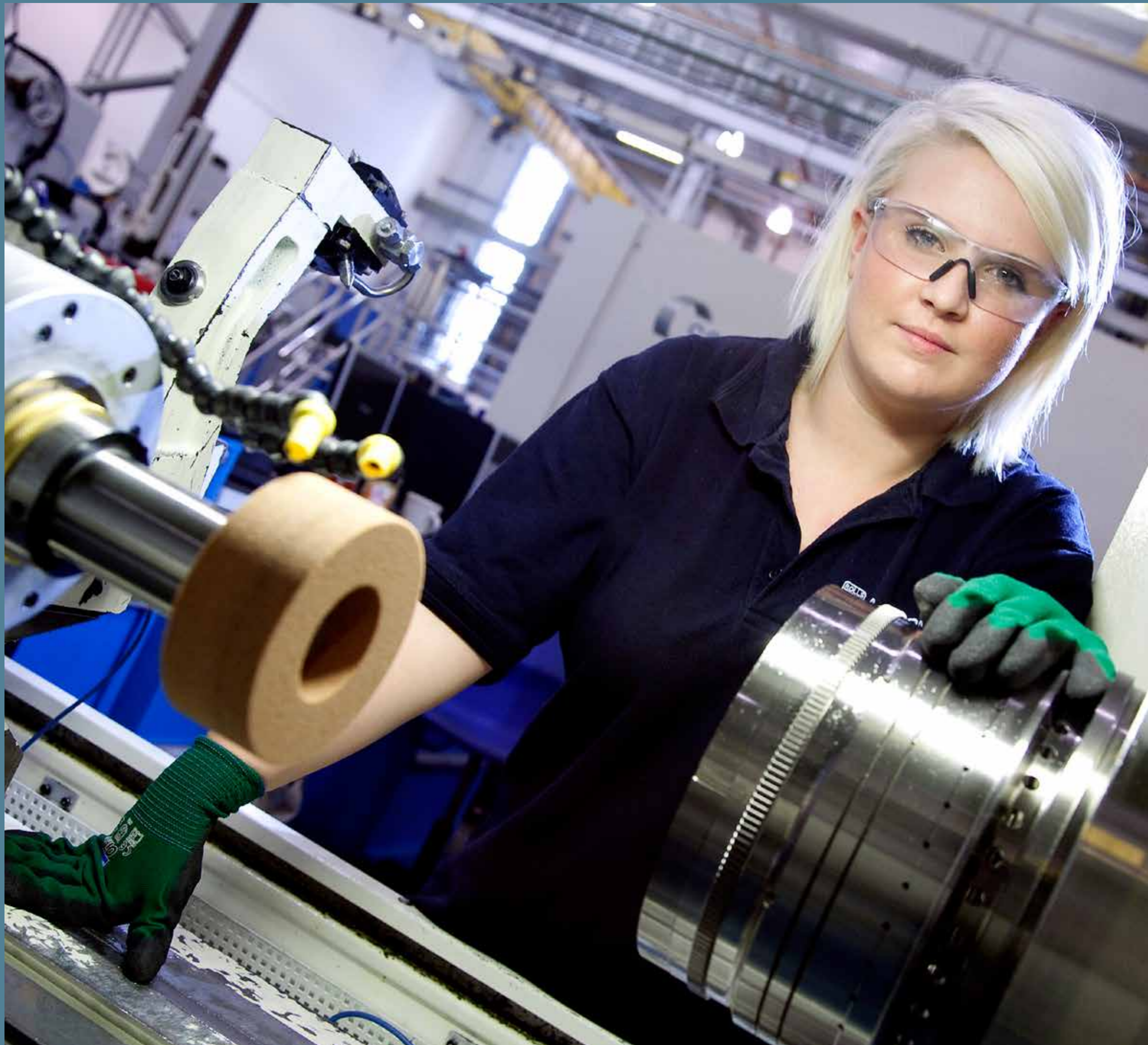
## Our Partners

NUAST is sponsored by The University of Nottingham and the Djanogly Learning Trust. This partnership, founded in 2011, was instrumental in bringing NUAST and its facilities to the city of Nottingham.

In September 2014 the Torch Academy Gateway Trust (TAGT) were invited to work with NUAST as educational partners. With experience of transforming Toot Hill School into an 'Outstanding' academy, TAGT has developed the curriculum and oversees the day-to-day operation of NUAST.







SIEMENS

 Rolls-Royce

TOSHIBA  
Leading Innovation >>>

 Experian™

 Greene  
Tweed

SMS  
ELECTRONICS

## Links with Business

Alongside our main partner, The University of Nottingham, NUASt has developed a range of employer partnerships.

These partnerships range from local to multi-national companies who require young people with the academic and high level interpersonal skills that will enable their businesses to thrive.

Our partners are lending support via an employer-led curriculum, which includes workshops, educational visits, professional speakers, mentoring, sponsorship and master classes.

This range of opportunities allows NUASt students to develop the enterprise and employability skills which are needed for entry into university or the world of work.

Our range of employer partners include Siemens, Toshiba, Rolls-Royce, SMS Electronics, Experian, Esendex, MediCity, Greene Tweed, Far Composites, Prion Cutting Edge and many more.



## Links with The University of Nottingham

One of the things that makes studying at NUASt such a unique experience is our partnership with The University of Nottingham.

Throughout the academic year, NUASt students are regular visitors to The University of Nottingham's world-class facilities. These visits provide our students with the opportunity to develop curriculum knowledge and understanding.

The university supports enrichment at NUASt through a programme of events that includes Raising the Grade Conferences, Learning Preferences and Study Skills Sessions, Independent Learning, Career Carousels, UCAS Application Workshops and Transition to University.

Our university partners are currently assisting with the development of a new mentor scheme whereby all NUASt students will benefit from one-to-one support from a dedicated personal mentor. This allows our students to fully understand what they need to do to access degree-level education and raises aspiration across the academy.

### Girls in STEM

At NUASt we work closely with the local community and share our resources and expertise with all those who can benefit from them. Through our partnership with The University of Nottingham we are leading work locally to inspire girls and women to study and build careers in Science, Technology, Engineering and Mathematics (STEM).

NUAST are supporting the Nottingham STEMCity events. Our students are actively encouraged to act as STEM ambassadors to promote STEM to students across the range of city and county schools. The events will be part of a long-term programme of activities designed to ensure that girls from NUASt and the city more widely are aware of the opportunities presented by a career that makes use of the STEM subjects.



# Careers in STEM

Why will NUASt's scientists and engineers be ready for an ever-changing world?



## Creativity and Innovation

British scientists, engineers and computer scientists have contributed to many major inventions and discoveries in the last 100 years:

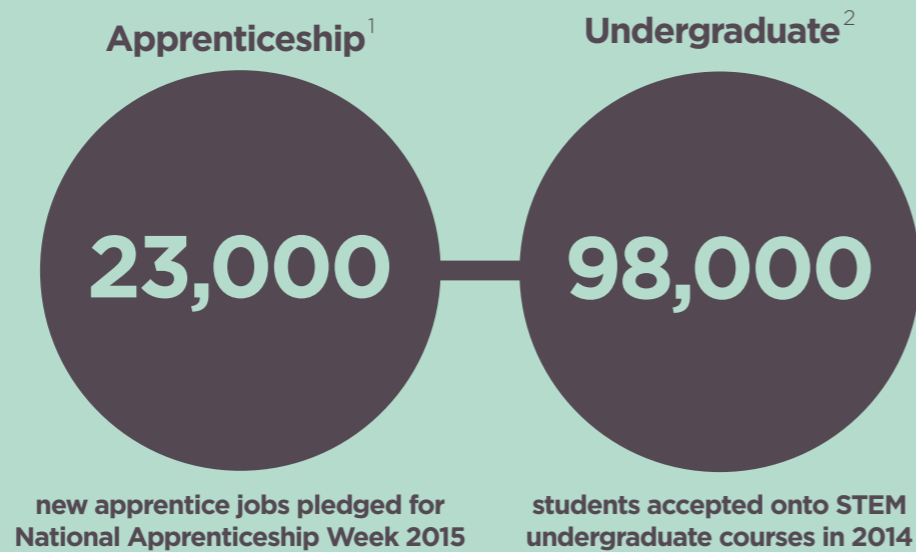


## Real Opportunity

NUASt provides its students with the teaching staff, facilities and curriculum they need to become skilled young engineers, scientists and software engineers.

It also offers a unique opportunity to work with The University of Nottingham and industry partners on a whole range of exciting and challenging projects.

This package of education and enrichment allows NUASt students to enter the world of work or higher education as mature, skilled and confident young specialists in their field.



1: www.gov.uk 2: The Guardian, April 2014



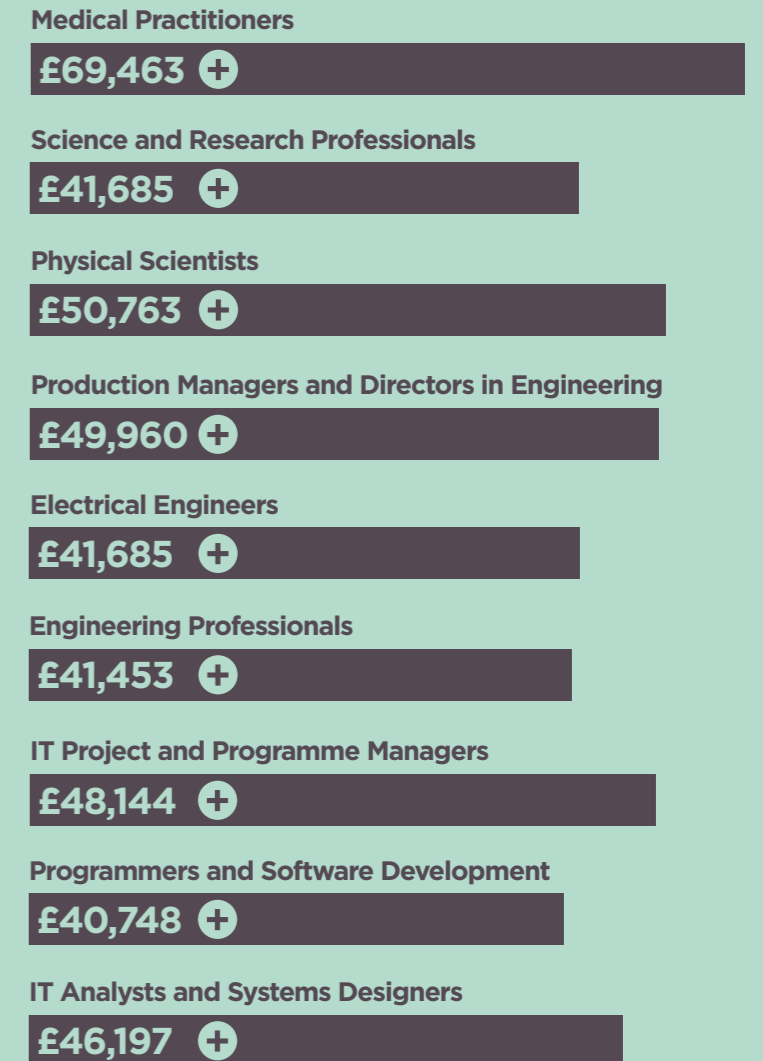
NUASt was created to offer the young people of the East Midlands the opportunity to specialise in science and engineering at the age of 16.

These three specialisms were chosen to reflect the shortage of well-trained, high quality employees needed in the science, engineering and IT sectors in the UK.

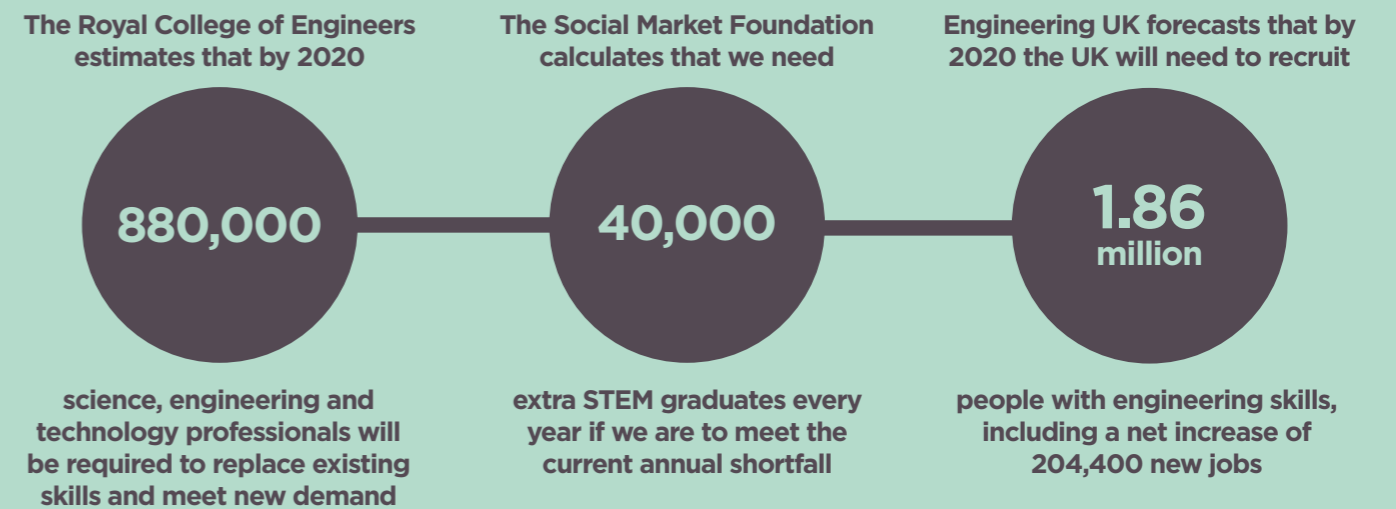
In 2014 the BBC reported that "the CBI found that nearly 40% of firms looking for staff with STEM skills have had difficulties recruiting" the right person.

As a result of these shortages, NUASt students will find their qualifications and experiences provide access to a range of professions that deliver excellent employment prospects and remuneration packages.

## Average Earnings<sup>1</sup>



## Employment Opportunities<sup>2</sup>



1: Office of National Statistics, 2014 2: CBI Engineering our Future





“The opportunity to visit The University of Nottingham’s Chemistry facility was amazing. Having a chance to use an NMR machine to conduct analysis was exciting and I really enjoyed putting into practice what I learnt in class.”

**Balint Molnar (Chemistry Student)**

Destination: The University of Nottingham to study Chemistry

## Achievement

75% Science A\*-C pass rate  
75% Engineering A\*-C pass rate  
95% IT A\*-C pass rate

At NUASt we believe that examination success allows our students to make the very most of their lives and student achievement is at the heart of everything we do.

Examination results provide a good indication of how well an academy is serving its students. In 2016 NUASt’s A Level and BTEC students performed to the very highest levels in their examinations, securing places at some of the top universities in the country including the Universities of Nottingham, St Andrews, Leeds and Manchester.

NUASt students have also been accepted onto prestigious Level 3 apprenticeships with local and national companies, and entry to the Armed Forces at officer level.

NUASt is totally focused on ensuring our students get the very best opportunities and support as they pursue their dreams ambitions.





“It shouldn’t make a difference that women are in the minority in computing. If you enjoy it, just do it.”

**Charlotte Knight (Computer Science Student)**

Destination: University of St. Andrews to study Computer Science





“Studying Engineering at NUASt has allowed me to have a much broader understanding of the manufactured world. I now look at things and understand how they were made and how they work.”

**Luke Brown (Engineering Student)**

Destination: Submarine Warfare Officer in the Royal Navy

# nuast Teardown

Lifting the lid on Nottingham's only specialist science and engineering sixth form.

## Electrical Engineering

Software for virtual circuit simulation and test;

Printed Circuit Board production and assembly facilities;

Industry-standard test equipment;

LJ create training resources for electronic circuit design.

## Mechanical Engineering

Computer Numeric Control (CNC) suite of machines, including lathes, milling machines, routers and 3D printers.

Manual engineering production facilities including:

Bench fitting, heat treatment, welding and brazing facilities and extensive manual production facilities including 13 lathes and 3 milling machines.

## Sponsored by The University of Nottingham and supported by industry and business

With the sponsorship and support of The University of Nottingham and our industry and business partners, NUASt offers its students unique experiences and career opportunities.

Siemens, Rolls-Royce, Toshiba, SMS, Experian, Greene Tweed and many other partners are working with NUASt to offer a unique range of opportunities for our students. This means that NUASt students leave with the skills and experiences that give them a competitive edge when applying to university or apprenticeships.

## Amazing enrichment opportunities

Whether it's F1 in Schools, VEX Robotics, Greenpower Challenge or 4x4 in Schools, NUASt offers amazing enrichment opportunities for all its students.

With access to some of the most exciting Engineering, Science and Computing challenges out there, NUASt students are developing the skills they need to be creative and flexible employees of the future.

## Specialist facilities, specialist teachers, specialist curriculum

Because NUASt is a specialist Technology Academy, it can focus on what matters most to our students; the very best facilities in Nottingham, fully qualified teachers delivering their specialist subjects, a curriculum designed around delivering the best Science, Engineering and Computing teaching.

## ICT Facilities

Over 150 powerful desktop PCs running industry-standard software including the Adobe Creative Suite and Autodesk Fusion 360;

Programming facilities including 'Raspberry Pi' single board computers and robotics;

Full teaching suite of Lego Mindstorms and VEX programmable robotics construction kits;

Programming environment for 'Python' high level general purpose programming language.

## Engineering Process Control

Factory simulation equipment to develop PLC control programs using industry standard Siemens controllers;

Hydraulic and Pneumatic training systems for development of air and fluid powered control systems;

Transducer and instrumentation control training systems.

## Science Facilities

Ten state-of-the-art laboratories of a genuine industrial research standard, with dedicated spaces for Chemistry, Physics, Engineering and Biology. Specialist equipment for each subject at Key Stage 4 level, including:

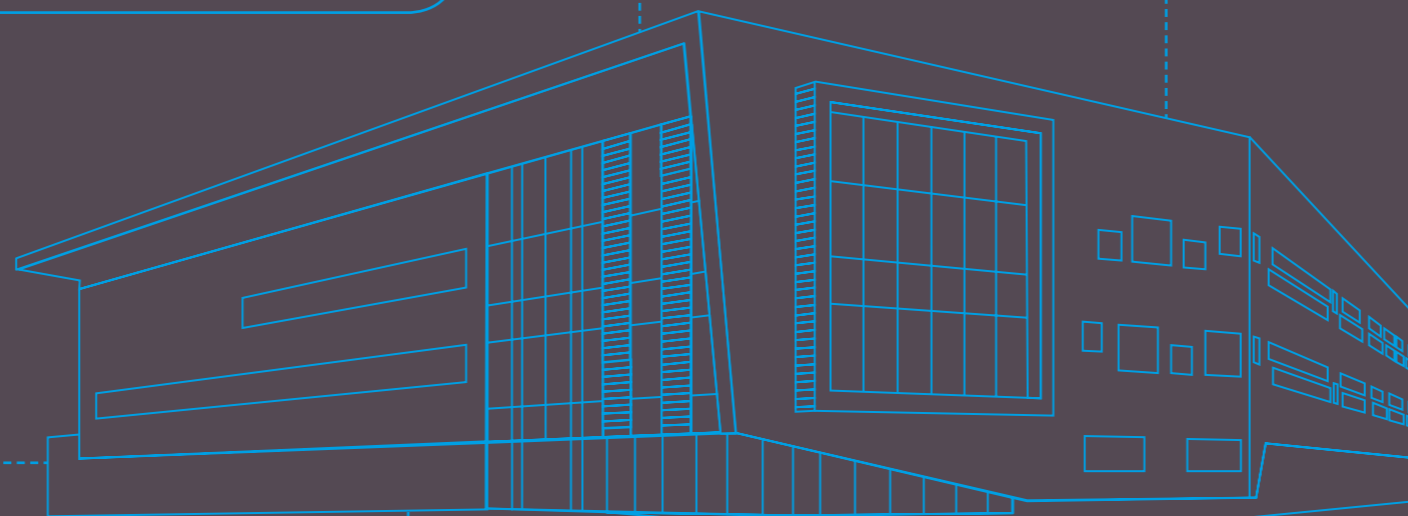
Dissection apparatus and airflow hoods for biology;

Distillation and micro-titration equipment for chemistry, along with quick-fit glassware;

Van der Graaf generator and diode array equipment for physics instruction.

## More A Level teaching and support per week in each subject

Joining NUASt means you will be studying in an academy that puts learning first. All A Level and Cambridge National students can access around six sessions of supported teaching and study periods per subject, per week. In addition, NUASt provides staffed enrichment sessions and EPQ mentoring periods.





**NUAST offers the most advanced GCSE and Sixth Form facility for the teaching of Science, Engineering and Computer Science in the local area.**







**Industry-standard facilities and equipment are complemented by a full suite of teaching rooms covering all key English Baccalaureate subjects.**

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**3D printers, lathes, milling machines, routers, bench fitting, heat treatment, welding and brazing equipment are among the extensive manual production facilities available.**



The purpose-built, iconic building has been designed as a modern workplace; open, light and attractive with excellent study, outdoor and catering facilities to provide our students with all the experience they will need to enter higher education or employment.





## Transport Links

The NUASt building is situated in Dunkirk, close to The University of Nottingham and the Queen's Medical Centre.

Transport access to the building is excellent, with cycle paths and bus/tram stops within easy walking distance.

### Buses

The 34 Orange Line bus service departs from Lace Street in Dunkirk every few minutes during the day. Students can also catch the 34, 35 and 36 Orange Line bus services from the Queen's Medical Centre (QMC) bus stop on Derby Road. The Barton Skylink service departs from Abbey Street every 20 minutes during the day.

### Trams

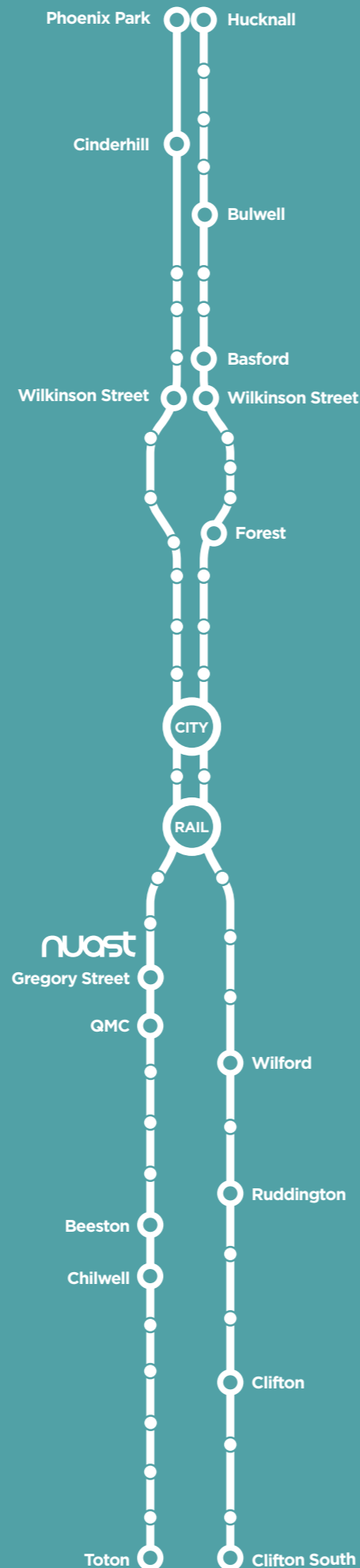
The Nottingham Express Transit (NET) tram stops regularly at the new QMC tram stop opposite NUASt on the Toton Line. This makes NUASt easy to access from Nottingham city centre, Beeston, Basford, Bulwell and Hucknall. By using the tram, journey times to Old Market Square takes only 15 minutes and travelling to the centre of Beeston takes 10 minutes.

### Cycling

NUASt provides a bike shelter for those students wishing to cycle.

Route 6 of the Sustrans Cycle Network passes NUASt through the grounds of the QMC and there is a traffic-free cycle route from NUASt to the city centre alongside the Nottingham Canal. There are signposted routes to Beeston and the north of the city via the cycle path alongside the ring road.

See page 51 for a map of cycle routes.





## Enrichment

Whilst NUASt offers its students the very best in specialist teaching and facilities, our enrichment programme provides unrivalled extra-curricular opportunities and a unique set of skills highly valued by employers.

Enrichment activities include national and international competitions that challenge the skills of young engineers and scientists. Beyond specific enrichment activities, NUASt's unique links with local and national employers and The University of Nottingham mean that every month there is a range of speakers, educational visits and industry challenges available across the curriculum.

### Greenpower INSPIRING ENGINEERS

The 24+ formula Greenpower challenge is aimed at young mechanical and electronics engineers aged between 16 and 25 years old.

This formula is all about designing and building an electric car with a standard motor and sets of batteries. There are strict regulations to follow, but this certainly doesn't restrict the creativity required to be competitive.

The season consists of eight Championship rounds, each of 60 minutes duration. Teams must enter at least three events including the Final Round at Rockingham Motor Speedway. The top three results of each team determine their position in the final championship table.

NUAST is investing in two 24+ formula shells and electronic packages allowing two teams of students to enter the competition.



The Land Rover 4x4 in Schools Technology Challenge is an international challenge aimed at Year 10 and 11 students.

Using the facilities at NUASt, a team of 4-6 students will work together to design and build a radio controlled four-wheel-drive (4x4) vehicle. The team must work to set specifications in order to successfully negotiate NUASt's specially designed test track that emulates real life challenges faced by a full scale 4x4 vehicle.

The challenge is an excellent opportunity for young people to work in teams and gain an awareness and understanding of project management.



The VEX Robotics Competition tasks teams of students with the challenge of designing and building a robot to compete against other teams from around the world in a game-based engineering and coding challenge.

Science, maths, coding and engineering skills are put to the test in the competition ring as NUASt students learn lifelong skills in teamwork, leadership and communications.

Tournaments are held at a regional and national level with the top UK teams going on to compete against the best in the world at the VEX Robotics World Championship each April.

NUAST has invested in a full competition package including a practice tournament ring and all the components required to compete at the highest level.



F1 in Schools is a multi-disciplinary technology challenge. Teams of students will utilise the state-of-the-art manufacturing facilities at NUASt to design, analyse, manufacture, test and race miniature compressed air powered balsa wood F1 cars.

Teams of 3-6 students are then judged in regional competitions on car speed as well as delivering a verbal presentation on the science and engineering behind their design.

NUAST has invested in a full F1 in Schools 25m test track and timing equipment to ensure our teams are the most competitive they can be.

“The level of opportunities attracted me to NUASt. As well as all the regular lessons the teachers devote so much time to enrichment. I never thought I'd be building robots and designing and racing miniature formula one cars in school. I was hooked from the beginning!”

**Year 10 Student**





## Introduction to Year 12

Studying at NUAST sixth form is just a little bit different from the regular Post 16 experience.

NUAST offers some of the very best facilities for Science, Engineering and ICT in Nottingham, because we believe that the young people of this county deserve the chance to excel in STEM subjects by accessing the very best equipment available.

The fantastic building, facilities and equipment are only a small part of what NUAST has to offer.

Specialist and expert teachers in every subject will instil in you the passion and commitment they feel for their subjects, while expertly leading you through the exam requirements and beyond. At NUAST we believe in achievement, but we also believe that learning does not end with the requirements of the exam board. Our teachers will prepare you for a future career in industry by teaching the skills that employers want to see.

Our small academy allows personalised learning that breeds dedication and will transform you into a professional student who any university or employer would be proud to take on.

Our close links with both local universities, as well as local employers and national companies will ensure that you leave NUAST well connected with an exceptional awareness of how to succeed in your chosen field.

### Sixth Form Life

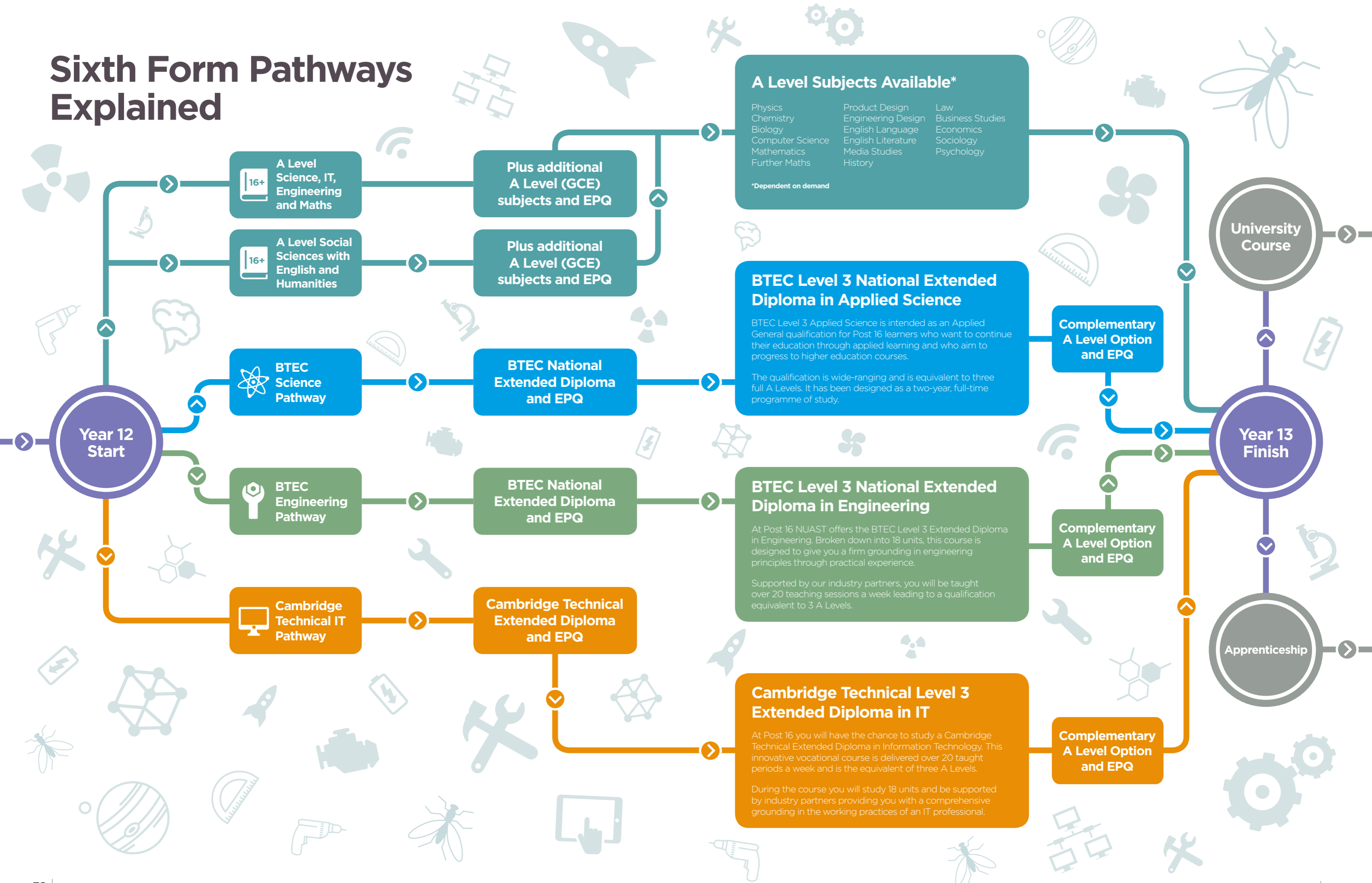
NUAST offers a superb crossover from school to university life. The academy has the feel of a high achieving university department. The modern, light and airy iconic building along with our extensive teaching facilities immediately make you feel that NUAST is a special place. Links to The University of Nottingham and opportunities to interact with academic staff and students aid the transition from school to higher education.

NUAST staff have a passion for STEM and truly want to enable you to achieve your dreams. If you have a passion that is STEM-related, tell us. We will do our absolute best to find links with the university and our employer partners to let you pursue your passion.

Our sixth form students are encouraged to develop as individuals and become mature, independent learners. Our pastoral care systems and small size means that NUAST is able to offer a truly personal approach to you and your learning. You will be supported throughout your time with NUAST as you transition to either higher education or employment.



# Sixth Form Pathways Explained





# A Level Pathway

**Entry Requirements:** To study any of our A Level courses, you will need a Grade B at GCSE in that subject or a closely associated subject. In addition you will require a Grade B or above in GCSE Mathematics and English Language. To study an A Level Science, you will need at least a Grade B in two science subjects plus a Grade B in GCSE Mathematics. To study A Level Mathematics, you will need at least a Grade B pass in GCSE Mathematics.

## Biology

Exam Board: **AQA**

### What will you learn?

Biology is a complex and broad science. You will enjoy this course if you are interested in all aspects of living organisms, how they work and how they interact with their environment.

The course looks at different types of biological organisms, how this variation is brought about and explores how they function and survive in their environment. You will initially look at some human systems, the diseases that can affect them and ways in which the body's defence mechanisms work.

### How are you assessed?

100% examination

## Business Studies

Exam Board: **AQA**

### What will you learn?

A Level Business Studies looks at every aspect of a modern organisation, including human resources, marketing and finance. You will also study operational aspects such as production, e-commerce and manufacturing.

You can expect to study large multinational companies as well as smaller, less well-known businesses in the dynamic business world.

### How are you assessed?

100% examination

## Chemistry

Exam Board: **AQA**

### What will you learn?

You will develop and enhance your knowledge in three main areas: physical, organic and inorganic chemistry.

You will learn in detail about topics such as atomic structure, bonding and chemical equilibria as well as electrode potentials and electrochemical cells in physical chemistry. You will study the periodic table in detail through topics like periodicity, transition metals and the reactions of group 1 and 7, helping to develop your passion for inorganic chemistry. In organic chemistry you will cover a broad range of topics, learning about a variety of functional groups and their reactions. In addition you will learn about different spectroscopy and chromatography techniques.

There will be a large amount of hands-on experience and you will have the opportunity to learn and use practical skills to link theory with practice, deepening your knowledge and understanding in the world of chemistry.

### How are you assessed?

100% examination

## Computer Science

Exam Board: **AQA**

### What will you learn?

This is the traditional course that usually leads to studying Computer Science at university. You will develop an understanding of the main principles of solving problems using computers. You will also learn practical programming skills using Python and a range of alternative languages from different paradigms.

This course is aimed at students wanting a specialist computing qualification prior to studying computer science or a similar degree and demands fairly high levels of logic or mathematical ability.

### How are you assessed?

80% examination  
20% coursework

## Economics

Exam Board: **AQA**

### What will you learn?

Economics is applied to theory to support analysis of current economic problems and encourages you to appreciate the interrelationships between microeconomics and macroeconomics. It has engaging and up-to-date content so that you can relate what you learn to the world around you.

You will develop the knowledge and skills needed to understand and analyse data, think critically about issues and make informed decisions.

### How are you assessed?

100% examination

## Engineering Design

Exam Board: **OCR**

### What will you learn?

Engineering Design is focused towards electronics and engineered products and systems in respect of materials and components and their selection and uses in products/systems, as well as wider issues affecting design decisions.

Materials, components and systems are studied from the perspective of analysing modern engineered products. You will gain practical experience of using materials, components and systems through applied practical activities set within realistic design scenarios.

### How are you assessed?

50% examination  
50% coursework

## English Language

Exam Board: **AQA**

### What will you learn?

In Year 12, the examination will focus on child language acquisition and variations of language in different texts. One question asks you to analyse two texts separately and then compare these. The texts are linked by topic or theme but are from different time periods.

The examination in Year 13 focuses on language diversity (across regions and groups) and language change over time.

The coursework folder includes an individual language investigation of 2,000 words, and a piece of original writing, along with a commentary (totally 1,500 words for both).

### How are you assessed?

80% examination  
20% coursework

## English Literature

Exam Board: **AQA**

### What will you learn?

In Year 12, for Paper 1 you will study a play by Shakespeare and an anthology of poetry that focuses on either pre 19th Century or post 19th Century poetry. For Paper 2 you will study two prose texts.

In Year 13, for Paper 1 you will study three texts; Shakespeare, one poetry text and one prose text. Paper 2 involves the study of either texts from 'WW1 and its aftermath' or 'Literature from 1945 to present day'. For the coursework component you will be required to complete an independent critical study of two texts. This essay will be approximately 2,500 words and is worth 20% of the exam.

### How are you assessed?

80% examination  
20% coursework



# A Level Pathway continued

## Further Mathematics

Exam Board: **Edexcel**

### What will you learn?

In Further Mathematics, you will study the more abstract and pure mathematical ideas such as complex numbers and learn about matrices — a whole new element to algebra. You may even have a taste of mechanics to give you a taster of what you might study on an Engineering degree.

If you are considering studying Mathematics at university, Further Mathematics is an excellent way to cover some of the first year topics of your degree.

### How are you assessed?

100% examination

## History

Exam Board: **AQA**

### What will you learn?

In Year 12, you will engage in the “Breadth Study”, which will give you the opportunity to understand change and continuity over a period of 100+ years.

The “Depth Study” will enable you to focus on key historical concepts including cause, consequence and significance over a short period of time.

In Year 13, the “Historical Investigation” provides a unique and exciting opportunity to develop your skills of enquiry, research analysis and communication.

In all 3 elements of the course you will develop your skills in using and evaluating historical sources.

### How are you assessed?

80% examination  
20% coursework

## Law

Exam Board: **AQA**

### What will you learn?

Studying Law gives you an understanding of the role of law in today’s society and raises your awareness of the rights and responsibilities of individuals. By learning about legal rules and how they apply to real life, you also develop your analytical ability, decision-making and problem-solving skills, which are highly sought after by higher education and employers.

Topics include the nature of law, the English legal system, private law, public law and legal skills.

### How are you assessed?

100% examination

## Mathematics

Exam Board: **Edexcel**

### What will you learn?

A Level Mathematics is where Maths becomes a little more advanced and a lot more interesting! Important topics like calculus, graphs and trigonometry are studied in the core Maths section and these enable you to solve new and challenging problems.

Decision Maths tackles network and optimisation problems, such as how Internet search engines work. The statistics unit teaches you how to show statements to be true or false. All science from geography to economics to particle physics need statistical proof. Finally the mechanics section is the maths behind a lot of what you learn in physics.

### How are you assessed?

100% examination

## Media Studies

Exam Board: **AQA**

### What will you learn?

Through studying Media you will view, evaluate and analyse a variety of media products and develop practical skills spanning a range of media forms. You will find contemporary, diverse topics and varied and engaging content, helping you to develop research and creative skills.

### How are you assessed?

70% examination  
30% coursework

## Physics

Exam Board: **AQA**

### What will you learn?

Physics plays a big part in Science, Technology, Engineering and Mathematics. You will learn the basic theoretical principles underlying the subject, where there is a strong emphasis on using these principles to solve problems and answer questions that strike at the fundamental heart of science. The ability to match empirical experiences with mathematical solutions will strengthen your conceptual knowledge and give a deeper understanding of the world around us.

You will learn and develop important investigative skills as you tackle new practical tasks and challenges. Skilful use of equipment will be coupled with powerful analytical and evaluative techniques.

### How are you assessed?

100% examination

## Product Design

Exam Board: **OCR**

### What will you learn?

Product Design is focused towards products and their analysis in respect of materials, components and their selection and uses in products/systems, industrial and commercial practices and wider issues affecting design decisions.

Materials and components are studied from the perspective of analysing modern consumer products that are designed to meet identified needs, their design and manufacture, and taught within the context of product development and industrial and commercial practices.

### How are you assessed?

50% examination  
50% coursework

## Psychology

Exam Board: **AQA**

### What will you learn?

This qualification gives an engaging and effective introduction to psychology. You will learn the fundamentals of the subject and develop skills valued by higher education and employers, including critical analysis, independent thinking and research.

### How are you assessed?

100% examination

## Sociology

Exam Board: **AQA**

### What will you learn?

You will learn the fundamentals of sociology and develop skills valued by higher education and employers. This qualification has been developed with the British Sociological Association to produce a clear, contemporary and stimulating course.

### How are you assessed?

100% examination



# BTEC Level 3 National Extended Diploma in Applied Science

(Equivalent to three A Levels)

**Entry Requirements:** Grade A\*-C in GCSE English and Mathematics plus three other GCSE or equivalent qualifications.

## What are BTEC Level 3 National Extended Diplomas?

The Pearson BTEC Level 3 National Extended Diploma in Applied Science is a qualification designed for learners who are interested in a career in science and want to progress to further study in the sector.

## Who are they for?

BTEC Level 3 Applied Science is intended as an Applied General qualification for Post 16 learners who want to continue their education through applied learning and who aim to progress to higher education courses. The qualification is wide-ranging and is equivalent to three full A Levels. It has been designed as a two-year, full-time programme of study.

## What could this qualification lead to?

The requirements of the qualification will mean that you develop the transferable and higher order skills which are valued by higher education and employers. For example, the study of Applied Science particularly encourages development of skills such as evaluation, analysis and synthesis. These skills are developed through the variety of approaches to teaching and learning enabled by the specification.

The qualification carries UCAS points and is recognised by higher education providers as meeting admission requirements for many relevant courses. As the mandatory content is equivalent in size to two A Levels, higher education representatives have confirmed that it is appropriate to you to choose your six option units from a wide range so that you can explore your own choice of areas for further study.

Therefore, whichever route you take, the qualification supports entry to, for example:

- BSc (Hons) in Chemistry with Analytical Science
- BSc (Hons) in Forensic Science
- Higher National Diploma (HND) in Applied Science

Some university courses may require achievement of specific units, for example a BSc (Hons) in Biomedical Sciences and a BSc (Hons) in Pharmacy at certain universities will require options to be taken from the Biomedical Science group.

You should always check the entry requirements for degree programmes with specific higher education providers.

## Mandatory units include:

- **Principals and Applications of Science**
- **Practical Scientific Procedures and Techniques**
- **Science Investigation Skills**
- **Laboratory Techniques and their Application**
- **Principals and Applications of Science II**
- **Investigative Project**
- **Contemporary Issues in Science**

In addition to these seven mandatory units, you will study a range of optional units. For more detailed information, please contact NUAAT.





# BTEC Level 3 National Extended Diploma in Engineering

(Equivalent to three A Levels)

**Entry Requirements:** Grade A\*-C in GCSE English and Mathematics plus three other GCSE or equivalent qualifications.

## What are BTEC Level 3 National Extended Diplomas?

The Pearson BTEC Level 3 National Extended Diploma in Engineering is a qualification designed for learners who are interested in a career in the engineering sector and want to progress to further study in the sector.

## Who are they for?

BTEC Level 3 Engineering courses are for learners who want a practical, applied engineering course as part of their Level 3 study programme, which gives them an introduction to the sector. They will be able to combine this with other qualifications, such as a GCE A Level in Mathematics or Physics, which would allow them to progress to higher education to study engineering or other STEM-related programmes.

## Why choose this qualification?

Engineering covers a broad variety of roles and it involves the application of scientific principles and practical knowledge to transform ideas and materials into products and systems safely and support them during their lifetime. This qualification has a focus on a broad range of engineering specialist areas. Learners taking this qualification will study mandatory content covering:

- Engineering principles and mathematics
- Health and safety, team work and interpreting and creating computer aided engineering drawings
- Design and manufacture of products

The content of this qualification has been developed in consultation with academics to ensure that it supports progression to higher education. In addition, employers and professional bodies have been involved and consulted in order to confirm that the content is appropriate and consistent with current practice for learners planning to enter employment directly in the engineering sector.

## What progression opportunities does BTEC Engineering provide?

The qualification is recognised by higher education institutions as meeting admission requirements to many relevant courses in a variety of areas of the engineering sector, for example:

- BEng (Hons) in Engineering
- BEng (Hons) in Electronics Engineering
- BSc (Hons) in Computer Science
- BSc (Hons) in Mathematics

This qualification also supports progression to job opportunities in the engineering sector.

This qualification also supports those following an Apprenticeship in engineering who are looking to work and progress in the engineering sector in an Engineering Operative role.

**NB:** Students should always check the entry requirements for degree programmes with the specific higher education providers.

## Mandatory units include:

- **Engineering Principles**
- **Delivery of Engineering Processes Safely as a Team**
- **Engineering Product Design and Manufacture**
- **Applied Commercial and Quality Principles in Engineering**
- **A Specialist Engineering Project**
- **Microcontroller Systems for Engineers**
- **Calculus to Solve Engineering Problems**

In addition to these seven mandatory units, you will study a range of optional units. For more detailed information, please contact us.





# Cambridge Technical Level 3 Extended Diploma in IT

(Equivalent to three A Levels)

**Entry Requirements:** Grade A\*-C in GCSE English and Mathematics plus three other GCSE or equivalent qualifications.

## What are Cambridge Technical Extended Diplomas?

Cambridge Technicals are vocational qualifications that are designed to give you a work-focused alternative to A Levels. They've been designed to give you opportunities to demonstrate and develop the practical application of knowledge and understanding in the areas of work that appeal to you. This will enable you to develop your research skills as you work, both independently and with colleagues, to progress through your qualifications. The assessment for the qualifications is task-based, so you won't need to take exams to achieve Cambridge Technicals qualifications.

## Who are they for?

Cambridge Technicals are suitable for students aged 16+ who are at school or college. They are available at Level 3 at NUA, so you can follow on from your GCSEs.

## Why choose this qualification?

If you prefer to learn in a way that's practical and work-related, then Cambridge Technicals are ideal. The great thing about them is that they keep your options open — if you're not fully convinced that a vocational way of learning is right for you, Cambridge Technicals keep the door open for a move to higher education further down the line.

## Where can it lead?

Appropriate as part of a broad and balanced curriculum for access to further studies and/or training, with a key focus on graphics design, web development, animation, general purpose ICT applications and communication techniques.

## What progression opportunities to Cambridge Technicals provide?

The great thing about them is that they still give you a choice of opportunities once you've completed them.

The two choices open to you are:

1. Employment, where you can put your new practical skills towards generating an income
2. Degree level education is possible if you take the Level 3 qualifications because they have UCAS points.

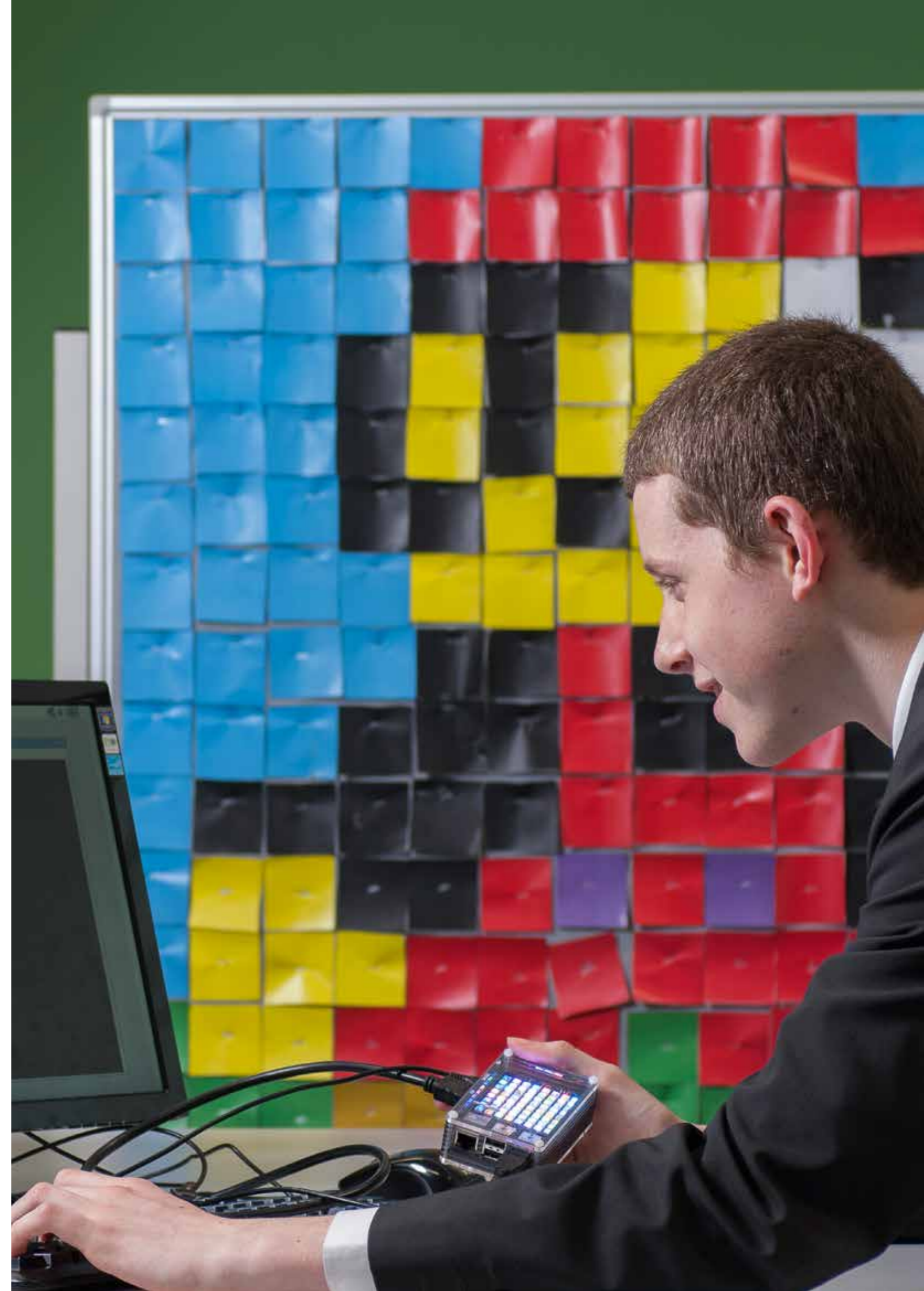
## Mandatory units include:

- **Fundamentals of IT**
- **Global Information**
- **Cyber Security**
- **Cloud Technology**

This innovative vocational course is delivered over 20 taught periods a week and is the equivalent of three A Levels.

During the course you will study 17 units, supported by industry partners, providing you with a comprehensive grounding in the working practices of an IT professional.

In the first year you will study the mandatory units and a number of optional units providing a wide range of skills, knowledge and understanding. The current cohort are engaging in the following units, however the combination is flexible and adaptable.







## Extended Project Qualification

AS Level (maximum 70 UCAS points, A\* available)

### What is the Extended Project Qualification (EPQ)?

Extended Project is an optional extra AS Level qualification which can be studied for one year, alongside your other A Level subjects. Extended Project puts you in control and gives you the chance to explore something that really interests you.

Success with this qualification depends on you being able to work independently as your teacher is only involved in the process as a mentor or coach.

You will choose a subject to explore in-depth, something that interests you, or that you might want to study at university or even pursue as a career.

You will choose one of four types of project to complete:

1. Write a dissertation
2. Produce an artefact, like a sculpture, model or DVD
3. Develop and showcase a performance
4. Conduct an investigation or field study

### How will it be assessed?

The EPQ is assessed by 100% coursework. You will choose, plan and manage a project to completion. You will learn how to apply project management skills such as planning and managing your time to achieve an extended, advanced long-term goal. The key to success is your ability to work independently.

The outcome could be a dissertation, report, artefact/design, event or performance of some kind. In addition, you will complete a detailed log documenting your journey.

### Where can it lead?

The EPQ is highly valued by both employers and higher education institutions. It demonstrates your ability to manage your own learning effectively. Not only can it give you a competitive edge in making applications to employment or higher education, you will also deepen your understanding in an area that really interests you, since you choose your topic.











# Tomorrow's Scientists and Engineers

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